



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF THE EIGHTH MEETING
OF THE MIDANPIRG ATM SUB-GROUP**

ATM SG/8

(Amman, Jordan, 7 – 10 November 2022)

The views expressed in this Report should be taken as those of the MIDANPIRG ATM Sub-Group and not of the Organization. This Report will, however, be submitted to the MIDANPIRG and any formal action taken will be published in due course as a Supplement to the Report.

Approved by the Meeting
and published by authority of the Secretary General

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PART I - HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The Eighth meeting of the MIDANPIRG Air Traffic Management Sub-Group (ATM SG/8) was kindly hosted by the Civil Aviation Regulatory Commission (CARC) – Jordan, at the Fairmont Amman Hotel, from 7 to 10 November 2022.

2. OPENING

2.1 The meeting was opened by Mr. Saleh Al Amoush, Deputy CEO of Civil Aviation Regulatory Commission (CARC) Jordan, who thanked ICAO for organizing this important meeting in Jordan and extended a warm welcome to all participants and wished them pleasant stay in Amman. Mr. Al Amoush highlighted that Jordan realizes the importance of these activities in supporting traffic growth as a result of sustainability through continuous improvement of safety, security, efficiency and environmental footprint and collaborative effort and cooperation at national, regional and global levels, particularly in terms of ICAO compliance.

2.2 In his opening address, Mr. Ahmad Amireh, Regional Officer, Air Traffic Management and Search and Rescue (RO/ATM/SAR), ICAO Middle East Office, Cairo, welcomed all the participants to Amman and highlighted the importance of the subjects addressed under the ATM SG and its subsidiary bodies. He expressed his gratitude and appreciation to His Excellency, Captain Haitham Misto, Chief Commissioner of CARC, Jordan for hosting the ATM SG/8 meeting in Amman. Mr. Amireh recalled that the ATM SG meetings were hosted by CARC for 3 consecutive times in Jordan; starting from SG/4 (Amman, 29 April – 2 May 2018), SG/5 (Aqaba, 1 – 4 December 2019) and this SG/8, (SG/6 and 7 were conducted virtually during COVID-19 era). Mr. Amireh also extended special thanks to the air navigation team for the preparation and facilitation of these meetings and for the excellent hospitality extended to the ICAO staff and all participants. He highlighted that CARC's support to the ICAO MID Regional Office activities is an evidence of its active role and reflects Jordan's commitment to enhancing the overall safety and efficiency of air navigation in the MID Region.

2.3 Mr. Amireh provided the meeting with an overview of the subjects that will be addressed during the meeting and highlighted the main expected outcomes of the meeting. Mr. Amireh indicated that the Agenda of the meeting includes the inter-regional issues related to the continuation of ATS routes and contingency planning. In this respect, he thanked the EuroControl, IATA and the MIDRMA for their attendance and active participation in the subjects of common interest by submitting working papers and presentations.

2.4 Mr. Amireh recalled the Terms of Reference of the ATM SG, related to the review and enhancement of the MID Region ATS Route network, to meet users' demand, and the availability of different routing options and alternates, including the contingency routes, to support the international traffic flows. He also highlighted the priority of other implementation that supports the overall enroute traffic operations, including ATFM, CMC/FUA and RVSM implementation.

2.5 In closing, Mr. Amireh thanked all the participants for their presence and appreciated the efforts made by the States who provided Presentations and Working Papers on the developments at National level during the last period and on the plans for the coming years. He wished the meeting every success in its deliberations.

3. ATTENDANCE

3.1 The meeting was attended by a total of sixty-four (64) participants from ten (10) States (Bahrain, Egypt, Iraq, Jordan, Oman, Qatar, Saudi Arabia, Sudan, UAE and Yemen) and three (3) Organizations (EUROCONTROL, IATA, and MIDRMA). The list of participants is at **Attachment A**.

4. OFFICERS AND SECRETARIAT

4.1 The meeting was chaired by Mr. Khaled Ahmed Arabiyat, Commissioner and ATM Director, Civil Aviation Regulatory Commission (CARC), Jordan.

4.2 Mr. Ahmad Amireh, Regional Officer, Air Traffic Management and Search and Rescue (RO/ATM/SAR) was the Secretary of the meeting, assisted by Mr. Ahmad Kavehfiroz, Regional Officer, Air Traffic Management (RO/ATM). Ms. Dina El Karimy provided the Technical Assistance.

5. LANGUAGE

5.1 Discussions were conducted in English and documentation was issued in English.

6. AGENDA

6.1 The following Agenda was adopted:

- Agenda Item 1: Adoption of the Provisional Agenda
- Agenda Item 2: Global and Regional Developments
- Agenda Item 3: Follow-up on MIDANPIRG/19 Conclusions and Decisions relevant to ATM/SAR
- Agenda Item 4: Planning and Implementation issues related to ATM/SAR
 - Updates from MID States on ATM/SAR Implementation
 - ATS Route Network, RDWG and ATS Route Catalogue
 - Regional Contingency plans
 - MID ATFM Plan (MID Doc 014)
 - FWC2022 progress
 - RVSM implementation and monitoring
 - Airspace users' perspective
 - Other ATM issues (CMC/FUA, MID Doc 004: HLAC, etc.)
 - SAR Implementation issues
- Agenda Item 5: MID Air Navigation Priorities and Targets related to ATM/SAR
- Agenda Item 6: Air Navigation Deficiencies in the ATM/SAR fields
- Agenda Item 7: Future Work Programme
- Agenda Item 8: Any other Business

7. CONCLUSIONS AND DECISIONS – DEFINITION

7.1 The MIDANPIRG records its actions in the form of Conclusions and Decisions with the following significance:

- a) **Conclusions** deal with matters that, according to the Group’s terms of reference, merit directly the attention of States, or on which further action will be initiated by the Secretary in accordance with established procedures; and
- b) **Decisions** relate solely to matters dealing with the internal working arrangements of the Group and its Sub-Groups.

8. LIST OF DRAFT CONCLUSIONS AND DECISIONS

<i>DRAFT CONCLUSION 8/1:</i>	<i>MID HIGH LEVEL AIRSPACE CONCEPT (V2.0)</i>
<i>DRAFT CONCLUSION 8/2:</i>	<i>MID REGIONAL ATM CONTINGENCY PLAN (V2.0)</i>
<i>DRAFT CONCLUSION 8/3:</i>	<i>PROPOSAL FOR AMENDMENT TO THE MID EANP VOLUME II, TABLE ATM II-MID-I: MID REGION ATS ROUTE NETWORK</i>
<i>DRAFT CONCLUSION 8/4:</i>	<i>SAR WORKSHOP</i>

PART II: REPORT ON AGENDA ITEMS**REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA**

1.1 The meeting reviewed and adopted the Provisional Agenda as at paragraph 6 of the History of the Meeting.

REPORT ON AGENDA ITEM 2: GLOBAL AND REGIONAL DEVELOPMENTS***Outcomes of the ICAO Assembly 41 and DGCA-MID/6***

2.1 The subject was addressed in PPT/2, presented by the Secretariat. The meeting noted a summary of the main outcomes of the 41st session of ICAO Assembly and the DGCA-MID/6 meeting (Abu Dhabi, UAE, 1-3 November 2022), items related to Safety, Capacity and Efficiency, Economic Developments, Environmental Protection, and highlights related to cross organizational implementations. The official reports of the events were not yet issued; the reports will be posted under ICAO webpages in due time.

**REPORT ON AGENDA ITEM 3: FOLLOW-UP ON MIDANPIRG/19 CONCLUSIONS AND DECISIONS
RELEVANT TO ATM/SAR**

3.1 The meeting noted the status of the MIDANPIRG/19 Conclusions and Decisions and the follow-up actions taken by States, the Secretariat and other parties concerned as at **Appendix 3A**. The meeting agreed also to review the Conclusions and Decisions, which are still current, under the associated Agenda Items with a view to propose to the MIDANPIRG/20 meeting (Planned in Oman, 14 – 18 May 2023) appropriate follow-up actions.

REPORT ON AGENDA ITEM 4: PLANNING AND IMPLEMENTATION SUBJECT RELATED TO ATM/SAR

MID Doc. 004: High Level Airspace Concept (HLAC)

- 4.1 The subject was addressed in WP/4, presented by the Secretariat.
- 4.2 The meeting highlighted the objective of the High Level Airspace Concept, which was to consolidate the ATM operational requirements agreed upon by MIDANPIRG, in order to provide a generic set of characteristics to be applied by States, which would support the harmonization of the ATM operations in the MID Region.
- 4.3 The meeting recalled the task assigned to the HLAC Action Group by MIDANPIRG Decision 19/20, which was to review and prepare a revised version of the MID Doc 004.
- 4.4 The meeting noted with appreciation the inputs and comments received from the Action Group members are consolidated in the revised version of the Doc 004, at **Appendix 4A**.
- 4.5 Accordingly, the meeting reviewed and agreed on the following Draft Conclusion:

DRAFT CONCLUSION 8/1: MID HIGH LEVEL AIRSPACE CONCEPT (V2.0)

*That, MID Doc 004, the MID High Level Airspace Concept (V2. 0 - November 2022) at **Appendix 4A** is endorsed and be published on the ICAO MID Website.*

MID Doc. 003: MID Region ATM Contingency Plan

- 4.6 The subject was addressed in WP/5, presented by the Secretariat.
- 4.7 The meeting highlighted the requirements of Annex 11 related to the contingency planning, on national and regional levels.
- 4.8 The meeting underlined that the regional contingency plan should not be considered as substitutional framework for national ATM contingency plan, and it does not supersede States' publications (AIP, NOTAMs, Safety advisories, bulletins, etc.).
- 4.9 The meeting recalled MIDANPIRG Decision 19/18:

MIDANPIRG DECISION 19/18: MID ATM CONTINGENCY PLANNING AD-HOC ACTION GROUP

That,

a) the MID ATM Contingency Planning Ad-hoc Action Group be established to carry out a comprehensive review of the MID Region ATM Contingency Plan (MID Doc 003), taking into considerations the lessons learnt from recent events; and

b) the MID ATM Contingency Planning Ad-hoc Action Group:

i. be composed of:

- the Chairpersons of the ATM SG;*
- Abdulla Al Qadhi (Bahrain);*

- Ehab Raslan (Egypt);
- Faisal Al Assosi (Kuwait);
- Nasser Salem Al Mazroee (Oman);
- Saleh Al Nesf (Qatar);
- Ahmad Abu Ghaleb (Saudi Arabia);
- Saqr Marashdah (UAE);
- Sharron Caunt (IATA); and
- ICAO MID Office (Secretariat).

- ii. present the revised version of the MID Region ATM Contingency Plan (MID Doc 003) to the ATM SG/8 for review and enhancement, before presentation to the MIDANPIRG/20 meeting for endorsement.

Note: Mr. Saleh Al Nesf was replaced by Ms. Nouf Al-Sheebi (Qatar).

4.10 The meeting noted that the inputs and comments received from the Contingency planning Ad-hoc Action Group members are consolidated at **Appendix 4B**.

4.11 IATA has additional complementary proposal to enhance Contingency Coordination Team (CCT) process and activities. In this respect, IATA was invited to share proposal with ICAO MID Office before 15 December 2022 to consolidate and finalize the draft and present it to MIDANPIRG/20 meeting for endorsement.

4.12 Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 8/2: MID REGIONAL ATM CONTINGENCY PLAN (V2.0)

That, MID Doc 003, the MID Regional ATM Contingency Plan (V2.0 - November 2022), at Appendix 4B is endorsed and be published on the ICAO MID Website.

4.13 The meeting also noted that the MID States ATM Contingency Focal points list at Appendix A of the MID Doc 003 should be updated by the relevant States. In addition, States are required to provide the ICAO MID Office with the updates to the status of their National Contingency Plan and Agreements at **Appendix 4C**.

MID ATS Route Network Table

4.14 The subject was addressed in WP/6, presented by the Secretariat.

4.15 The meeting recalled the discussion and outcomes of the ATM SG/7 under the same subject. The meeting noted that further process of the received data from States (remaining task at Appendix B of the ATM SG/7), the secretariat found that the majority of the received data were categorized in the following categories:

- a) States inputs which are not subject to any further objection by other State/Stakeholders.
These inputs are incorporated in **Appendix 4D**, to follow standard PfA process; or
- b) States requests or inputs which are subject to disagreement by other State/Stakeholders.
These inputs should be drafted as a separate PfA by relevant State(s); or
- c) States inputs which are subject to further technical discussion in **Appendix 4E**.
Should be referred to RDWG for discussion.

4.16 The meeting agreed that States that have not yet done so, are required to send their inputs in the ATS Route table to ICAO MID Office not later than 30 November 2022 to categorize States' requests in accordance with the categories stated above.

4.17 Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 8/3: PROPOSAL FOR AMENDMENT TO THE MID eANP VOLUME II, TABLE ATM II-MID-I: MID REGION ATS ROUTE NETWORK

That, the ICAO MID Office process the Draft Proposal for Amendment to the MID eANP Vol II, Table ATM II-MID-I, at Appendix 4D, in accordance with standard procedure.

4.18 The meeting reiterated that the MID RDWG/Route Catalogue is the main platform to address further ATS Route network improvements and encouraged MID States with the support of ICAO MID Office, to take action and follow up to removing the remaining challenges at **Appendix 4E**.

4.19 The meeting invited States to also consider the extension of the RNAV1 Route network currently established within Bahrain and Emirates FIRs to cover areas of traffic demand concentrations within the region and beyond.

4.20 The meeting noted IP/7 presented by EUROCONTROL on the issues reported on the interface between the MID and EUR/NAT Regions and highlighted the limitations on each interface FIR.

4.21 The meeting encouraged the concerned States to take appropriate actions to eliminate these issues/limitations.

Basic ATS Route Designator Management in the MID Region

4.22 The subject was addressed in WP/25, presented by Egypt and IP/8, presented by EUROCONTROL.

4.23 The meeting recalled the principles of ATS Route designators (Annex 11, Appendix 1).

4.24 The meeting agreed on the following specifications for regional ATS route:

- a) cross-bordered (at least initiate/terminate from FIR boundary);
- b) route designator shall be assigned in accordance with Annex 11, Appendix 1 and the ICAO Codes and Routes Database (ICARD) requirement; and
- c) published in ICAO Air Navigation Plan (ANP)- Middle East Region (Doc 9708), Volume II, Table ATM II-MID-1 MID Region ATS Route Network.

4.25 The meeting noted that the management of ATS routes designators is considered an effective step towards MID Region Airspace optimization.

4.26 The meeting noted with appreciation the completion of 32 routes designators alignment within Cairo FIR (32%), as a pilot project in the MID Region; and the plan to complete the remaining designators in coordination with the adjacent FIRs and ICAO MID Office.

RNAV5 Routes – Position sensors versus data provisions - EUROCONTROL

4.27 The subject was addressed in IP/8, submitted by EUROCONTROL.

4.28 The paper provided information on the general overview and references to existing ICAO provisions and publication requirements of area navigation route having a navigation specification of RNAV5, and the required infrastructure such as VOR/DME, DME/DME, INS or IRS and GNSS. Relevant comparison with and between requirement for Area Navigation Routes Data Provision as per Doc 10066 PANS-AIM, Appendix 1 - AIP Data Set and Appendix 2 - AIP were also presented.

4.29 Additionally, the meeting noted the RNAV 5 considerations within the EUROCONTROL, in particular to the RNAV 5 implementation considerations and NAVAID infrastructure, as well as a comparison between the different applicable references, and the need for harmonization.

Add T800 to MID Region ATS Network-ANP

4.30 The subject was addressed in WP/26, presented by Qatar.

4.31 The paper presented the benefits of the T800 and statistics of usage of T800.

4.32 The meeting recalled that in the ATM SG/7 meeting (Virtual, 15 – 18 November 2021), Bahrain, Iran and Qatar requested to include the Route T800 in the MID eANP VOL II, Table ATM II-MID-I; however, UAE objected to this proposal.

4.33 Since the Working Paper was submitted shortly before the ATM SG/8 meeting and this proposal has an impact on UAE operation, UAE will coordinate with Qatar regarding technical issues and mitigations for further actions.

The need for “Remote Continental Airspace” in MID PBN Plan

4.34 The subject was addressed in WP/27, presented by the Chairman of PBN Sub Group.

4.35 The meeting recalled the navigation specifications during en-route phase of flight, currently, RNAV10, RNP4 and RNP2. The applications of these specification rely primarily on GNSS to support the navigation element of the airspace concept and may require ATS surveillance for certain applications. In the absence of clear definition of the “Remote Continental areas”, it was generally recognized as the land far from the population and services as well as lack of ground-based NAVAIDs infrastructure to support the implementation.

4.36 The PBN SG proposed to remove the “Remote Continental Areas” from the MID PBN implementation Plan, as it is unlikely to exist within the Region. The ATM SG supports this proposal.

Progress related to CMC/FUA Action Group

4.37 The subject was addressed in WP/7, presented by the Secretariat.

4.38 The meeting recalled the release of ICAO Doc. 10088, and the task assigned to the CMC/FUA Action Group by MIDANPIRG Decision 19/19.

4.39 The meeting noted the progress related to the MID CMC/FUA Action Group.

4.40 The meeting agreed that the ICAO Doc. 10088 is sufficient for the MID Region to develop States National Civil and Military Cooperation and Flexible Use of Airspace procedures.

4.41 The meeting also agreed that the ICAO MID Office, in cooperation with the international ORGs, conducts a Seminar to raise awareness of all stakeholders regarding the CMC implementation in particular operations of due regard aircraft over high seas in line with “Article 3 d)” of the Chicago Convention. The Seminar will mainly support the implementation of Doc 10088 at National level and will address the challenges identified within the Region, including (but not limited to):

- State aircraft operations under Due Regard in particular over the high seas;
- CMC/FUA implementation;
- Drones-Airspace management applications;
- GNSS/GPS interference; and
- NMAC reports between Civil and Military aircraft.

MID Air Traffic Flow Management (ATFM) Plan

4.42 The subject was addressed in WP/9, presented by the Secretariat.

4.43 The meeting noted the endorsement of the ATFM Plan (V2.0) by MIDANPIRG/19 meeting through its Conclusion 19/14.

4.44 The meeting encouraged States to develop and implement the ATFM plan at National level, and reiterated that the MID Doc 014 includes guidance material for developing a National implementation plan (including National CONOPS and other pre-requisites for the implementation), and training requirements. The meeting highlighted that the implementation of Phase 1A of MID Doc 014 Part I Chapter 5 (planned to be completed by December 2023) will also support the States in meeting their obligations, and closing the related PQs in the new version of USOAP-CMA.

4.45 Moreover, the meeting highlighted that ICAO and the International Organizations would provide support, as appropriate, including the ATFM Workshop planned to be delivered during 2023 and the offer received from CANSO (IP/4 of this meeting refers).

4.46 Additionally, the meeting recalled the ATFM implementation by Qatar during the FIFA World Cup 2022 (PPT/10 of this meeting refers), and the development of its operating procedure based on the MID Region ATFM Plan. The FWC2022 ATFM training provided by Qatar was delivered to most of the MID States. An ATFM daily conference call is convened and the ATFM Daily Plan is developed and shared for the next day, with the participation of the MID States and Airspace users. The meeting noted the FWC2022 ATFM implementation would be beneficial for the future ATFM implementation in the Region, and invited States/ANSPs and Airspace users to participate in the daily conference calls.

4.47 The meeting reviewed the MID ATFM Implementation Plan at **Appendix 4F** and noted that the current activities will be focusing on capacity building and training activities, to ensure harmonized implementation.

4.48 The meeting noted the ATFM training/workshop planned in Q1/2023, organized by the MID Office, related to the implementation of Doc 014 and capacity calculations. The meeting encouraged States/ANSPs to actively participate in the planned workshop.

FWC2022 Progress

4.49 The subject was addressed in PPT/10 and PPT/28, presented by Secretariat on behalf of the FWC2022 Chairperson (Qatar) and Bahrain, respectively.

4.50 The meeting was apprised of the latest facts and forecasts statistics of the FWC2022 event, the developments on the ground and the expectations of the traffic movements.

4.51 The meeting recalled the history of establishment of the FWC2022 TF, to monitor the progress of the support to the FWC implementation within Qatar and within the Region, to accommodate the FWC related traffic demand in cooperative and collaborative manner and the composition of the TF. The meeting recalled the main tasks assigned to the FWC TF: the airspace structure enhancement and the FWC ATFM implementation.

4.52 The meeting noted with appreciation the completion of different airspace enhancements projects within the Region, including ATS Route structure enhancements in areas identified in the results of the MID RVSM Airspace assessment developed by the MIDRMA, including portions of Airspace / routes structure within Amman, Cairo, Emirates and Jeddah FIRs.

4.53 Additionally, the meeting noted with appreciation the preparation made by Bahrain for the FWC2022, including the distribution of the workload, Temporary amendment to traffic flow for OBXX departures arriving OTHH/OTBD, Temporary amendment to traffic flow for OTBD departures requesting FL400+, FLOW transparency, near boarder contingency Preparation.

4.54 The meeting noted with appreciation the completion of the enhanced airspace structure within Doha TMA (SIDs, STARs and parallel approaches), which significantly increased the capacity available within Doha TMA.

4.55 The meeting noted with appreciation the operation of Doha ATFM Unit, the implementation of daily conference calls, distribution of ATFM daily plan, and the efforts made by QCAA to deliver the required training to the MID States/ANSP and Airspace users on principles of ATFM and using Qatar ATFM Web Portal.

4.56 The meeting noted the FWC2022 actions at **Appendices 4G** and **4H**, respectively, and commended the efforts made by the FWC TF members including all MID States and Organizations, and encouraged the members to continue the support provided to the FWC2022 activities during the coming short period.

Progress Report on C-DEC 225/10: Implementation of Doha FIR/SRR

4.57 The subject was addressed in PPT/11, presented by Qatar.

4.58 The meeting recalled the 255th session of the ICAO Council (11 March 2022) agreed to proceed with the establishment of the Doha FIR/SRR on the basis of a phased approach.

4.59 The meeting recalled Qatar decision to implement Phase 1 in two sub-phases (Phase 1A and 1B). The implementation of Phase 1A started on 8 September 2022.

4.60 The meeting noted with appreciation the smooth and safe transition of operations, which was only possible with the coordination and collaboration of the adjacent States and ICAO MID.

4.61 The meeting noted the implementation of a well-organized approach within Qatar composed of different packages (Project management, recruitment and training, implementation plan, ATS Services provisions, etc), which enabled the publication of the aeronautical data and

implementation of a transition plan, based on the results of a safety assessment.

4.62 The meeting appreciated the collaboration of all stakeholders, including Bahrain, Iran, Saudi Arabia and UAE for their efforts and professionalism towards the implementation of the transition; and invited Qatar to review the Air Navigation Plan in order to consolidate necessary consequential amendments in coordination with the ICAO MID Office.

RVSM Implementation and Monitoring

4.63 The subject was addressed in WP/12, presented by the MIDRMA.

4.64 The meeting recalled MIDANPIRG/19 Conclusion, related to the development of SMR 2022.

4.65 The meeting reviewed the initial results of the MID RVSM Safety Monitoring Report (SMR 2022) at **Appendix 4I**.

4.66 The meeting noted that based on the data provided to the MIDRMA (TDS and LHDs), the Safety Objectives 1 and 3 continue to be met; however, the MID RVSM Airspace failed to meet Safety Objective No. 2. The value computed for the overall risk is estimated 1.724×10^{-7} , which is above the ICAO overall TLS of 5×10^{-9} . It was highlighted that the deterioration of the TLS (Safety Objective No. 2) is due mainly to an isolated incident.

4.67 The meeting noted with concern the magnitude and duration of the submitted LHD reports, which impacted the overall risk (Safety Objective 2). In particular, it was highlighted that the number of LHD reports submitted by Sana'a ACC, against Mogadishu continued to be very high.

4.68 In this respect, the meeting noted with concern that a non-RVSM approved IL76 Aircraft infringed the MID RVSM airspace within Sana'a FIR (transferred from Mogadishu without FPL and prior coordination at FL310) for a period of 3420 seconds.

4.69 The meeting noted that the initial investigation by Sana'a ACC showed that the main reasons which led to the incident are the followings:

- State/Military aircraft (type IL76) transferred by Mogadishu at an RVSM level;
- No FPL received by Sana'a ACC;
- No warning is available regarding the RVSM status of this IL76; and
- Sana'a ACC is providing ATS procedurally (non-radar).

4.70 The meeting agreed to the following mitigation measures:

- a) MIDRMA to open a safety protocol between Sana'a and Mogadishu, in coordination with the AFI RMA (ARMA), ICAO MID and ESAF Regional Offices.
- b) MIDRMA to provide necessary training and awareness to Yemen.
- c) States are urged to comply with the Minimum Monitoring Requirements (MMR).
- d) MIDRMA to improve the format and content of the Monthly Bulletin containing the List of Non-RVSM approved Aircraft; in particular by adding the information related to the State of Registry and Operators, as well as to add a warning on the types of aircraft with a high number of violations observed.

- e) The results of the investigation related to the IL76 incident should be shared and used as lesson learned to avoid similar cases being repeated in the future.
- f) MIDRMA to identify the areas where possible intruders might operate within the MID RVSM Airspace (including ACFT types, FIRs, interface, etc.).

4.71 The meeting noted with concern that Beirut and Tripoli FIRs were excluded from the SMR 2022 due to the non-provision of required data, while the data submitted by Kuwait was rejected due to many errors and missing flight records.

4.72 The meeting noted that the MIDRMA will continue working on the development of the final version of SMR 2022, until the end of the reporting cycle (31 December 2022).

4.73 The meeting noted that the safety protocol at Muscat/Mumbai FIRs boundaries is still opened, The MIDRMA continued to monitor the LHD reports at the eastern boundaries of Muscat FIR filed by Mumbai and Muscat ACCs and urged the concerned States to address the issues.

4.74 The meeting noted the meeting organized by the ICAO ESAF and MID Officers, attended by MIDRMA, Yemen and Addis Ababa ATCUs, to discuss the increased number of LHD reports filed by Sana'a ACC against its neighbouring FIRs. The meeting agreed to continue arranging further meetings and to coordinate with the relevant States to address this issue.

4.75 The meeting urged States to continue providing the MIDRMA with LHD reports of all categories on regular basis and the TDS data required for the development of the annual SMRs.

4.76 The meeting commended the continuous efforts made by Bahrain, Baghdad and Emirates FIR for providing the RVSM TDS Data on monthly basis, and the MIDRMA team for their continuous support.

Assessment of Non-RVSM Approved Aircraft 2022

4.77 The meeting noted that MIDANPIRG Conclusion 17/3 related to the procedures for the follow-up with States and the issuance of warning related to RVSM approved aircraft without valid height-keeping performance monitoring results.

4.78 The meeting noted with concern that a number of MID States with high number/percentage of the RVSM approved aircraft that are not compliant for long time of height monitoring according to ICAO Annex 6 part 1 requirements, as shown in the table below:

State	RVSM Approved A/C	Have results or Covered	Not Covered	Not Covered %	A/C MMR
Bahrain	62	62	0	0%	0
Egypt	151	125	26	18%	19
Iran	213	199	14	7%	12
Iraq	47	47	0	0%	0
Jordan	45	42	3	7%	3
KSA	281	229	52	19%	6
Kuwait	68	68	0	0%	0
Lebanon	32	28	4	13%	3
Libya	40	30	10	25%	8

Oman	74	73	1	1%	1
Qatar	276	276	0	0%	0
Sudan	15	11	4	27%	3
Syria	15	0	15	100%	9
UAE	580	548	33	6%	14
Yemen	6	4	2	33%	2
Total	1905	1742	164	9%	80

4.79 The meeting encouraged the relevant States to coordinate with the MIDRMA to cover the remaining aircraft monitoring.

RVSM Height Monitoring Activities Update

4.80 The meeting was apprised of the developments related to the height monitoring of the Syrian RVSM Approved Aircraft, and the request of the OFAC License from the FAA / US Department of Treasury for using the Enhanced GMU equipment to conduct RVSM height monitoring for the Syrian Aircraft.

4.81 The meeting noted the coordination with SCAA related to the issued waiver which will expire on December 2022, and the coordination through the MID Office with the FAA to follow-up on the subject.

4.82 The meeting noted with appreciation the conduct of height monitoring for 14 aircraft registered by the Libyan CAA which reduced the non-compliant percentage from 82% to 25%; however, there are 9 other aircraft that must be checked as soon as possible.

4.83 The meeting noted with appreciation the plan to conduct height monitoring of the remaining 12 RVSM approved aircraft registered by Iran and 4 aircraft registered by Sudan, by the end of November 2022, which will reflect Iran and Sudan to be fully compliant for RVSM height monitoring.

4.84 The meeting noted with concern the remaining 19 aircraft registered by Egypt, which have not been monitored for long period, and urged Egypt to coordinate with the MIDRMA to conduct the required height monitoring missions.

Use of ADS-B for Aircraft Height Monitoring

4.85 The subject was addressed in WP/13, presented by IATA.

4.86 The meeting recalled the discussion during the MIDRMA Board/18 meeting, in particular the operational benefits and the cost effectiveness of ADS-B implementation, and the availability of the required infrastructure within the region.

4.87 The meeting encouraged States to provide the ADS-B data to the MIDRMA to perform the required analysis for the RVSM height monitoring in accordance with the phased approach agreed by the MIDRMA Board/18 meeting (Doha, Qatar, 19 – 20 September 2022).

Other ATM issues: MID Region Longitudinal Separation Implementation

4.88 The subject was addressed in WP/14, presented by the Secretariat.

4.89 The meeting recalled MIDANPIRG/13 meeting, Conclusion 13/5 and encouraged MID States to implement 20 NM longitudinal separation and develop plans for further reduction of longitudinal separation from 20 NM to 10 NM.

4.90 The meeting noted that longitudinal separation is one of the key elements which has direct impact on the capacity of the MID airspace. However, there is no clear platform to receive, and process updated information from MID States.

4.91 The meeting agreed that ICAO MID Office use the excel file at **Appendix 4J** for aggregation of MID States' inputs for monitoring the status of reduction of longitudinal separation in the MID Region as well as assessing the progress of this objective by preparation of the required report to the ATM SG to identify any possible barrier/bottlenecks and the way forward. In this respect, the meeting invited States to complete the file and send it to the ICAO MID Office not later than 30 November 2022.

Other ATM issues: OLDI/AIDC Implementation Status and Needs

4.92 The subject was addressed in WP/15, presented by the Secretariat.

4.93 The meeting noted the CNS SG/11 meeting (Muscat, Oman, 16-19 May 2022) outcomes related to AIDC/OLDI implementation and urged States to implement AIDC/OLDI as per the applicability table at **Appendix 4K**.

4.94 The meeting noted the following challenges associated with AIDC/OLDI implementation in some of the MID States:

- a) no prior experience with OLDI/AIDC;
- b) system compatibility issues;
- c) OLDI version compatibility;
- d) development of the Concept of operation;
- e) training ATCOs and ATCAs;
- f) cybersecurity; and
- g) availability of communication links.

4.95 The meeting noted the status of AIDC implementation between Muscat and Mumbai.

4.96 Based on Oman's report, the AIDC testing is still ongoing to resolve the system technical issues with Mumbai. In this respect required coordination has been done to test this possibility at certain date in December 2022.

4.97 The meeting noted that ICAO will organize a Workshop on AIDC/OLDI in 2023 to provide a forum for sharing experience and knowledge. In this respect, the meeting urged States to actively participate in this Workshop and share experiences with other MID States.

4.98 The meeting noted that the implementation of AIDC/OLDI capability Priority 1 is one of the requirements of the MID States in the MID ANP Volume II. In this respect, the meeting urged States to review and update the list of AIDC/OLDI focal points at **Appendix 4L** as well as the status of AIDC/OLDI implementation in the MID Region at **Appendix 4K**.

Other ATM issues: SSR Code Management Plan Doc 005

4.99 The subject was addressed in WP/16, presented by the Secretariat.

4.100 The meeting noted that it is imperative that the MID SSR CMP list is kept up to date. States are therefore required to inform the ICAO MID Office promptly of any requests for changes, additions, or deletions in regard to the use of specific codes.

4.101 The meeting agreed to monitor the status of temporary reserved SSR Code. The available lists and correspondences are not clear, therefore the meeting agreed to use the following procedure and table in **Appendix 4M**:

- a) for temporary allocation of reserved SSR Code, State is required to request officially from ICAO MID.
- b) the temporary reserved SSR code will be assigned for the requesting State for the duration of six (6) months, unless otherwise stated; from date of allocation by ICAO MID. After this period, the allocated SSR code will be released for another usage unless the relevant State requests officially to extent duration of usage for another cycle or certain duration. In any case, this request shall be confirmed by ICAO MID Office.
- c) ICAO MID Office will keep updating **Appendix 4M** and provide the required report to ATM SG meeting.

4.102 The meeting also agreed to extend the validity of the current allocated reserved SSR codes until 30 January 2023. If a State needs to extend availability of the allocated reserved SSR code beyond 30 January 2023, State shall follow procedure in the paragraph above.

SAR Implementation Status

4.103 The subject was addressed in WP/17, presented by the Secretariat.

4.104 The meeting reviewed the SAR implementation in the MID States and noted the related challenges that were standing for long period.

4.105 The meeting encouraged States to actively participate in the SAR/GADSS training planned to be organized by the ICAO MID Office in 2023 to support States in the elimination of SAR findings and deficiencies.

4.106 Based on the above, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 8/4: SAR WORKSHOP

That, the ICAO MID Office organize a SAR Workshop in 2023, to address the challenges related to SAR in the MID Region.

4.107 The meeting reviewed the SAR Point of Contact details (COSPAS-SARSAT website: <http://www.cospas-sarsat.int/en/>), the MID Region SAR bilateral agreements and GADSS Focal Points list at **Appendices 4N** and **4O**, respectively, and invited MID States to provide updates, if there are any.

UAE SAR Update & Certification of SAR Service Providers within UAE

4.108 The subject was addressed in PPT/29, presented by UAE.

4.109 The meeting was apprised of the developments related to the SAR field within UAE; in particular the SAR Regulations (UAE CAR SAR) and the certification of SAR Providers, and the establishment of a dedicated National Search and Rescue Center (NSRC) that is in charge of providing SAR within Emirates SRR.

4.110 The meeting noted with appreciation the offer received from GCAA/UAE to host the SAR Workshop in 2023 to support SAR implementation within the MID Region, including the topics of establishing regulatory framework and oversight programme for Search and Rescue. The training details will be coordinated with the ICAO MID Office and will be communicated accordingly with the MID States.

4.111 The meeting encouraged the MID States and International organizations to participate in the SAR Workshop.

Updates from MID States on ATM/SAR Implementation

4.112 The subject was addressed in PPTs/18A – H, presented by Bahrain, Egypt, Iraq, Jordan, Saudi Arabia, Sudan, UAE and Yemen, respectively.

4.113 The meeting was apprised of the developments within Bahrain FIR, mainly the operations of the new ACC and the functions related to the new ATM automation system, including revised letters of Agreements, enhanced longitudinal separation, implementation of OLDI and new Voice Communication Switching System. The old system was refurbished and now is used for training/simulation and as a backup facility, while on-going projects are Tower simulator upgrade, ADS-B coverage project, OLDI implementation with Jeddah and Kuwait; and extension of RNAV1 ATS Routes within and beyond the MID Region.

4.114 The meeting was apprised of the developments within Cairo FIR, including an analytical study on the traffic movements and demand ATS Routes and ATC sectors within Cairo FIR, and the savings earnings of the ATS Route network within Cairo FIR and with Khartoum FIR which supported the traffic during FWC2022 and COP27. In addition to the achievements made related to the development of the National ATM Contingency plan and the future plans for implementation in line with the MID Air Navigation Strategy.

4.115 The meeting was apprised of the developments within Baghdad FIR, in terms of airspace and routes enhancements, including the establishment of DCT Routes and re-sectorization and the need to further communicate and coordinate with Turkey, for the eliminating the steep altitude restriction on the interface Entry/Exit points. In addition to the enhanced CNS infrastructure that supports wider communication and surveillance coverage and implementation of AMHS/OLDI. Iraq provided timelines for the development of national SAR plan and national ATM Contingency Plan.

4.116 The meeting was apprised of the developments within Amman FIR, mainly related to the segregation of traffic on the interface with Jeddah FIR, and the Project of Airspace modernization including the IFPs; in addition to the current status of LoAs and ATFM implementation and other ASBU implementations.

4.117 The meeting was apprised of the developments within Jeddah FIR, mainly related to the enhancement projects within Jeddah FIR, and the status of contingency planning, OLDI and SAR implementations, also statistical studies showing the traffic demand and the re-sectorization and CMC/FUA implementation to enhance the capacity to accommodate the demand. In addition, the

automation tool used for airspace reservation and booking tool. SANS (Saudi Air Navigation Services) also shared its experience in managing the internal task forces related to the different projects and e-Learning System in delivering and monitoring training for the technical staff.

4.118 The meeting was apprised of the developments within Sudan FIR to meet its obligations. Sudan has installed and maintains an integrated system of RADAR Stations, including a large number of ADS-B Stations all integrated with the ATC system. Upon completion of the installation, Sudan would be in a position to share the surveillance data extracted with all neighboring Countries to ensure seamless air traffic flow in the Region and thus enhance aviation safety. The SCAA has also established a mechanism for incident investigation that would enable it to identify potential sources of hazard and thus mitigate the risk before it results in a major incident or accident. With respect to Search and Rescue (SAR), qualified SAR Teams have been established and deployed in all Centres. SAR agreements were signed with all concerned parties within Sudan and proposals for Regional SAR agreement have been submitted to the neighboring States for consideration.

4.119 The meeting was apprised of the developments within Emirates FIR, mainly related to the traffic exchange and longitudinal separation with Bahrain, Doha and Jeddah FIRs and the preparations for the FWC2022; also the ADS-B mandate; in addition to the future plans related to the establishment of Free Route Airspace FRA within Emirates FIR above FL350.

4.120 The meeting was apprised of the developments within Sana'a FIR, mainly related to the establishment of ATS Routes and the continued issue of LHD Reporting with the States within the Horn of Africa.

4.121 The meeting invited the participating States to conduct side meetings with their adjacent States to address the common issues and the LoA and invited the ICAO MID Office to support in addressing the common challenges and issues faced by the MID States.

4.122 The meeting noted with appreciation the efforts made by all MID States to enhance the ATM system within the Region.

REPORT ON AGENDA ITEM 5: MID AIR NAVIGATION STRATEGY
MID Air Navigation Strategy Priorities related to ATM/SAR

- 5.1 The subject was addressed in WP/19, presented by the Secretariat.
- 5.2 The meeting reviewed the current status of implementation of Priority 1 ASBU Threads and elements, at **Appendix 5A**.
- 5.3 The meeting recalled the MIDANPIRG/19 Conclusion 19/6:
- MIDANPIRG CONCLUSION 19/6: WEB-BASED MID REGION AIR NAVIGATION REPORT (2022)*
- That,*
- a) *States be urged to provide the ICAO MID Office with:*
- i) *relevant data necessary for the development of the MID Region Air Navigation Report (2022) (Status of ASBU Implementation), by 1 December 2022;*
- ii) *the data necessary for the measurement of the KPIs (01, 02, 13 and 14) for the period June & July 2022, by the 1 October 2022; and*
- b) *the MID Air Navigation Report (2022) be presented to the MIDANPIRG/20 for endorsement.*
- 5.4 The meeting encouraged States to review and update the status of implementation and urged them to provide the necessary data required for the development of the MID Air Navigation Report-2022, before 1 December 2022.
- 5.5 The meeting was apprised of the States' inputs related to the measurements of the MID Region list of KPIs, and noted that, up to date, the inputs have been provided by four (4) States, representing 27%, namely Bahrain, Qatar, Saudi Arabia and UAE. The data covered eight (8) out of 57 international aerodromes in the MID Region, representing 14% (OBBI, OTBD, OTHH, OEDF, OEJN, OEMA, OERK and OMDB), as shown in in **Appendix 5B**.
- 5.6 The meeting reviewed the received results of measurement of KPIs (01, 02, 13 & 14) as at **Appendix 5C**, and highlighted the following:
- a) KPI 01 Regional Departure punctuality:
The States' reports show the percentage of departure punctuality in Bahrain: 79.55%, Qatar: 59.57%, Saudi Arabia: 82.69% and UAE: 67.64%.
- b) KPI 14 Regional Arrival punctuality:
The State's reports show the percentage of arrival punctuality in Bahrain: 46.51%, Qatar: 50.61%, Saudi Arabia: 24.20% and UAE: 50.55%.
- c) KPI 02 Regional Taxi-out Additional Time:
The State's reports show the average Taxi-out Additional Time in Bahrain: 1.01, Qatar: 10.29, Saudi Arabia: 12.78 and UAE: 2.66 minutes per flight.
- d) KPI 13 Regional Taxi-in Additional Time:
The State's reports show the average Taxi-in Additional Time in Bahrain: 0.33, Qatar: 1.21, Saudi Arabia: 7.13 and UAE: 1.16 minutes per flight.

5.7 The meeting recalled the importance of providing Traffic Data for the months of June and July 2021 for each of the International Aerodromes (AOP-1 Table), in order for the ICAO MID Office to be able to aggregate the KPIs at National level and then at Regional level. In addition, the meeting underlined that in the aggregation of the KPIs at the National level, some States used just an average of the KPI calculated for each Aerodrome; however, it is important to use weight factors based on the volume of traffic movements in each aerodrome.

5.8 The meeting urged States to provide the data required for the development of the Air Navigation Report 2022, before 1st December 2022; including the data required for the measurement of the agreed list of KPIs, in order to allow the MID Office to consolidate all inputs to be included in the Report.

5.9 The meeting noted the challenges faced by some States to collect and measure the set of MID KPIs, as it involves significant workload for the manual collection and analysis. The meeting highlighted the upcoming GANP / NANP Workshop planned in Q1 2023, related to the new version of GANP 7th edition including KPIs; accordingly, the meeting agreed to review the agreed set of KPIs to be measured for the MID Region considering the States capability of collecting the Data.

REPORT ON AGENDA ITEM 6: AIR NAVIGATION DEFICIENCIES IN THE ATM/SAR FIELDS*Air Navigation Deficiencies in the ATM and SAR fields*

6.1 The subject was addressed in WP/20, presented by the Secretariat.

6.2 It was highlighted that in the ATM field, most of the deficiencies are related to the non-implementation of regional ATS Routes, uncompleted signature of contingency agreements and unsatisfactory reporting of data to MIDRMA. In the SAR field, the deficiencies are related mainly to the lack of implementation of SAR provisions and non-compliance with the carriage of Emergency Locator Transmitter (ELT) requirements.

6.3 The meeting reviewed the list of deficiencies in the ATM and SAR fields as at **Appendices 6A** and **6B**, respectively, and urged States to take necessary measures to implement the provisions of the MIDANPIRG/15 Conclusion 15/35, in particular the submission of a specific Corrective Action Plan (CAP) for each deficiency and update the status accordingly.

MIDANPIRG Deficiencies Management Process

6.4 The meeting noted that the MIDANPIRG/19 meeting discussed the proposal of the concerning a MID Air Navigation Deficiencies Management Process (MID AND-MP) as at **Appendix 6C** and agreed that all MIDANPIRG Sub-Groups need to study the proposal and provide their feedback in order for the ICAO MID Office to provide the MIDANPIRG/20 meeting with a consolidated proposal on the subject.

6.5 The meeting agreed that States should review the proposed MID Air Navigation Deficiencies Management Process (MID AND-MP) and report their recommendations to the secretariat. ATM SG Chairman and the Secretariat will review and study the recommendations and consolidate a proposal on the subject.

6.6 The meeting agreed to conduct a holistic review of the MIDANPIRG deficiencies management including the definitions and the process, in light of the global development in this regard.

REPORT ON AGENDA ITEM 7: FUTURE WORK PROGRAMME
Revision of Terms of Reference (ToRs) of the ATM SG, ATFM and FWC2022 TFs

- 7.1 The subject was addressed in WP/21, presented by the Secretariat.
- 7.2 The meeting reviewed the latest version of the ATM SG ToRs at **Appendix 7A**, and agreed that they are still current.
- 7.3 The meeting reviewed and updated the Terms of Reference (ToRs) of the ATFM and FWC 2022 TFs, at **Appendices 7B** and **7C**.

Working Arrangements and Future Work Programme

- 7.4 The subject was addressed in WP/22, presented by the Secretariat.
- 7.5 The meeting noted that Mr. Khalid Arabiyat, Director Air Traffic Management, Civil Aviation Regulatory Commission, Jordan, has been serving as the Chairperson of the ATM Sub-Group since the ATM SG/5 meeting (Aqaba, Jordan, 1 – 4 December 2019).
- 7.6 The meeting also noted that Mr. Ahmed Mohammed Al-Eshaq, Director Air Navigation, Civil Aviation Authority, Qatar, had been elected as Vice-Chairperson during ATM SG/3 meeting (Cairo, Egypt, 22 – 25 May 2017).
- 7.7 The meeting highlighted the MIDANPIRG Procedural Handbook, Part IV, Section 6 related to the election of Chairpersons. The meeting recalled the decision of the last ATM SG meeting to maintain the same Chairpersons for one more term/meeting and agreed to include the election of Chairpersons in the agenda of the next ATM SG meeting.
- 7.8 The meeting decided to maintain the same Chairpersons for another meeting, to complete the cycle of 3 meetings in-person (physical).
- 7.9 The meeting recalled MIDANPIRG/18 Decision 18/49 related to the Frequency of the meetings on annual basis.
- 7.10 Taking into consideration the planned ICAO MID Regional events which are of relevance to the activity of the ATM Sub-Group, as follows:

Tentative Date	Regional event	Venue	Remarks
25 – 26 January 2023	MID FPP SC/3 meeting	Virtual	
8 – 9 February	FWC 2022 TF/8	Doha	
	ATFM TF/7		
28 Feb – 2 March	Civil-Military Cooperation Workshop	TBD	

5 – 8 March	GANP & NANP Workshop	Cairo	
14 – 18 May	MIDANPIRG/20	Muscat	
13 – 15 June	SAR Workshop	TBD	
9 – 11 July	Contingency Planning Workshop	TBD	
9 – 10 October	MID RVSM Seminar	Bahrain	
11 – 12 October	MIDRMA Board/19		

7.11 The meeting agreed that the ATM SG/9 meeting be held from 13 – 16 November 2023. The meeting noted with appreciation the generous tentative offer received from Egypt to host the ATM SG/9 meeting and Civil-Military Cooperation Workshop. The exact venue will be communicated with the SG members in due time.

REPORT ON AGENDA ITEM 8: ANY OTHER BUSINESS***MID FPP Project Updates and Activities***

8.1 The subject was addressed in WP/23, presented by the Secretariat.

8.2 The meeting was apprised of the latest developments related to the establishment of the MID FPP.

8.3 The meeting re-iterated that the MID Flight Procedure Programme (MID FPP) is the optimal solution that would support States to develop sustainable capability in the Instrument Flight Procedures (IFP) design, PBN airspace concepts and PBN OPS approval, including regulatory oversight. The MID FPP would also support States to overcome most of the identified challenges, which will foster the PBN implementation, and to meet their commitments under Assembly Resolutions A37-11 for Performance Based Navigation (PBN) implementation and the regional requirements, and comply with ICAO provisions related to flight procedure design and PBN. The meeting highlighted the participation categories (Active State, User State, Donors). Accordingly, the meeting urged States to join the MID FPP through the signature of the MID FPP ProDoc, if they have not yet done so.

8.4 The SC/2 meeting noted with appreciation the generous offers (in-kind contribution) from GCAA UAE by donating to the MID FPP two (2) seats for PANS-OPS training course (Modules 1 and 2) and from the Global Air Navigation Services-UAE (GANS) two (2) seats in a PANS-OPS basic training course (6 weeks). In addition, the meeting noted that MID FPP has leveraged the collaboration and sharing experience with the APAC FPP and set up a package of four (4) PANS OPS modules to be provided as virtual classes for MID States.

8.5 The meeting noted the main activities conducted by the MID FPP during the year 2022, include the followings:

- Workshops: A Workshop on the Continuous Climb Operations (CCO) / Continuous Descent Operations (CDO) Implementation was successfully held in Abu Dhabi, UAE, 13 - 14 June 2022.
- Training Courses: PANS-OPS Flight Procedure Design Courses Module I (4 weeks) and Module II (3 weeks) held from 18 July to 2 September at the Sheikh Zayed Centre – Abu Dhabi, UAE.
- Projects: A project for analysis, design, and validation of four (4) RNAV1 parallel routes within Kuwait FIR is ongoing.

8.6 The meeting noted with appreciation the establishment of the MID FPP Pool of experts nominated by States to provide technical support for the implementation of the MID FPP Work Plan; and encouraged the States and international organizations to nominate qualified Subject Matter Experts (SMEs) to further support the programme and its objectives.

8.7 The meeting noted the establishment of the MID FPP funding Mechanism, which was agreed by the DGCA MID/6 meeting (Abu Dhabi, UAE, 1 – 3 November 2022).

8.8 The meeting encouraged States to join the MID FPP through the signature of the MID FPP ProDoc as active States, and to further support the MID FPP with nomination of Subject Matter Experts (SMEs) to the pool of experts.

PBN SG Outcomes: Revised MID Region PBN Implementation Plan (MID Doc 007)

8.9 The subject was addressed in WP/24, presented by the Chairman of the PBN SG.

8.10 The meeting noted that the PBN SG/6 meeting (10 – 11 November 2021) reviewed the current version of the MID Region PBN Implementation Plan and identified the necessary changes/updates and recognized that the MID Region PBN Implementation Plan should be constantly updated and refined throughout the implementation process in order to keep pace with changes in MID Region Air Navigation Strategy (MID Doc 002) and to ensure alignment with the GANP.

8.11 The meeting noted also that the PBN SG/6 meeting, through Draft Decision 6/3, agreed that an Ad-hoc Working Group be established (including ATM expertise) to review the MID Region PBN Implementation Plan and develop a revised version for submission to the MIDANPIRG/20 meeting for endorsement, to keep pace with the developments, including the GANP 6th Edition and the MID Region Air Navigation Strategy (MID Doc 002, Edition April 2021).

8.12 The meeting reviewed the outcomes of the Ad-Hoc Working Group, mainly related to the implementation phases and targets of each PBN navigation specification in the MID Region as at Table 3-2 of Doc 007 at **Appendix 8A**.

8.13 The meeting noted and agreed on the short and medium-to-long-term PBN plans for the enroute phase of flight (Ref Table 3-2 of Doc 007 at **Appendix 8A** and WP/27).

Callsign Confusion – Alpha Numeric Callsign

8.14 The subject was addressed in IP/3, submitted by IATA.

8.15 The paper provided information on the Call Sign Confusion and need for the mechanism to de-conflict the similarities, and encouraged the remaining States, which have not yet done so, to support the Alphanumeric Callsign initiatives.

CANSO Air Traffic Flow Management (ATFM) Data Exchange Network for Cooperative Excellence (CADENCE)

8.16 The subject was addressed in IP/4, submitted by CANSO.

8.17 The paper provided information on the Operational Information System developed by CANSO and the offer provided to conduct a voluntary, non-obligatory cross boundary system trial for proof of concept in the Region to the ATM SG members.

ATM AIMing for Collaboration

8.18 The subject was addressed in IP/5, submitted by IATA.

8.19 The paper highlighted the criticality of accessing timely, accurate, and high-quality Aeronautical Information to enable safe and efficient flight operations and referred to existing ICAO provisions and publication requirements with regard to roles and responsibilities of the aeronautical data chain participants (including ATM) as well as standards and recommended practices relating to the publication of aeronautical information.

8.20 Effective management, publication, and implementation of Aeronautical Information is ensured through a symbiotic relationship between Air Traffic Management as data originator and Aeronautical Information Service (AIS) provider as data publisher. This relationship is crucial to eliminate deficiencies and producing timely, high, quality, and fit for purpose aeronautical information that enables the air navigation system.

8.21 States are invited to establish a mechanism for the timely publication and updating of ATM related/originated aeronautical information and establishing service level agreements between ATM aeronautical information originators and the aeronautical information service provider.

5LNC Workshop Conclusions

8.22 The subject was addressed in IP/6, submitted by EUROCONTROL.

8.23 The paper provided information on the outcomes of the 5LNC Workshop outcomes (Brussels, 15 – 16 September 2022) related to the use of Five-Alpha Numeric Name-Codes (5ANNC) and on issues related to use of ICARD & Five-Letter Name-Codes (5LNCs).

8.24 The Workshop clarified that the ICAO Annex 11 provisions in 2.15 (Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight) should not be interpreted in a way that would allow the use of 5ANNCs (in Approach and Terminal Areas) for Air Traffic Control Services.

Airspace Interface between ICAO MID Region – EUROCONTROL

8.25 The subject was addressed in IP/7 submitted by EUROCONTROL.

8.26 The paper provided information on the airspace design and utilization situation at the interfaces between the two ICAO Regions. The existing closures and warning at European airspace and adjacent areas was presented as of 4 NOV 2022 focusing on interface areas with Cairo FIR, Amman FIR, Beirut FIR, Damascus FIR, Baghdad FIR and Tehran FIR. In general, no airspace design and utilization issues were encountered and information for implementations of FRA in Greece and Cyprus, as of 23 March 2023, was also provided. Airspace developments between Tel Aviv FIR and Amman FIR were highlighted as the most important ones for the two ICAO Regions. Additionally, it was stated that for FWC2022 ATS routes within Tel Aviv FIR will be available H24 from 10 NOV 2022 till 25 DEC 2022 with very short break on 30 NOV 2022.

8.27 EUROCONTROL also highlighted that better and equal traffic distribution over KABAN and NINVA, between Ankara FIR and Baghdad FIR, can be achieved as well as that existing TOS in Tehran FIR might be reconsidered due to low traffic demand at that interface with Ankara FIR.

8.28 EUROCONTROL also presented for information and possible coherence with ICAO MID Catalogue, existing interface airspace improvement proposals included in ICAO EUR RDGE Route Catalogue. Currently 13 proposals exist requiring further reconsideration by the States concerned and possible adaptation or implementation. ICAO EUR Route Catalogues is available under the secure link: https://ext.eurocontrol.int/ernip_database/Index.action; the login credentials can be requested via official email.

APPENDICES

FOLLOW-UP ON MIDANPIRG/19 CONCLUSIONS & DECISIONS

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
C. 19/1	<p>MID RVSM SMR 2021</p> <p>That, the MID RVSM Safety Monitoring Report (SMR) 2021 at Appendix 3.3A, is endorsed.</p>	RVSM Safety monitoring report	SMR2021	MIDRMA/States	2022	Completed (to be closed)
C. 19/2	<p>MID RVSM SMR 2022</p> <p>That,</p> <p>a) States are required to provide the FPL/traffic data for the period 1 June until 30 June 2022 and LHD data for the period 1 January to 31 December 2022 to the MIDRMA before 1 August 2022, for the development of the MID RVSM Safety Monitoring Report (SMR 2022);</p> <p>b) Bahrain, Iran, Iraq, Kuwait, Oman, Saudi Arabia and UAE, are urged to provide the FPL/traffic data for the period 1 – 30 November and 1 – 31 December 2022 to the MIDRMA before 31 January 2023 for measuring the ICAO RVSM TLS (Technical and Overall) during the FWC 2022 event; the remaining States are strongly encouraged to provide the FPL/traffic to the MIDRMA for the same period (months of November and December 2022).</p> <p>c) only the appropriate Flight Data form, available on the MIDRMA website (www.midrma.com), should be used for the provision of FPL/traffic data to the MIDRMA; and</p> <p>d) the final version of the MID RVSM SMR 2022 be ready for presentation to and endorsement by the MIDANPIRG/20 meeting..</p>	RVSM Safety monitoring report	SMR2022	MIDRMA/States	2023	<p>On-going</p> <p>The subject will be addressed in WP/12</p>

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
C. 19/6	<p>WEB-BASED MID REGION AIR NAVIGATION REPORT (2022)</p> <p>That,</p> <p>a) States be urged to provide the ICAO MID Office with:</p> <p>i) relevant data necessary for the development of the MID Region Air Navigation Report (2022) (Status of ASBU Implementation), by 1 December 2022;</p> <p>ii) the data necessary for the measurement of the KPIs (01, 02, 13 and 14) for the period June & July 2022, by the 1 October 2022; and</p> <p>b) the MID Air Navigation Report (2022) be presented to the MIDANPIRG/20 for endorsement.</p>	<p>Monitoring and Reporting of ASBU implementation in the MID Region</p>	<p>State Letter</p> <p>Data for AN Report 2022</p> <p>Air Navigation Report (2022)</p>	<p>ICAO States</p>	<p>Dec. 2022</p>	<p>On-going</p> <p>The subject will be addressed in WP/19</p>
C. 19/10	<p>CONDUCT OF A WORKSHOP ON CCO/CDO IMPLEMENTATION IN 2022</p> <p>That,</p> <p>a) a Workshop on CCO/CDO implementation be organized in 2022, in collaboration with MID FPP, to provide necessary knowledge about the ICAO provisions on the subject and share experience and best practices on CCO/CDO implementation by States/Airspace users; and</p> <p>b) States and International Organizations are strongly encouraged to participate actively in this Workshop.</p>	<p>Increase the level of implementation of CCO/CDO within the MID Region</p>	<p>Workshop</p>	<p>ICAO MID, MIDFPP, MID States</p>	<p>2022</p>	<p>Completed (to be closed)</p>
D. 19/11	<p>ESTABLISHMENT OF CCO/CDO AD HOC WORKING GROUP</p> <p>That, a CCO/CDO Ad Hoc Working Group:</p> <p>a) be established to develop guidance related to the publication of CCO/CDO information (text and Charts) in the AIP, in coordination with the relevant MIDANPIRG and RASG MID subsidiary bodies.</p>	<p>Support the CCO/CDO implementation within the MID Region</p>	<p>Guidance material</p>	<p>Ad-Hoc working group</p>	<p>2022</p>	<p>On-going</p> <p>the group met and developed draft material to be presented to the assigned SGs</p>

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
	<p>b) be composed of:</p> <ul style="list-style-type: none"> - Chairpersons of the PBN SG*, AIM SG and ATM SG - Mrs. Sheila Brizo, (QCAA Qatar) - Mrs. Lindi-Lee Kirkman (IATA) - Mr. Muhammad Al Juhani (Saudi Arabia) - Secretariat <p>c) present their outcome during the AIM SG/8 and PBN SG/7 meeting.</p> <p>* the rapporteur of the group is the Chairman of the PBN SGs.</p>					
D. 19/12	<p>ESTABLISHMENT OF THE MID REGION PBN IMPLEMENTATION PLAN AD HOC WORKING GROUP (PBN IP AD-HOC WG)</p> <p>That, the PBN Implementation Plan Ad Hoc Working Group:</p> <p>a) be established to review the MID Region PBN Implementation Plan (MID Doc 007) and develop a revised version for review by the PBN SG/7 meeting and to the MIDANPIRG/20 meeting for subsequent endorsement, to keep pace with the developments, including the GANP 6th Edition and the MID Region Air Navigation Strategy (MID Doc 002, Edition February 2021); and</p> <p>b) be composed of:</p> <ul style="list-style-type: none"> - Chairpersons of the PBN SG* and ATM SG - Mr. Saqr Al Marashda (GCAA UAE) - Mr. Hamed Al Zubaidi (GCAA UAE) - Mr. Ahmed Al Shehhi (GCAA UAE) - Mr. Muhammad Al Juhani (Saudi Arabia) - Secretariat <p>* the rapporteur of the group is the Chairman of the PBN SG.</p>	To enhance the PBN implementation within the MID Region	Revised Plan	PBN IP Ad-Hoc WG	2022	<p>On-going</p> <p>The subject will be addressed in WP/27</p>

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
C. 19/13	<p>PROPOSAL FOR AMENDMENT TO THE MID eANP VOLUME II, TABLE ATM II-MID-I: MID REGION ATS ROUTE NETWORK</p> <p>That, the ICAO MID Office process the proposal for amendment to the MID eANP VOL II, Table ATM II-MID-I, at Appendix 5.7A, in accordance with standard procedure.</p>	Updated information in ATS Route table	ANP Vol II ATM II-MID1 table	MID States	2022	<p>On-going</p> <p>Part of the ATS Route table has been updated and circulated to the States (ref SL: Dated).</p> <p>Remining parts are still under process.</p> <p>The subject will be addressed in WP/6</p>
C. 19/14	<p>MID ATFM PLAN (V2.0)</p> <p>That, the MID Doc 014 renamed as MID Region Air Traffic Flow Management Plan (V2.0), is endorsed and be published on the ICAO MID website.</p>	Support a harmonized implementation of ATFM within the Region	MID ATFM Plan	ICAO MID	2022	<p>Completed (to be closed)</p> <p>MID Doc 014 V2.0 is posted</p>
C. 19/15	<p>TERMS OF REFERENCE OF THE ATFM TF</p> <p>That, the Terms of Reference of the ATFM TF be updated as at Appendix 5.7B.</p>					<p>Completed (to be closed)</p> <p>Terms of Reference of the ATFM TF are included in the MIDANPIRG handbook Version February 2022</p>
C. 19/16	<p>ATFM IMPLEMENTATION</p> <p>That,</p> <p>a) States be urged to take necessary measures to establish ATFM service in accordance with the MID Region ATFM Plan taking into consideration the available relevant guidance materials, and the willingness of ICAO and International organization to provide support as appropriate; and</p> <p>b) ATFM TF be tasked to:</p>					<p>On-going</p> <p>the subject will be discussed in WP/9</p>

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
	<ul style="list-style-type: none"> i. assess the available opportunities for the exchange of information and propose a way forward to the ATM SG; ii. develop a checklist for ATFM service implementation assessment and monitoring (regulation, declared capacity, organizational ATFM structure, procedure for information sharing, etc). 					
D. 19/17	<p>TERMS OF REFERENCE OF THE FWC 2022 TF</p> <p>That, the Terms of Reference of the FWC 2022 TF be updated, as at Appendix 5.</p>					Completed (to be closed)
D. 19/18	<p>MID ATM CONTINGENCY PLANNING AD-HOC ACTION GROUP</p> <p>That,</p> <ul style="list-style-type: none"> a) the MID ATM Contingency Planning Ad-hoc Action Group be established to carry out a comprehensive review of the MID Region ATM Contingency Plan (MID Doc 003), taking into considerations the lessons learnt from recent events; and b) the MID ATM Contingency Planning Ad-hoc Action Group: <ul style="list-style-type: none"> i. be composed of: <ul style="list-style-type: none"> - the Chairpersons of the ATM SG; - Abdulla Al Qadhi (Bahrain); - Ahmad Abu Ghaleb (Saudi Arabia); - Sharron Caunt (IATA); - Faisal Al Assosi (Kuwait); - Ehab Raslan (Egypt); - Saleh Al Nesf (Qatar); - Nasser Salem Al Mazroe (Oman); - Saqr Marashdah (UAE), and - ICAO MID Office (Secretariat). ii. present the revised version of the MID Region ATM Contingency Plan (MID Doc 003) to the ATM SG/8 for 	Support the ATM Contingency Planning within the MID Region	Revised version of MID Doc 003	ICAOMID, MID States	2022	On-going The subject will be addressed in WP/5

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
	review and enhancement, before presentation to the MIDANPIRG/20 meeting for endorsement.					
D. 19/19	<p>MID CMC/FUA ACTION GROUP</p> <p>That,</p> <p>a) the MID CMC/FUA Action Group develop region specific complementary procedures for ICAO Doc. 10088, in order to ensure that the regional requirements related to Civil Military Cooperation and implementation of FUA Concept are addressed, including State aircraft operations under Due Regard in particular over the high seas, are covered;</p> <p>b) the outcome of the MID CMC/FUA AG, be presented to ATM SG/8 meeting, for review.</p>	Develop a regional guidance material	Guidance material	CMC/FUA Action group	2022	<p>On-going</p> <p>the subject will be addressed in WP/7</p>
D. 19/20	<p>HIGH LEVEL AIRSPACE CONCEPT ACTION GROUP (HLAC AG)</p> <p>That, the High Level Airspace Concept Action Group (HLAC AG), composed of the ATM Focal Points from Bahrain, Egypt, Jordan, Oman, Saudi Arabia, UAE, IATA and ICAO MID, be established to review and prepare a revised version of the MID Region High Level Airspace Concept (MID Doc 004), by 30 September 2022, for presentation to the ATM SG/8 meeting and endorsement by the MIDANPIRG/20 meeting.</p>	Ensure all MIDANPIRG enforced outcomes are consolidated in one document	Revised version of MID Doc 004: HLAC	Action group	2022	<p>On-going</p> <p>The subject will be addressed in WP/4</p>
D. 19/27	<p>NEW EDITION OF THE MIDANPIRG PROCEDURAL HANDBOOK</p> <p>That, the new Edition of the MIDANPIRG Procedural Handbook is endorsed and be posted by the ICAO MID Office on the website. using the template at Appendix 5.2K.</p>	Ensure the handbook is meeting the current working arrangements	Revised version of the Handbook	MID States	2022	<p>Completed (to be closed)</p>

INTERNATIONAL CIVIL AVIATION ORGANIZATION



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**MIDDLE EAST AIR NAVIGATION PLANNING
AND IMPLEMENTATION REGIONAL GROUP
(MIDANPIRG)**

**MID REGION
HIGH LEVEL AIRSPACE CONCEPT**

EDITION JUNE, 2015 2020 Version 2.0 (Draft) Oct 20212

This concept was developed by the ICAO MID ATM SG.

Approved by MIDANPIRG/xx20 and published by the
ICAO MID Office, Cairo

~~The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontier or boundaries.~~

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1. GLOSSARY

1.1 Abbreviations and Acronyms

<u>ACC</u>	<u>Area Control Centre</u>
<u>ADS-B</u>	<u>Automatic Dependent Surveillance-Broadcast</u>
<u>AFTN</u>	<u>Aeronautical Fixed Telecommunications Network</u>
<u>AIDC</u>	<u>ATS Inter-facility Data Communications</u>
<u>AIM</u>	<u>Aeronautical Information Management</u>
<u>ASBU</u>	<u>Aviation System Block Upgrade</u>
<u>ATC</u>	<u>Air Traffic Control</u>
<u>ATFCM</u>	<u>Air Traffic Flow and Capacity Management</u>
<u>ATFM</u>	<u>Air Traffic Flow Management</u>
<u>AU</u>	<u>Airspace User</u>
<u>CCO</u>	<u>Continuous Climb Operations</u>
<u>CDM</u>	<u>Cooperative Decision Making</u>
<u>CDO</u>	<u>Continuous Descent Operations</u>
<u>CDR</u>	<u>Conditional Route</u>
<u>CNS</u>	<u>Communication, Navigation and Surveillance</u>
<u>FIR</u>	<u>Flight Information Region</u>
<u>FUA</u>	<u>Flexible Use Airspace</u>
<u>GANP</u>	<u>Global Air Navigation Plan</u>
<u>GAT</u>	<u>General Air Traffic</u>
<u>GNSS</u>	<u>Global Navigation Satellite System</u>
<u>LOA</u>	<u>Letter of Agreement</u>
<u>MIDANPIRG</u>	<u>MID Air Navigation Planning and Implementation Regional Group</u>
<u>OAT</u>	<u>Operational Air Traffic</u>
<u>OLDI</u>	<u>On-Line Data Interchange</u>
<u>PBN</u>	<u>Performance-based Navigation</u>
<u>RNAV</u>	<u>Area Navigation</u>
<u>RVSM</u>	<u>Reduced Vertical Separation Minimum</u>

1.2 Terminology and Definition

Airspace management (ASM). The process by which airspace options are selected and applied to meet the needs of the air traffic management community in the following levels:

- a) **Level 1 - Strategic ASM.** Is the act of defining and reviewing, as required, the national airspace policy taking into account national and international airspace requirements.
- b) **Level 2 - Pre-Tactical ASM.** Is the act of conducting operational management within the framework of pre-determined existing ATM structure and procedures defined in ASM Level 1 and of reaching specific agreement between civil and military authorities involved.
- c) **Level 3 - Tactical ASM.** Is the act, on the day of operation, of activating, deactivating or real time reallocating of airspace allocated in ASM Level 2, and of solving specific airspace problems and/or of individual OAT/GAT traffic situations in real time between civil and military ATS units and/or controlling military units and/or controllers, as appropriate. This coordination can take place either in active or passive mode with or without action by the controller.

Air traffic flow management (ATFM). A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

Air traffic management system. A system that provides ATM through the collaborative integration of humans, information, technology, facilities, and services, supported by air and ground- and/or space-based communications, navigation and surveillance.

Civil/Military Coordination. is the communication between civil and military elements (human and/or technical) necessary to ensure safe, efficient and harmonious use of the airspace.

Conditional route (CDR). A non-permanent ATS route or portion thereof which can be planned and used under specified conditions.

A Conditional Route may have more than one category, and those categories may change at specified times:

- a) **Category One - Permanently Plannable CDR:** CDR1 routes are in general available for flight planning during times published in the relevant national Aeronautical Information Publication (AIP). Updated information on the availability in accordance with conditions published daily AUP notification.
- b) **Category Two - Non-Permanently Plannable CDR:** CDR2 routes may be available for flight planning. Flights may only be planned on a CDR2 in accordance with conditions published daily AUP notification, and
- c) **Category Three - Not Plannable CDR:** CDR3 routes are not available for flight planning; however, ATC Units may issue tactical clearances on such route segments.

Flexible use of airspace (FUA). An airspace management concept based on the principle that airspace should not be designated purely as civil or military, but rather as a continuum in which all user requirements are accommodated to the greatest possible extent.

Global navigation satellite system (GNSS). A worldwide position and time determination system that includes one or more satellite constellations, aircraft receivers and system integrity monitoring, augmented as necessary to support the required navigation performance for the intended operation.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Regional ATS route. An ATS route shall be considered as the MID regional ATS route network provided that:

- a) Cross-bordered (at least initiate/terminate from FIR boundary);
- b) Route designator shall be assigned in accordance with Annex 11, Appendix 1 and the ICAO Codes and Routes Database (ICARD) requirement; and
- c) Published in ICAO Air Navigation Plan (ANP)- Middle East Region (Doc 9708), Volume II, Table ATM II-MID-1 MID Region ATS Route Network.

Segregated airspace. Airspace of specified dimensions allocated for exclusive use to a specific user(s), with operations that are not able to be safely integrated with other airspace users.

CHAPTER 1

INTRODUCTION

1.1 An airspace concept provides the outline and intended framework of operations within an airspace. Airspace concepts are developed to satisfy explicit and implicit strategic objectives such as improved safety, increased air traffic capacity and mitigation of environmental impact, etc. Airspace concepts ~~can~~ include details of the practical organization of the airspace and its users-operations based on particular CNS/ATM assumptions, e.g.e.g., ATS route structure, separation minima, route spacing, CNS equipment coverage and obstacle clearance.

1.2 The airspace concept constitutes a master plan of the intended airspace design and its operations. It should satisfy the following:

- provides a detailed description of the planned airspace organization and its operations.
- addresses all the strategic objectives identified for the airspace project.
- addresses all CNS/ATM enablers.
- identifies operational and technical assumptions.

1.3 The objective of the High level Airspace Concept is to consolidate the requirements on airspace operations, navigation applications and CNS/ATM operational requirements enablers -agreed on by MIDANPIRG, in order to provide a generic set of characteristics to be applied by States, which would support the harmonization of the airspace operations the ATM operations in the MID Region.

1.4 MID airspace Principles

Principle 1 - Safety

Safety shall be maintained and enhanced. Thus, airspace structures accompany related agreements and procedures shall be subject to a safety assessment.

Principle 2 - Operational Performance

Capacity requirements and environmental impact are to be mitigated through design and use of airspace without prejudice to Safety. In developing and applying Airspace Configurations, trade-offs may be required between capacity, flight efficiency and environmental mitigation without compromising safety. In order to improve the environmental performance of the climb and descent phases, airspace design should enable optimised CCO and CDO, to top of climb and from top of descent respectively, to the extent possible.

Principle 3 - Airspace Continuum

This means that there is no intended division within en-route airspace or between en-route and terminal airspace. However, the different attributes are required.

Principle 4 – Increase airspace capacity

MID ATS airspace should offer a level of adaptability matching the demands of airspace users to the extent possible whilst maintaining cost effectiveness and optimising overall efficiency. This allows for the most effective balance between capacity, mission effectiveness and flight efficiency, whilst reducing environmental impact, where possible.

Principle 5 – Collaborative Decision-Making process

Any airspace re-structuring project and/or ATS Route Network changes consolidation is achieved through the cooperative decision-making process of the States at regional level.

Principle 6 - Ensure close relationship between airspace structure, ASM and ATFCM

In ATS route structure, main traffic flows are to be given priority over minor flows and efficient connectivity must be assured between ATS routes and other airspaces.

Principle 7 – Continuous Development of MID Airspace

Airspace are to be developed in consultation with all operational stakeholders. Appropriate co-ordination with ASM, ATFCM, ATS, AUs and Airports is required.

1.5 The fFundamentals of the MID Region High Level Airspace Concept are as follows:

- a) The use ofImplementation of Minimum Standard Separation application Reduced Vertical Separation Minima (RVSM) between FLs 290 and FL410.
- b) To the most extent possible implementation of Implementation of PBN conceptparallel ATS route network, when possible, based on two navigation applications RNAV 5 or RNAV 1, across the MID Region.Implementation of RNAV 5 area application in the level band between FL160 FL460 (inclusive) for en-route navigation.
- e) A system of linked ATS route network supported by routes based mainly on RNAV applications and connected to RNAV or Conventional SIDs and STARs starting at the nominal TMA boundary.
- d) RRoute oute spacing used for for RNAV 5 ATS routes based on a standard of 16.5 NM for same direction traffic and 18 NM for opposite direction traffic in a radar environment.should not be less than 16.5 NM for unidirectional and 18 NM for bi-direction tracks.
- e) Route spacing used for RNAV 1 ATS routes based on a standard should not be less than a 7 NM in a high density demand en-route systemenvironment providing that required CNS infrastructure is available.
- f) Implementation of 20 NM Reduced radar surveillance longitudinal separation, which could be further reduced to 10 NM, where appropriate.
- g)c) Implementation of Global Air Navigation Plan (GANP) ASBU Modules threads as enablers in accordance with the ICAO MID Air Navigation Strategy (ICAO MID Doc 002), where applicable.-.
- h)d) Implementation of the Airspace Management“Flexible Use of Airspace” econcept.
- i) Implementation of AIDC/OLDI between all ACCs, according to applicability table (reference to MID Doc xxx).
- e) Implementation of Continuous Climb Operations (CCO) and Continuous Descent Operations CDO, where appropriate as basis for the operations within TMAs.
- f) Implementation of Regional Air Traffic Flow Management (ATFM)
- g) Communication, Navigation and Surveillance requirements
—Implementation of Bilateral, Sub-regional or regional ATFM services

The MID Region High Level Airspace Concept will be evolving in accordance with the global and regional developments/requirements to include use of RNP specifications such as, such as, to include the use of Advanced RNP in enroute and terminal operations, and RNP APCH on for the instrument Approachapproach.-.

CHAPTER 2

AIRSPACE CONFIGURATIONS, DESIGNATORS AND CHANGES

Configuration of MID ATS route network

2.1 The strategic planning and design of “packages” of ATS routes of the MID region, Terminal Routes, airspace reservations and ATC sectors responding to requirements stemming from different strategic objectives represents one of the solutions for meeting the safety, capacity, flight efficiency, cost effectiveness and environmental requirements of the MID airspace network. These packages are called **Airspace Configurations**.

2.2 To meet the diversity of user requirements, there is a need for an effective and dynamic management of airspace configurations through a highly flexible and integrated Cooperative Decision-Making (CDM) process at network, regional, national and local level.

2.3 The main feature of MID region ATS routes network is the ability to offer more routing options even during contingency situation to accommodate airspace users demand in the safe and efficient manner. These ATS routes will be based on the principles of regional and intra-regional ATS route network design, independent from national boundaries, adapted to main traffic flows and endorsed by MIDANPIRG in ICAO Air Navigation Plan (ANP)- Middle East Region (Doc 9708), Volume II, Table ATM II-MID-1 MID Region ATS Route Network.

MID ATS route designators and 5LNCs

2.4 Basic regional ATS route designators shall be assigned in accordance with the following principles.

- a) The same basic designator shall be assigned to a main trunk route throughout its entire length, irrespective of terminal control areas, States or regions traversed.
- b) Where two or more trunk routes have a common segment, the segment in question shall be assigned each of the designators of the routes concerned, except where this would present difficulties in the provision of air traffic service, in which case, by common agreement, one designator only shall be assigned.
- c) A basic designator assigned to one route shall not be assigned to any other route.
- d) States’ requirements for designators shall be notified to the ICAO MID Offices for coordination through ICARD platform.

2.5 MID regional ATS Route Designators including “A, B, G and R (Regional, Conventional)” and “L, M, N and P (Regional, RNAV)” have been distributed by the Air Navigation Bureau according to the following table:

MID	A	B	G	R	L	M	N	P
Number	400-424	400-424	650-674	650-674	300-324	300-324	300-324	300-324
Blocks	775-799	525-549	775-799	775-799	550-574	550-574	550-574	550-574
					700-724	700-724	700-724	700-724

2.6 The 5LNC shall be easily recognizable in voice communications and shall be free of ambiguity with those used for other significant points in the same general area.

2.7 The unique 5LNC pronounceable name-code designator assigned to a significant point shall not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator shall be chosen. In cases when a State wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes shall not be used until after a period of at least six months.

2.8 States’ requirements for unique five-letter pronounceable name-code (5LNC) designators shall be notified to the ICAO MID Regional Office for coordination through ICARD

system.

2.9 ICAO HQ compiled a full list of global 5LNC duplication in 2018. There were 3905 duplicated 5LNCs worldwide, in which 113 were in MID region. ICAO and States/Administrations need to work together to resolve this issue on a case-by-case basis and take into consideration of common rules for replacement of duplicated 5LNCS available at **Appendix A**.

Change in MID ATS route network

2.10 Any changes to ANP- Middle East Region (Doc 9708), Volume II, Table ATM II-MID-1 MID Region ATS Route Network need to consider the following procedure:

- a) **Update**: This modification includes minor changes in the content of the table e.g., add/deletion/rename of reporting points and coordination. This update should be requested by the relevant state(s), reviewed by ATM SG and endorsed by MIDANPIRG.
- b) **Significant changes**: This modification is mainly related to removal of the existing ATS route from the table, add new regional ATS route to the table or change in condition (as defined by notes). **These sorts of changes also should be requested by the relevant state(s) and followed standard PfA processes.**

CHAPTER 23

Fundamentals of the MID region High Level Airspace Concept MINIMUM STANDARD SEPARATION APPLICATION

Reduced Vertical Separation Minima (RVSM)

3.1 The Use of Reduced Vertical Separation Minima (RVSM) between Flight Levels FL-290 and FL410, inclusive. The implementation of RVSM in the MID Region started on 27 November 2003. Currently RVSM is successfully implemented in all the MID Region Flight Information Regions (FIRs).

3.2 The provisions for RVSM approval and the monitoring of the height keeping performance are contained in Annex 6. The general requirements for RVSM implementation are contained in the ICAO, Doc 9754 (Manual on a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive). ~~However, and t~~The Operating Procedures and Practices for Regional Monitoring Agencies in relation to ~~the use of a 300 m (1 000 ft) Vertical Separation Minimum between FL 290 and FL 410 inclusive, RVSM~~ are provided in ICAO, Doc 9937.

3.3 Monitoring of aircraft height-keeping performance was one of the underlying assumptions of the safety studies on which RVSM was based. In all regions where RVSM has been implemented, Regional Monitoring Agencies (RMAs) have been established by the appropriate Planning and Implementation Regional Groups (PIRGs) to carry out this function. The RVSM safety objectives for the implementation of RVSM in the MID Region are set out by MIDANPIRG through MIDANPIRG/12 Conclusion, as follows:

CONCLUSION 12/16: MID RVSM SAFETY OBJECTIVES

That, the safety assessment of RVSM operations in the MID Region be based on the following safety objectives:

- a) **Safety Objective 1:** *The risk of collision in the MID RVSM airspace due solely to technical height-keeping performance meets the ICAO Target Level of Safety (TLS) of 2.5×10^{-9} fatal accidents per flight hour;*
- b) **Safety Objective 2:** *The overall risk of collision due to all causes which includes the technical risk and all risk due to operational errors and in-flight contingencies in MID RVSM airspace meets the ICAO overall TLS of 5×10^{-9} fatal accidents per flight hour; and*
- c) **Safety 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.*

2.1 ~~The implementation of RVSM in the MID Region started on 27 November 2003. Currently RVSM is successfully implemented in all the MID Region Flight Information Regions (FIRs)~~

and the ICAO TLS for technical, and overall risks are met.

3.4 The MIDRMA and the ICAO Secretariat developed the MIDRMA Manual to provide, for easy reference of interested parties, a consolidation of material related to the administrative management, membership, funding mechanism of the MIDRMA, as well as its activities related to the sustained RVSM safety assessment and associated requirements for the provision of data. It contains the Terms of Reference (TOR) of the MIDRMA Board and a number of other provisions approved by the MIDRMA Board and MIDANPIRG.

3.5 The MIDRMA Manual, in addition to the reports and information related to RVSM implementation in the MID Region are available on the MIDRMA website (<http://midrma.com>).

3.6 In order to standardize and improve the reporting of required data to the MIDRMA, the MIDANPIRG/14 meeting agreed to the following Conclusion which replaces and supersedes the MIDANPIRG/13 Conclusion 13/65:

CONCLUSION 14/35: PROVISION OF REQUIRED DATA TO THE MIDRMA

That, considering the on-going requirement for RVSM safety monitoring in the MID Region:

- a) *States provide the required data to the MIDRMA on a regular basis and in a timely manner. The data is to include, but is not necessarily limited to:*
 - i) *approval of operators and aircraft for RVSM operations (on monthly basis or whenever there's a change);*
 - ii) *Large Height Deviations (LHD) (on monthly basis);*
 - iii) *traffic data (as requested by the MIDRMA Board);*
 - iv) *radar data as, when and where required; and*
 - v) *airway structure (above FL 290) and waypoints.*
- b) *States not providing the required data to the MIDRMA on a regular basis and in a timely manner:*
 - i) *be included in the MIDANPIRG list of air navigation deficiencies; and*
 - ii) *might not be covered by the MID RVSM Safety Monitoring Report (SMR).*

3.7 The MIDRMA developed the LHD Online Reporting Tool to be used by the States, as the only mean, for the submission of their LHD reports to the MIDRMA.

3.8 With a view to address the LHDs in an effective manner with the ATS Units concerned and to analyze the LHDs prior to presentation to the MIDRMA Board or ATM SG meetings for validation, the meeting agreed that the MIDRMA should conduct bilateral teleconferences with the adjacent ATS Units to analyze the relevant LHDs and present a consolidated report to the MIDRMA Board or the ATM SG meetings for validation in order to finalize the SMR for endorsement by MIDANPIRG. Accordingly, the meeting agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 17/2: ANALYSIS OF LHDs

That, as part of the MIDRMA Scrutiny Group activities, the MIDRMA conduct bilateral teleconferences with the MIDRMA ATC focal points to analyze the relevant

LHDs and present a consolidated report to the MIDRMA Board or the ATM SG meetings for validation in order to finalize the SMR for endorsement by MIDANPIRG.

3.9 The MIDANPIRG meeting noted with concern that an important number of non-RVSM approved aircraft are still operating within the RVSM airspace (filing “W” in the FPL), and agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 18/6: PREVENTING NON-RVSM APPROVED AIRCRAFT FROM OPERATING WITHIN MID RVSM AIRSPACE

That, in order to prevent the Non-RVSM approved aircraft from operating within the MID RVSM airspace:

a) the MIDRMA:

- i. develop a search engine of updated “Global RVSM Approval Database” under the MIDRMA website, which can help MID ATCUs to check the RVSM approval status of any aircraft entering their area of responsibility; and
- ii. in order to increase the awareness on the subject, the MIDRMA issue a Bulletin which includes the list of the non-RVSM approved aircraft observed operating within the RVSM airspace and circulate it to all MIDRMA Member States on monthly basis; and

b) the MID States/ATCUs:

- i. ensure that the non-RVSM approved aircraft listed in the MIDRMA Bulletin are not allowed to operate within the RVSM airspace; and
- ii. report to MIDRMA any case of violation, including the cases of aircraft transferred from adjacent Regions/FIRs.

3.10 The MIDANPIRG meeting reviewed and agreed to the procedure at Appendix C for the follow-up with States and the issuance of warning related to RVSM approved aircraft without valid height-keeping performance monitoring results. Accordingly, the meeting agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 17/3: PROCEDURE FOR THE FOLLOW-UP WITH STATES AND THE ISSUANCE OF WARNING RELATED TO RVSM APPROVED AIRCRAFT WITHOUT VALID HEIGHT-KEEPING PERFORMANCE MONITORING RESULTS

That, the Procedure at Appendix C for the follow-up with States and the issuance of warning related to RVSM approved aircraft without valid height-keeping performance monitoring results, is endorsed.

3.11 The MIDANPIRG meeting noted that the ICAO provisions do not address the initial process of granting RVSM approval for new aircraft type not previously part of the operator fleet and there is no procedure to guide the responsible Authority. Accordingly, and due to the increased enquiries received recently from several airworthiness inspectors, the meeting reviewed the procedure, developed by the MIDRMA, on granting Temporary RVSM Approvals, and agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 18/2: PROCEDURE FOR TEMPORARY RVSM

APPROVAL

That, the procedure for granting Temporary RVSM Approvals at Appendix B, is endorsed.

2.2 ~~States are requested to comply with the above provisions.~~

3.12 States are ~~requested~~ encouraged to consult to provide the required data and to consult ~~liaise with~~ the MIDRMA when carrying safety assessment for the implementation of ATS Routes in the MID RVSM Airspace.

Reduced surveillance longitudinal separation

3.14 MIDANPIRG/13 meeting, through Conclusion 13/5, encouraged MID States to implement 20NM surveillance longitudinal separation and develop plans for further reduction of longitudinal separation from 20NM to 10NM:

CONCLUSION 13/5: IMPLEMENTATION OF REDUCED RADAR LONGITUDINAL SEPARATION IN THE MID REGION

That,

a) States, that have not yet done so;

- i) be urged to implement the 20 NM radar longitudinal separation;
- ii) be encouraged to further reduce the radar longitudinal separation within the MID Region to 10 NM, where appropriate; and
- iii) be invited to agree with their neighbouring FIRs/States on the date of implementation and updating of the LoAs;

3.15 ASBU SNET-B0/1 (Short-Term conflict alert), ASUR-B0/1 (ADS-B), ASUR-B0/2 (MLAT) and ASUR-B0/3 (SSR-DAPS) are considered as priority one (1) for implementation in the MID Region and are included in the MID AIR Navigation Strategy Doc 002.

CHAPTER 4

AIRSPACE MANAGEMENT

Performance Based Navigation (PBN) Implementation

~~To the most extent possible implementation of parallel ATS route network, based on RNAV 5 or RNAV 1, across in the MID Region~~

4.1 Implementation of PBN concept in enroute phase based on RNAV 1 & RNAV 5 will enhance establishment of trunk routes and extend parallel ATS route network to connect RNAV/conventional SIDs and STARs to/from the TMA/CTR boundaries across the MID Region and at interfaces with adjacent regions.

4.2 As part of the implementation of an airspace concept, States in consultation with the Airspace users should establish an efficient ATS route structure ~~network connected~~ network connected in an efficient manner to the terminal airspace structure, preferably, starting at the Terminal Control Area (TMA) boundary.

4.3 Based on operational requirements, States may choose to ~~implement establish~~ RNAV-1 and RNAV-5 routes to ~~enhance utilize efficiency and capacity and efficiency~~ of airspace ~~usages and support closely~~ reducing route spacing, providing that appropriate communication and surveillance coverages are available. Details of these requirements are provided in the PBN manual (Doc 9613) and PANS-ATM (Doc 4444) reference to parallel xxx.

4.4 The MIDANPIRG meeting noted that some States have not yet updated their AIPs to change RNP 5 to RNAV 5 and the RNAV 5 applicable area is implemented in MID FIR's/States with a different base Flight Level (FL150, FL195, FL245, FL280). Accordingly, the meeting agreed to the following Conclusion:

CONCLUSION 12/9: RNAV 5 IMPLEMENTATION IN THE MID REGION

That, States that have not yet done so, be urged to:

a) *update their AIP to change RNP 5 to RNAV 5; and*

b) *take necessary measures to implement RNAV 5 area in the level band FL160 - FL460 (inclusive).*

4.5 Establishment of parallel ATS routes in the MID region should consider the below minimum route spacing and availability of the required CNS infrastructure details in Doc 9613:

a) In the MID Region for RNAV 5 ATS Routes should be spaced at least by a lateral distance of 16.5NM for unidirectional and 18NM for bi-directional tracks with appropriate ATS surveillance to be considered as independent from each other

a)b) Route spacing used for RNAV -1 ATS routes based on a standard a 7 NM in a high density en-route system providing should not be less than 7 NM providing that required CNS infrastructure is available

Note: the route spacing needs to be increased at turning points because of the variability of aircraft turn performance. The extent of the increase depends on the turn angle.

4.54.6 Route spacing of 7-NM for straight and turning tracks (with turns not exceeding 90 degrees) in a high density ~~continental-en-route~~ system, using ATS ~~radar~~ surveillance, has been derived by independent collision risk analyses undertaken by Eurocontrol. (Ref: ICAO PBN manual Volume II. Implementing RNAV and RNP Operations – Attachment B—page 8).

4.64.7 The ICAO Manual, Doc 9992, provides step-by-step guidance on the Use of Performance-based Navigation (PBN) in Airspace Design.

4.8 The MID Region PBN Implementation Plan (ICAO MID Doc 007) offers appropriate guidance for air navigation service providers, airspace operators and users, ~~regulating agencies~~, and international/regional organizations, on the evolution of navigation applications, as one of the key ~~systems enablers~~ supporting air traffic management, and which describes the RNAV and RNP ~~navigation application types~~ that should be implemented in the short, medium and long term in the MID Region. The Plan is endorsed by MIDANPIRG and available on the ICAO MID Regional Office Website (<http://icao.int/mid>) under eDocuments ~~tabg~~.

4.9 ASBU APTA-B0/1 (PBN Approaches (with basic capabilities)) and APTA-B0/2 (PBN SID and STAR procedures (with basic capabilities)) are considered as priority one (1) for implementation in the MID Region and are included in the MID AIR Navigation Strategy Doc 002.

1. ~~Implementation of RNAV 5 area in the level band between FL160 – FL460 (inclusive)~~
2. ~~A system of ATS route network supported linked routes based mainly on by RNAV applications and connected to RNAV or Conventional terminal procedures (SIDs and STARS) starting at the nominal TMA boundary~~

~~5. AS PART OF THE IMPLEMENTATION OF AN AIRSPACE CONCEPT, STATES STATES IN CONSULTATION WITH THE AIRSPACE USERS SHOULD ESTABLISH AN EFFICIENT ATS ROUTE STRUCTURE AND/ NETWORK AT IN THE UPPER AIRSPACE CONNECTED IN AN EFFICIENT MANNER TO THE LOWER TERMINAL AIRSPACE STRUCTURE, PREFERABLY, STARTING AT THE NOMINAL TERMINAL CONTROL AREA (TMA) BOUNDARY.~~

~~6. THE ICAO MANUAL, DOC 9992, PROVIDES STEP-BY-STEP GUIDANCE ON THE USE OF PERFORMANCE-BASED NAVIGATION (PBN) IN AIRSPACE DESIGN COVERING THE STRUCTURE, ATS ROUTES AND INSTRUMENT FLIGHT PROCEDURES.~~

3. ~~Route spacing used for RNAV 5 ATS routes based on a standard of 16.5 NM for same-direction traffic and 18 NM for opposite direction traffic with appropriate ATS surveillance, should not be less than 16.5 NM for unidirectional and 18 NM for bi-direction tracks~~

~~7. IN THE MID REGION RNAV 5 ATS ROUTES SHOULD BE SPACED AT LEAST BY A LATERAL DISTANCE OF 16.5NM FOR UNIDIRECTIONAL AND 18NM FOR BI-DIRECTIONAL TRACKS WITH APPROPRIATE ATS SURVEILLANCE, TO BE CONSIDERED AS INDEPENDANT FROM EACH OTHER.~~

~~8. THE PROVISIONS FOR ATS ROUTES SPACING ARE PROVIDED MAINLY IN PANS-ATM DOC 4444, AND THE PBN MANUAL 9613.~~

~~Note: route spacing needs to be increased at turning points in turns because of the variability/spread of aircraft turn performance. The extent of the increase depends the track change (on the turn angle).~~

~~4. — Route spacing used for RNAV 1 ATS routes based on a standard a 7 NM in a high density en-route system providing should not be less than 7 NM providing that required CNS infrastructure is available~~

~~9. — IN THE MID REGION RNAV 1 ATS ROUTES SHOULD BE SPACED AT LEAST BY A LATERAL DISTANCE OF 7NM IN A HIGH DENSITY EN-ROUTE SYSTEM, TO BE CONSIDERED AS INDEPENDENT FROM EACH OTHER, PROVIDING THAT REQUIRED CNS INFRASTRUCTURE IS AVAILABLE.~~

~~10. ROUTE SPACING OF 7 NM FOR STRAIGHT AND TURNING TRACKS (WITH TURNS NOT EXCEEDING 90 DEGREES) IN A HIGH DENSITY CONTINENTAL EN-ROUTE SYSTEM, USING ATS RADAR SURVEILLANCE, HAS BEEN DERIVED BY INDEPENDENT COLLISION RISK ANALYSES UNDERTAKEN BY EUROCONTROL. (REF: ICAO PBN MANUAL VOLUME II, IMPLEMENTING RNAV AND RNP OPERATIONS — ATTACHMENT B — PAGE 8).~~

~~5. — Implementation of 20 NM Reduced Radar Longitudinal Separation, which could be further reduced to 10 NM, where appropriate applicable~~

~~11. MIDANPIRG/13 MEETING, THROUGH CONCLUSION 13/5 BELOW, ENCOURAGED MID STATES TO IMPLEMENT 20 NM LONGITUDINAL SEPARATION AND DEVELOP PLANS FOR FURTHER REDUCTION OF LONGITUDINAL SEPARATION FROM 20 NM TO 10 NM:~~

~~*CONCLUSION 13/5: — IMPLEMENTATION OF REDUCED RADAR LONGITUDINAL SEPARATION IN THE MID REGION*~~

~~*That,*~~

~~*a) — States, that have not yet done so;*~~

~~*ii) — be urged to implement the 20 NM radar longitudinal separation;*~~

~~*iii) — be encouraged to further reduce the radar longitudinal separation within the MID Region to 10 NM, where appropriate; and*~~

~~*iv) — be invited to agree with their neighbouring FIRs/States on the date of implementation and updating of the LoAs;*~~

Continuous Climb Operation (CCO) and Continuous Descent Operation (CDO)

12.4.10 Continuous climb operation (CCO) is an operation, enabled by airspace design, procedure design and ATC operational procedures, in which a departing aircraft climbs continuously, to the greatest possible extent, by employing optimum climb engine thrust and climb speeds until reaching the cruise flight level.

12.4.11 Continuous descent operation (CDO) is an operation, enabled by airspace design, procedure design and ATC operational procedures, in which an arriving aircraft descends continuously, to the greatest possible extent, by employing minimum engine thrust, ideally in a low drag configuration, prior to the final approach fix/final approach point.

4.12 Implementation of Continuous Climb Operations (CCO) and Continuous Descent Operations CDO, as basis for the operations within TMAs. States are encouraged to implement CCO and CDO, where applicable.

4.24.13 ASBU APTA-B0/4 (CDO (B)basic) and APTA-B0/5 (CCO basic) B0 Modules CCO and CDO are considered as priority one (1) for implementation in the MID Region and are included in the MID AIR Navigation Strategy Doc 002.

Civil-Military cooperation and implementation of Flexible Use of Airspace

4.34.14 The airspace is a common resource to both civil and military aviation activities. The growing civil air traffic and mission-oriented military air traffic would benefit greatly from a more flexible use of airspace used for military purposes and that satisfactory solutions to the problem of cooperative access to airspace have not evolved in all areas.

4.44.15 The ICAO Global ATM Operational Concept emphasized that all airspace should be a usable resource, any restriction on the use of any particular volume of airspace should be considered transitory, and all airspace should be managed flexibly.

4.54.16 The flexible use of airspace by both civil and military air traffic may be regarded as the ultimate goal, improvement in civil/military coordination and cooperation offers an immediate approach towards more effective airspace management.

4.17 An ATS route network allows operators to choose from several strategically designed ATS routes. Improvements in the strategic design, planning and management of ATS routes increase the predictability of the route options and reduce the need for tactical re-routing by ATCOs. This flexibility is based on the Flexible Use of Airspace Concept principles.

4.18 GAT and OAT requirements have to be accommodated by integrating them in the strategic developments process. Consequently, deviations from developments shall be kept to a minimum.

4.19 As regards temporary reserved and segregated airspace, it is envisaged, under certain Airspace Configurations, to have them activated and de-activated closer to real time. Such airspace may vary in size, geographic location and time (to accommodate airspace user requirements). This includes requirements for standardised rules for separation.

4.20 To increase efficiency, the shared use of both cross-border areas and temporary reserved segregated airspaces is expected to become more frequent. To improve vertical flight efficiency and environmental performance in the climb and descent phases, it is recommended that due consideration is given to enabling optimised CCO and CDO in the airspace design process, to the extent possible.

4.21 MIDANPIRG/14 through Conclusions 14/12 and 14/13 urged States to take necessary measures to foster the implementation of Civil/Military Cooperation and to implement the Flexible Use of Airspace (FUA) concept through strategic Civil/Military Coordination, collaboration and dynamic interaction, in order to open up segregated airspace when it is not being used for its originally-intended purpose and allow for better airspace management and access for all users.

4.22 The MIDANPIRG meeting noted the identified challenges related to CMC/FUA implementation in the Region, and the need to raise awareness on different subjects, including:

- a) State aircraft operations under Due Regard in particular over the high seas,
- b) CMC/FUA implementation,
- c) Drones-Airspace management applications,
- d) GNSS/GPS interference,
- e) NMAC reports between Civil and Military aircraft.

4.23 Accordingly, the meeting based on ICAO Doc 10088, agreed to the following MIDANPIRG Decision, to replace and supersede the MIDANPIRG Decision 18/31:

MIDANPIRG DECISION 19/19: MID CMC/FUA ACTION GROUP

That,

- a) the MID CMC/FUA Action Group develop region specific complementary procedures for ICAO Doc. 10088, in order to ensure that the regional requirements related to Civil Military Cooperation and implementation of FUA Concept are addressed, including State aircraft operations under Due Regard in particular over the high seas, are covered;
- b) the outcome of the MID CMC/FUA AG, be presented to ATM SG/8 meeting, for review.

4.24 ASBU FRTO-B0/2 (Airspace planning and Flexible Use of Airspace (FUA), Level 1 Strategic and Airspace planning and Flexible Use of Airspace (FUA)) and FRTO-B0/4 (Basic conflict detection and conformance monitoring) are considered as priority one (1) for implementation in the MID Region and are included in the MID Air Navigation Strategy Doc 002.

Remotely Piloted Aircraft System (RPAS) and Unmanned Aircraft Systems (UAS)

4.25 developments related to RPAS, and take necessary measures for the establishment of the required legislative and regulatory framework to ensure safe integration of the RPA into the non-segregated airspace. The MIDANPIRG & RASG-MID meeting urged States to report any safety occurrence related to RPA operations to the ICAO MID Regional Office on regular basis; and encouraged States to use the guidance material related to RPAS provided in the ICAO Doc 10019 and the information available on the RPAS webpage: <https://www4.icao.int/rpas>.

4.26 The MIDANPIRG & RASG-MID meeting noted that due to the use of advanced technologies, these vehicles make use of new types of flight profiles and capabilities and generally operate at much lower altitudes, which current airspace and air traffic management systems were not designed to accommodate. It is therefore required to address these shortfalls in design and system performance as well as to enhance structures and systems to support and manage the new demands for airspace monitoring and management by means of an Unmanned Traffic Management (UTM) System.

4.27 The meeting agreed that overall, the available guidance material for UTM implementation offers a basic starting point, while the rapid growth of RPAS creates an urgency for the States to plan and start the implementation of their UTM systems.

4.28 Based on the above, the meeting agreed to the establishment of an Action Group composed of the Chairpersons of the ATM SG, ASRG and SEIG, Bahrain, Egypt, Iran, Saudi Arabia, UAE, FAA, Boeing, IATA, CANSO and ICAO MID to strengthen the collaboration between States and stakeholders for an orderly growth of unmanned air traffic; and to provide necessary guidance to States related to Unmanned Traffic Management (UTM). Draft Terms of Reference (TOR) for the Action Group is at Appendix 3.2B, for further review and consideration by the Action Group. Accordingly, the meeting agreed to the following Decision:

PIRG/RASG MID DECISION 1: RPAS/UTM ACTION GROUP

That, the RPAS/UTM Action Group be:

- a) established to support the development of UTM Capabilities in the MID Region, harmonize the integration of RPAS/UAS operation and provide feedback to the ATM SG, ASRG and SEIG; and
- b) composed of the Chairpersons of the ATM SG, ASRG and SEIG; and representative of the aforementioned states and organization.

MID ATS route network, catalogue and RDWG

4.29 The MIDANPIRG meeting noted that the following ATS route network challenges have been identified and addressed in the AIM and ATM SGs:

- a) Interruption of Regional ATS routes;
- b) Use of non-regional designators for regional routes, and vice versa;
- c) Consideration of non-regional routes as regional, and vice versa;
- d) Lack of consideration of some regional routes in the MID ANP Vol II ATS table;
- e) Duplication of Route designators; and
- f) Missing bi-lateral coordination between adjacent States.

4.30 The MIDANPIRG meeting recognized that the main objective of the MID RDWG is to enhance the cooperative approach between States and stakeholders to avoid duplication of efforts related to the improvement of the ATS Route Network at National and cross-border levels. Accordingly, the meeting urged States and airspace users to use the MID RDWG as the main platform to facilitate bilateral and multilateral coordination related to the improvement of the ATS Route Network and airspace management in the MID Region.

4.31 The MIDANPIRG meeting noted that the MID Region ATS Route Catalogue (available on the ICAO MID Website <https://icao.int/mid>) includes the Airlines' ATS route proposals presented, in a prioritized manner with their associated benefits, for consideration by States to enhance the ATS Route Network.

4.32 Based on the above the MIDANPIRG meeting agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 17/18: MID RDWG AND MID REGION ATS ROUTE CATALOGUE

That, States be urged to:

- a) use the MID Route Development Working Group (MID RDWG) as the main platform to facilitate bilateral and multilateral coordination related to the improvement of the ATS Route Network and airspace management in the MID Region; and
- b) review the MID Region ATS Route Catalogue and take actions related to the implementation of the ATS proposals relevant to their FIRs.

4.33 MIDANPIRG 19 urged States with the support of ICAO MID Office to take action to overcome/eliminate the remaining challenges including 5LNCs duplication.

4.34 MIDANPIRG 19 meeting reviewed and endorsed the proposal for amendment to the MID eANP VOL II, Table ATM II-MID-I, to remove prefix “U” and include MID contingency route network under “Note 5” (implementation possible only during specific periods (e.g., weekends, nights, etc., as published)).

Note: details of MID region Air Traffic Management (ATM) Contingency plan and its requirements are contained in ICAO MID Doc 003.

~~13. STATES ARE ENCOURAGED TO IMPLEMENT CCO AND CDO, WHERE APPLICABLE.~~

~~6. — Consider the implementation of Bilateral, Sub-regional or regional Multi-Nodal ATFM services concept.~~

Implementation of MID Air Traffic Flow Management (ATFM)

~~14.4.35~~ Air Traffic Flow Management (ATFM) is used to manage the flow of traffic in a way that minimizes delays and maximizes the use of the entire airspace. ATFM can regulate traffic flows involving departure slots, smooth flows and manage rates of entry into airspace along traffic axes, manage arrival time at waypoints or Flight Information Region (FIR)/sector boundaries and re-route traffic to avoid saturated areas. ATFM may also be used to address system disruptions including ~~a crisis caused by human or natural phenomena~~ constrained airspace, severe meteorological conditions or any other phenomena or event affecting the normal flights operation.

~~15.4.36~~ ATFM and its applications should not be restricted to one State or FIR because of their far-reaching effects on the flow of traffic elsewhere. Doc 4444 - Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM) recognizes this important fact, stating that ATFM should be implemented on the basis of a Regional Air Navigation Agreement or, when appropriate, a Multilateral Agreement.

4.37 A MID Region ATFM service/system should be implemented to manage efficiently the traffic flows within and across the Region. Nevertheless, all initiatives to improve traffic flows and capacity should be exhausted before implementation of any ATFM measures in the MID Region. This approach should be capture as part of the airspace concept to be developed by ICAO MID States at their national level.

4.38 The MIDANPIRG 17 meeting agreed that the Multi-Nodal Concept should be applied for the MID Region as a first phase, which would be evolved to a centralized ATFM system in the future. Accordingly, the meeting agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 17/22: MULTI-NODAL ATFM SOLUTION FOR THE MID REGION

That,

- a) the Multi-Nodal Concept be implemented in the MID Region, as a first phase, which would be evolved to a centralized ATFM system in the future; and
- b) the ATFM Task Force develop the ATFM Concept of Operations for MID Region, accordingly, including the minimum flight data that should be exchanged by ATFM Units.

4.39 MIDANPIRG 19 meeting reviewed the MID Doc 014 V.2.0 which incorporated the MID ATFM CONOPS, ATFM MID Region Framework and implementation guidance. The meeting agreed to rename the MID Doc 014 as MID Region ATFM Plan (V2.0) and to be published on the ICAO MID Website:

<https://www.icao.int/MID/MIDANPIRG/Documents/eDocuments/MID%20DOC%20014%20-%20MID%20ATFM%20Plan%20V2.0.pdf>.

4.40 Accordingly, MIDANPIRG 19 meeting agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 19/14: MID ATFM PLAN (V2.0)

That, the MID Doc 014 renamed as MID Region Air Traffic Flow Management Plan (V2.0), is endorsed and be published on the ICAO MID website.

4.41 MID ATM/CDM data exchange process will also foster the exchange of operational data with the basic available tools, in order to support States and ANSPs to improved Airspace capacity/demand management.

4.42 To implement the MID region ATFM Plan Doc 014, Phase I, the following threads and elements are considered as priority one (1) in line with MID Air Navigation Strategy Doc 002:

- a) NOPS-B0/1 (Initial integration of collaborative airspace management with air traffic flow management);
- b) FICE-B0/1 (Automated basic inter facility data exchange (AIDC/OLDI));
- c) FRTO-B0/2 (Airspace planning and Flexible Use of Airspace (FUA)) & FRTO-B0/4 (Basic conflict detection and conformance monitoring); and
- d) ASUR-B0/1 (Automatic Dependent Surveillance – Broadcast (ADS-B)), ASUR-B0/2 (Multilateration cooperative surveillance systems (MLAT)) & ASUR-B0/3 (Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)).

CHAPTER 5

ASBU AND CNS REQUIREMENTS

7. Implementation of ASBU Modules threads as enablers in accordance with the MID Air Navigation Strategy

Implementation of Aviation System Block Upgrade (ASBU)

5.1 The MID Region air navigation objectives are set in line with the Global Air Navigation objectives as described in the Global Air Navigation Plan (GANP) and address specific air navigation operational improvements identified within the framework of the MIDANPIRG.

5.2 The MID Air Navigation Strategy MID Doc 002, endorsed by MIDANPIRG, includes the ASBU Modules, Threads –with their associated Elements, Area of Applicability, Performance Indicators and Targets, considered as priority for implementation in the MID Region. The ASBU threads and elements are considered enablers for the implementation of airspace concept.

5.3 States are urged to take into consideration the guidelines/requirements of the GANP, the MID Region Air Navigation Strategy and the MID ANP while planning for the improvement of their CNS/ATM systems, and provide on periodical basis their National Air Navigation Plan to the MID Office.

5.4 The monitoring of the implementation of the agreed ASBU Modules threads and elements will be performed through the MID ANP, Volume III, and reflected on the Annual MID Air Navigation Report.

5.5 The MIDANPIRG 18 meeting noted that the revised version of the Strategy included an initial list of Key Performance Indicators (KPIs) to be used for the monitoring of the air navigation system performance. The meeting agreed the month of June for KPIs 01 & 02 and the month of July for KPIs 13 & 14 will be used for the collection of required data for measuring the selected KPIs. Based on that, the meeting agreed to the following MIDANPIRG Conclusions:

MIDANPIRG CONCLUSION 18/11: ANS PERFORMANCE MONITORING

That, in order to optimize allocation and use of resources in the modernization of the air navigation system, States:

a) be urged to:

i. embrace a performance-based approach in line with the 6th Edition of the Global Air Navigation Plan and the six-step performance management process, as described in the Manual on Global Performance of the Air Navigation System (Doc 9883);

ii. follow-up a phased approach in the performance monitoring of their air navigation system using as an initial phase the list of KPIs at Appendix 5.2C; and

iii. provide ICAO with the results of the KPIs monitoring for the agreed period, as part of the data necessary for the development of the Annual Air Navigation Report, starting with the Report for 2021.

a)b) be encouraged to start as soon as possible, on an experimental basis, to establish the necessary processes, procedures and systems for the collection of necessary data to measure the selected KPIs.

8. Implementation of the “Flexible Use of Airspace” concept

~~16. THE AIRSPACE IS A RESOURCE COMMON RESOURCE TO BOTH CIVIL AND MILITARY AVIATION ACTIVITIES. THE GROWING CIVIL AIR TRAFFIC AND MISSION-ORIENTED MILITARY AIR TRAFFIC WOULD BENEFIT GREATLY FROM A MORE FLEXIBLE USE OF AIRSPACE USED FOR MILITARY PURPOSES AND THAT SATISFACTORY SOLUTIONS TO THE PROBLEM OF COOPERATIVE ACCESS TO AIRSPACE HAVE NOT EVOLVED IN ALL AREAS.~~

~~17. THE ICAO GLOBAL ATM OPERATIONAL CONCEPT EMPHASIZED THAT ALL AIRSPACE SHOULD BE A USABLE RESOURCE, ANY RESTRICTION ON THE USE OF ANY PARTICULAR VOLUME OF AIRSPACE SHOULD BE CONSIDERED TRANSITORY, AND ALL AIRSPACE SHOULD BE MANAGED FLEXIBLY.~~

~~18. THE FLEXIBLE USE OF AIRSPACE BY BOTH CIVIL AND MILITARY AIR TRAFFIC MAY BE REGARDED AS THE ULTIMATE GOAL, IMPROVEMENT IN CIVIL/MILITARY COORDINATION AND COOPERATION OFFERS AN IMMEDIATE APPROACH TOWARDS MORE EFFECTIVE AIRSPACE MANAGEMENT.~~

~~MIDANPIRG/14 THROUGH CONCLUSIONS 14/12 AND 14/13 URGED STATES TO TAKE NECESSARY MEASURES TO FOSTER THE IMPLEMENTATION OF CIVIL/MILITARY COOPERATION AND TO IMPLEMENT THE FLEXIBLE USE OF AIRSPACE (FUA) CONCEPT THROUGH STRATEGIC CIVIL/MILITARY COORDINATION, COLLABORATION AND DYNAMIC INTERACTION, IN ORDER TO OPEN UP SEGREGATED AIRSPACE WHEN IT IS NOT BEING USED FOR ITS ORIGINALLY INTENDED PURPOSE AND ALLOW FOR BETTER AIRSPACE MANAGEMENT AND ACCESS FOR ALL USERS.~~

~~19. ASBU XXX ARE CONSIDERED AS PRIORITY 1 FOR IMPLEMENTATION IN THE MID REGION AND ARE INCLUDED IN THE MID AIR NAVIGATION STRATEGY.~~

9. — Implementation of AIDC/OLDI between all ACCs

Implementation of AIDC/OLDI connectivity between concern ACCs

5.6 The use of ATS Interfacility Data Communication (AIDC), as defined in the ICAO, Doc 9694, Manual of Air Traffic Services Data Link Applications improves the coordination between air traffic service units (ATSUs). The transfer of communication in a data link environment improves the efficiency of this process and the overall air traffic coordination management.

5.7 In accordance with the MID Air Navigation Strategy AIDC/OLDI should be implemented between all adjacent ACCs. This ~~considers~~ considers as one of the main enabler for airspace concept according to the applicability table in MID Air Navigation Strategy Doc 002 Attachment A. (ref CAO MID Doc xxx).

Performance Based Communication and Surveillance (PBCS).

5.8 The MIDANPIRG meeting recalled that the airspace users shall comply with RCP and RSP specifications prescribed for the communications and surveillance capabilities within specific airspace to meet the requirements for air traffic service provision. The RMAs were requested to monitor compliance with the set-out specifications and share information among each other's. The meeting was informed that there is no RCP/RSP specifications prescribed by MID States for the provision of ATS. However, a process should be put in place to ensure that information related to the aircraft registered in MID States and operating in airspace where RCP/RSP specifications are prescribed, are provided and shared with the MIDRMA. The meeting agreed that the subject should be addressed also by the RASG-

MID, ATM SG and CNS SG. Accordingly, the meeting agreed to the following MIDANPIRG Conclusion:

MIDANPIRG CONCLUSION 18/3: PERFORMANCE BASED COMMUNICATION AND SURVEILLANCE (PBCS).

That,

- a) States provide the MIDRMA on monthly basis with the information related to the list of registered aircraft (fleet) granted approvals to operate in PBCS airspace where compliance with specific RCP/RSP are required;
- b) the MIDRMA is authorized to coordinate and share information with other RMAs with respect to PBCS compliant aircraft and follow-up with MID States, as required;
- c) the MIDRMA functions and responsibilities be amended accordingly; and
- d) the implementation of PBCS be addressed by the RASG-MID, ATM SG and CNS SG for appropriate actions.

~~10. Implementation of Continuous Climb Operations (CCO) and Continuous Descent Operations CDO, as basis for the operations within TMAs where appropriate~~

~~20. CONTINUOUS CLIMB OPERATION (CCO) IS AN OPERATION, ENABLED BY AIRSPACE DESIGN, PROCEDURE DESIGN AND ATC OPERATIONAL PROCEDURES, IN WHICH A DEPARTING AIRCRAFT CLIMBS CONTINUOUSLY, TO THE GREATEST POSSIBLE EXTENT, BY EMPLOYING OPTIMUM CLIMB ENGINE THRUST AND CLIMB SPEEDS UNTIL REACHING THE CRUISE FLIGHT LEVEL.~~

~~21. CONTINUOUS DESCENT OPERATION (CDO) IS AN OPERATION, ENABLED BY AIRSPACE DESIGN, PROCEDURE DESIGN AND ATC OPERATIONAL PROCEDURES, IN WHICH AN ARRIVING AIRCRAFT DESCENDS CONTINUOUSLY, TO THE GREATEST POSSIBLE EXTENT, BY EMPLOYING MINIMUM ENGINE THRUST, IDEALLY IN A LOW DRAG CONFIGURATION, PRIOR TO THE FINAL APPROACH FIX/FINAL APPROACH POINT.~~

~~22. ASBU APTA-B0/4 CDO (BASIC) AND APTA-B0/5 (CCO BASIC) B0 MODULES CCO AND CDO ARE CONSIDERED AS PRIORITY 1 FOR IMPLEMENTATION IN THE MID REGION AND ARE INCLUDED IN THE MID AIR NAVIGATION STRATEGY.~~

~~23. STATES ARE ENCOURAGED TO IMPLEMENT CCO AND CDO, WHERE APPLICABLE.~~

~~11. Consider the Implementation of Bilateral, Sub-regional or regional Multi-Nodal ATFM services concept.~~

~~24. AIR TRAFFIC FLOW MANAGEMENT (ATFM) IS USED TO MANAGE THE FLOW OF TRAFFIC IN A WAY THAT MINIMIZES DELAYS AND MAXIMIZES THE USE OF THE ENTIRE AIRSPACE. ATFM CAN REGULATE TRAFFIC FLOWS INVOLVING DEPARTURE SLOTS, SMOOTH FLOWS AND MANAGE RATES OF ENTRY INTO AIRSPACE ALONG TRAFFIC AXES, MANAGE ARRIVAL TIME AT WAYPOINTS OR FLIGHT INFORMATION REGION (FIR)/SECTOR BOUNDARIES AND RE-ROUTE TRAFFIC TO AVOID SATURATED AREAS. ATFM MAY ALSO BE USED TO ADDRESS SYSTEM DISRUPTIONS INCLUDING A CRISIS CAUSED BY HUMAN OR NATURAL PHENOMENA CONSTRAINED AIRSPACE, SEVERE~~

METEOROLOGICAL CONDITIONS OR ANY OTHER PHENOMENA OR EVENT AFFECTING THE FLIGHTS.

~~25. ATFM AND ITS APPLICATIONS SHOULD NOT BE RESTRICTED TO ONE STATE OR FIR BECAUSE OF THEIR FAR-REACHING EFFECTS ON THE FLOW OF TRAFFIC ELSEWHERE. DOC 4444—PROCEDURES FOR AIR NAVIGATION SERVICES—AIR TRAFFIC MANAGEMENT (PANS-ATM) RECOGNIZES THIS IMPORTANT FACT, STATING THAT ATFM SHOULD BE IMPLEMENTED ON THE BASIS OF A REGIONAL AIR NAVIGATION AGREEMENT OR, WHEN APPROPRIATE, A MULTILATERAL AGREEMENT.~~

~~A MID REGION ATFM SERVICE/SYSTEM SHOULD BE IMPLEMENTED TO MANAGE EFFICIENTLY THE TRAFFIC FLOWS WITHIN AND ACROSS THE REGION. NEVERTHELESS, ALL INITIATIVES TO IMPROVE TRAFFIC FLOWS SHOULD BE EXHAUSTED BEFORE IMPLEMENTATION OF ANY ATFM MEASURES IN THE MID REGION. THIS APPROACH SHOULD BE CAPTURE AS PART OF THE AIRSPACE CONCEPT TO BE DEVELOPED BY ICAO MID STATES.~~

~~THE MID ATFM CONOPS WAS DEVELOPED CONSIDERING MANY INTERNATIONAL EXPERIENCES AND CURRENT REGIONAL CAPABILITIES, IN ORDER TO PROVIDE A REGIONAL FRAMEWORK TO MID STATES, AND COULD BE EVOLVED IN THE FUTURE TO A CENTRALIZED ATFM SOLUTION.~~

~~26.——MID ATM/CDM data exchange process will also foster the exchange of operational data with the basic available tools, in order to support States and ANSPs to improved Airspace capacity/demand management.~~

- END -

APPENDIX A
COMMON RULES FOR REPLACEMENT OF DUPLICATED 5LNCs

2.1 Whenever possible Member States with 5LNCs of the same name but allocated to more than one physical location (duplicates, triplicates, quadruplicates, etc.) shall discuss the voluntary release of duplicated 5LNCs to allow one State to retain that 5LNC. If no resolution is agreed, the following 5LNC duplicate resolution rules will apply:

RULE 1. Priority is given to (a) 5LNC(s) which is (are) already allocated in ICARD. Duplicated 5LNCs that are not allocated in ICARD shall be replaced by new 5LNCs. If two or more 5LNCs of the same name are in ICARD, Rule 2 applies.

RULE 2. If two or more 5LNCs of the same name are allocated in ICARD:

a) Creation date (date when the 5LNC was allocated in ICARD for that State)

If there are two or more 5LNCs with a creation date, the earliest date will have priority. After verification that the State with the priority date is still using that 5LNC, (a) new 5LNC(s) shall be proposed by the Regional Office(s) to the other State(s) with the same duplicated 5LNC;

b) Creation date versus no creation date

A new 5LNC(s) shall be proposed to the State(s) with no ICARD creation date;

c) No creation date

If there are two or more 5LNCs of the same name without creation dates, Rule 3 applies.

RULE 3. If Rules 1 and 2 do not resolve the 5LNC duplication, the following characteristics will have priority:

a) 5LNCs used in both terminal airspace (SIDs/STARs) and En-route airspace;

Note: The amount of changes foreseen and publication required in AIP sections AD and ENR could be very large

b) 5LNCs used in high-density/high-complexity terminal airspace (e.g. SIDs/STARs, holdings, instrument approach procedures);

c) 5LNCs used in en-route airspace (e.g. crossovers between two or more ATS routes, transfer of control points, upper/lower airspace routes, etc). Priority shall be given to highest number of ATS routes crossings through the 5LNCs concerned;

d) 5LNCs used in low-density/low-complexity terminal airspace;

e) 5LNCs used in other routes (domestic, temporary, helicopter, etc.)

RULE 4. Resolving conflicts:

a) if any of the previous rules do not resolve 5LNC duplicates and if the 5LNC duplicates are within the area of accreditation of one Regional Office, that Regional Office will make the decision;

b) if the 5LNC duplicates are in different regions, the Regional Offices involved shall agree on a resolution;

c) if any of the previous rules do not resolve the 5LNC duplicates, ICAO Headquarters, in coordination with the relevant Regional Office(s), will make the final decision.

APPENDIX B
Temporary RVSM Approval Procedure

The Procedure below is for the issuance of Temporary RVSM approval by MIDRMA Member States Civil Aviation Airworthiness Authorities:

1. The responsible Airworthiness Authority must issue Airworthiness Approval first before granting the Temporary RVSM approval for the concerned operator aircraft type.

2. The responsible Airworthiness Authority must make sure the Temporary RVSM approval is granted for new aircraft type not previously operated by the airline operator, or for the remaining number of the same aircraft type if already approved one aircraft from the same type, and in case the operator is fully compliant for height monitoring and add aircraft type already in service then the authority might grant full RVSM approval valid for two years.

Note 1: Aircraft Category 1, operator required to height monitor two aircraft every two years.

Note 2: Aircraft Category 2, operator required to height monitor 60% of their fleet.

Note 3: Aircraft Category 3, Operators of aircraft types contained in this category shall have 100% of airframes monitored every 2 years.

3. The validity of the Temporary RVSM approval must not exceed 90 days; during this period the responsible airworthiness authority shall instruct the operator to contact the MIDRMA to conduct height monitoring.

Note 1: this period is not subject to extension unless the operator provide evidence to the responsible authority to justify their failure to comply.

Note 2: in case there is a need to extend the validity of the Temporary RVSM Approval, the extended validity must not exceed another 30 days, further failure will result in cancelling the RVSM Approval and withdrawal of the aircraft from the State official RVSM approval list.

4. The MIDRMA shall keep the responsible authority aware of the progress of height monitoring of aircraft granted Temporary RVSM approval and update the height monitoring compliance status once the monitoring is successfully completed with valid result.

APPENDIX C
MIDRMA PROCEDURE TO ENSURE THE COMPLIANCE OF RVSM APPROVED AIRCRAFT REGISTERED IN THE
ICAO MIDDLE EAST REGION FOR HEIGHT MONITORING

- a) The MIDRMA will notify the States concerned every 3 months about their aircraft non-compliance with ICAO RVSM Height Monitoring requirements;
- b) States should take remedial actions to rectify the situation and ensure that their relevant aircraft are complying with ICAO RVSM Height Monitoring requirements in a timely manner, and notify the MIDRMA about their corrective action plans;
- c) States should develop corrective action plans in coordination with the airlines concerned and MIDRMA, which includes a time frame to allow the concerned airline operator rectify this violation as early as possible, this period should not exceed 90 days to perform the height monitoring;
- d) If no height monitoring would be conducted during the 90 days, the concerned States must withdraw the RVSM approval of the aircraft concerned and inform the MIDRMA;
- e) The MIDRMA should issue a warning to all MID States and RMAs related to non-compliance aircraft registered in the MID Region;
- f) The MIDRMA in coordination with the ICAO MID Office will continue working closely with the States concerned to resolve the issue; and
- g) Once the issue would be resolved, a notification should be issued by MIDRMA to all MID States and RMAs.

INTERNATIONAL CIVIL AVIATION ORGANIZATION



**MID REGION
ATM CONTINGENCY PLAN**

Version 25.0 (Draft) November 20222023

This concept was developed by the ICAO MID ATM SG.

Approved by MIDANPIRG/xx20 and published by the
ICAO MID Office, Cairo

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**MIDDLE EAST AIR NAVIGATION PLANNING
AND IMPLEMENTATION REGIONAL GROUP
(MIDANPIRG)**

MID-REGION ATM CONTINGENCY PLAN

EDITION APRIL, 2016

~~The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontier or boundaries.~~

RECORD OF AMENDMENTS

The MID Region ATM contingency plan should be reviewed and updated by the ATM Sub-Group and presented to MIDANPIRG for endorsement.

The table below provides a means to record all amendments. An up-to-date electronic version of the Plan will be available on the ICAO MID Regional Office website.

<u>Edition Date</u>	<u>Description</u>	<u>Pages Affected</u>
<u>15 July 2014</u>	<u>First edition</u>	<ul style="list-style-type: none">• <u>Focal Points</u>• <u>Status of Contingency Agreements</u>
<u>26 November 2014</u>	<u>Second edition</u>	<ul style="list-style-type: none">• <u>Focal Points</u>• <u>Introduction</u>• <u>Chapter 2 (CCT)</u>
<u>11 June 2015</u>	<u>Third edition</u>	<ul style="list-style-type: none">• <u>Chapter 2 (CCT)</u>• <u>Chapter 2 Notification Procedure</u>
<u>20 April 2016</u>	<u>Fourth edition</u>	<ul style="list-style-type: none">• <u>Focal Points</u>• <u>Editorials</u>
<u>Xx Feb 2023</u>	<u>Fifth edition</u>	<u>All pages</u>

~~MID REGION AIR TRAFFIC MANAGEMENT CONTINGENCY PLAN~~

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1. GLOSSARY

1.1 Abbreviations and Acronyms

<u>ACC</u>	<u>Area Control Centre</u>
<u>AIM</u>	<u>Aeronautical Information Management</u>
<u>ATC</u>	<u>Air Traffic Control</u>
<u>ATFM</u>	<u>Air Traffic Flow Management</u>
<u>AU</u>	<u>Airspace User</u>
<u>CCT</u>	<u>Contingency Coordination Team</u>
<u>CDR</u>	<u>Conditional Route</u>
<u>CNS</u>	<u>Communication, Navigation and Surveillance</u>
<u>FIR</u>	<u>Flight Information Region</u>
<u>GNSS</u>	<u>Global Navigation Satellite System</u>
<u>LOA</u>	<u>Letter of Agreement</u>
<u>MIDANPIRG</u>	<u>MID Air Navigation Planning and Implementation Regional Group</u>
<u>PBN</u>	<u>Performance-based Navigation</u>
<u>RNAV</u>	<u>Area Navigation</u>
<u>RVSM</u>	<u>Reduced Vertical Separation Minimum</u>
<u>TDS</u>	<u>Traffic Data Sample</u>

1.2 Terminology and Definition

Air traffic flow management (ATFM). A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

Air traffic management system. A system that provides ATM through the collaborative integration of humans, information, technology, facilities, and services, supported by air and ground- and/or space-based communications, navigation and surveillance.

Conditional route (CDR). A non-permanent ATS route or portion thereof which can be planned and used under specified conditions.

A Conditional Route may have more than one category, and those categories may change at specified times:

- a) **Category One - Permanently Plannable CDR:** CDR1 routes are in general available for flight planning during times published in the relevant national Aeronautical Information Publication (AIP). Updated information on the availability in accordance with conditions published daily AUP notification.
- b) **Category Two - Non-Permanently Plannable CDR:** CDR2 routes may be available for flight planning. Flights may only be planned on a CDR2 in accordance with conditions published daily AUP notification, and
- c) **Category Three - Not Plannable CDR:** CDR3 routes are not available for flight planning; however, ATC Units may issue tactical clearances on such route segments.

Global navigation satellite system (GNSS). A worldwide position and time determination system that includes one or more satellite constellations, aircraft receivers and system integrity monitoring, augmented as necessary to support the required navigation performance for the intended operation.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Regional ATS route. An ATS route shall be considered as the MID regional ATS route network provided that:

- a) Cross-bordered (at least initiate/terminate from FIR boundary);
- b) Route designator shall be assigned in accordance with Annex 11, Appendix 1 and the ICAO Codes and Routes Database (ICARD) requirement; and
- a)c) Published in ICAO Air Navigation Plan (ANP)- Middle East Region (Doc 9708), Volume II, Table ATM II-MID-1 MID Region ATS Route Network.

FOREWORD

~~This Document is for guidance only. Regulatory material relating to the MID Regional aircraft operations is contained in relevant ICAO Annexes, PANS/ATM (Doc.4444), Regional Supplementary Procedures (Doc.7030), States AIPs, and current NOTAMs, bulletin, and other related publications which should be read in conjunction with the material contained in this Document.~~

~~Guidelines for contingency measures for application in the event of disruptions of air traffic services and related supporting services were first approved by the Council on 27 June 1984 in response to Assembly Resolution A23-12, following a study by the Air Navigation Commission and consultation with States and international organizations concerned, as required by the Resolution. The guidelines were subsequently amended and amplified in the light of experience gained with the application of contingency measures in various parts of the world and in differing circumstances.~~

~~—————The purpose of the guidelines is to assist in providing for the safe and orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services and in preserving the availability of major world air routes within the air transportation system in such circumstances.~~

~~—————The MID Regional Air Traffic Management Contingency Plan is primarily for the information to operators and pilots planning and conducting operations in MID Region. The intent is to provide a description of the arrangements in place to deal with a range of contingency situations.~~

~~—————This Contingency Plan has been developed with the approval of the Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG); a MID Regional planning body established under the auspices of the International Civil Aviation Organization (ICAO). This Group is responsible for developing the required operational procedures; specifying the necessary services and facilities and; defining the aircraft and operator approval standards employed in the MID Region.~~

CHAPTER 1

INTRODUCTION

1.1 The various circumstances surrounding each contingency situation preclude the establishment of exact detailed procedures to be followed. The purpose of this plan is to assist in providing for the safe and orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services and in preserving the availability of major world air routes within the air transportation system in such circumstances.

1.2 The MID Regional Air Traffic Management Contingency Plan is primarily for the information to operators and pilots planning and conducting operations in MID Region. The intent is to provide a description of the arrangements in place to deal with a range of contingency situations.

1.3 The MID Region Air Traffic Management (ATM) Contingency Plan has been developed to ensure, to the extent possible, the continued safety of air navigation in the event of disruption or potential disruption of Air Traffic Services and related supporting services in the MID Region, in accordance with the provisions of ICAO Annex 11 – Air Traffic Services, Chapter 2, paragraph 2.3.20 and its Attachment C. The Plan might be also activated in cases when airspace users decided to circumnavigate airspace(s) due to ~~conflict zones, weather, etc. or due to a perceived risk to the safety of flight~~ with a minimum of disruption to flight operations. ~~Caused by man-made or natural events, which might have negative impact on provision of ATS services on the relevant FIR i.e. CNS equipment failure (fully or partially) consequences increase significantly not only decrease airspace capacity over that FIR, but also significantly increase and change the flow of the traffic the air traffic~~ in other airspace(s).

1.4 The total aircraft movements to,/-from and within the Middle East Region are estimated to increase from some 976400 in 2010 to slightly above 5204000 in 2030 at an average annual growth rate of 8.7 per cent over the same period.

~~The table shows the aircraft movements forecast to the year 2030:~~

	Actual	Forecast	Average Annual Growth
	2010	2030	2010-2030 (per cent)
AFR-MEA	68588	446722	9.8
ASIA-MEA	261359	1384191	8.7
EUR-MEA	276285	977855	6.5
INTRA MEA	349324	2287506	9.9
NAM-MEA	20843	107917	8.6
TOTAL	976399	5204191	8.7

~~Contingency Routing (CR) has been developed and contained in the Plan based on the major traffic flows through the MID Region, taking into consideration the movements' number between City Pairs. Activation of these routes is described in para XXX.~~

~~This Plan is designed to provide alternative routes for the Regional and International traffic flows between destinations within the MID Region, and connections to/from Asia, Africa, and Europe, which will allow aircraft operators to circumnavigate airspace(s) in the MID Region, as deemed necessary, or due to a perceived risk to the safety of flight, with a minimum of disruption to flight operations.~~

~~These alternative routes (Contingency Routing – CR) are based mainly on the existing route network or established earlier for this purpose. Concerned States, in consultation with airspace users, might establish temporary routes to be able to accommodate extra traffic in a safe manner.~~

~~It is recognized that operators may incur economic penalties during application of the contingency scenarios. Therefore, air traffic flow measures would be implemented as deemed necessary.~~

~~The ICAO MID Regional Office will coordinate with ICAO HQ and the concerned Regional Offices any amendment to the Regional Contingency Plan.~~

~~The appropriate ICAO Regional Office will distribute this contingency plan to all relevant States and international organizations within their regions.~~

~~This Document is available to users through the ICAO MID website https://portal.icao.int/RO_MID/Pages/eDocs.aspx <https://www.icao.int/MID/MIDANPIRG/Pages/MID-Does.aspx>.~~

~~In order to maintain the effectiveness of the Plan, Stakeholders are encouraged to provide the ICAO MID Regional Office (icaomid@icao.int) with their comments/suggestions and updates, on periodical basis.~~

~~On the other hand, MID Region States are encouraged to develop their national contingency plan based on this document, and to share it with ICAO MID and adjacent FIRs/ ATC units for activation in case major disruption of the services occurs (for example in case of weather disaster).~~

MID Region ATM Contingency Focal Points

~~The List of the MID Region ATM Contingency Focal Points is at **Table 1**. This list should be reviewed and updated, as appropriate.~~

Table 1.MID Region ATM Contingency Focal Points

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
BAHRAIN						
Mr. Saleem Mohammed Hasan	97317321117		97339608860	973-173219966	saleemmh@caa.gov.bh	Bahrain ACC Duty Supervisor Tel: 973-17321081/1080 Fax: 973-17321029 Email: bahate@caa.gov.bh
EGYPT						
Mr. Moatassem Baligh	202-2657849	202-6391792	01001695252	202-2680627	moatassm_5@hotmail.com	
IRAN						
Mr. Masoud Nikbakht DG of ATM Department	98-21-44544101		98-9123263905	9821-44544102	masoudnikbakht@gmail.com	<i>Note.</i> During New Year Holidays in Iran (20 March – 5 April) or for any urgent message Contact Tehran ACC on +9821-44544116
Mr. Ahmad Kavehfirouz Deputy Director of Tehran ACC	9821-44544119		989123230447	9821-44544102	ahmadkavehfirouz@gmail.com	

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
IRAQ						
Mr. Fadhil Getea Director-ATS	9641813337 0		964 782884499 8		ate@iraq caa.com	
JORDAN						
Mr. Nayef Al Marshoud Director, ATM	9626 489 7729	962 5 3862584	962 797498992 962 777789470	9626 4891 266	nayefmar shoud@h otmail.ee m datm@ca re.gov.jo	
KUWAIT						
Mr. Adel S. Boreshi Director — Air Navigation	965 24710268		965990365 56	965 24346221	as.bureshi @dcea.g ov.kw	
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SYRIA						
Mr. Hassan Hamoud ATM Director	0096311540 10180	0096311 6460395	-00963 988235106	963 11 54010180 +	ans@sea a.sy hamoud- hasan@y ahoo.ee m	P.O.BOX:6257 Damascus, Syria

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
UNITED ARAB EMIRATES (UAE)						
Mr. Ahmed Al Jallaf Assistant Director General, ANS, GCAA	9712-599 6888		97150-614 9065	9712-599 6883	ajjallaf@ sze.geaa. ae	9712-599-6999 SCZ
Mr. Hamad Al Belushi Director ATM	971-2 5996830		+971-50 616-4350	971-2 5996836	hbelushi @sze.gea a.ae	
YEMEN						
Mr. Abdullah Abdulwareth Aleryani	967-1- 345403	967-1- 344254	967777190 602	967-1- 345403	ernlabd @gmail. com	D.G-ACC/FIC
Mr. Ahmed Mohammed- Al-Koobati	967-1- 344675	967-1- 214375	967777241 375	967-1- 344047	CAMA7 0@yahoo .com	D-Air Navigation Operation
IATA						
Mr. George Rhodes	96-26-580 4200 Ext 1215			962-(6) 593-9912	rhodesg @iata.or g SFOME NA@iata .org	
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ICAO APAC						
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NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
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Mr. Sebosese Machobane (RO-ATM)					Smachobane@icao.int	
ICAO-EUR/NAT						
Mr. Sven Halle (RO/ATM)					shalle@icao.int	
ICAO-WACAF						
Mr. Albert Taylor (RO/ATM)					Ataylor@icao.int	
ICAO Headquarters						
Mr. Chris Dalton (C/AMO)	1514-954-6711				edalton@icao.int	

CHAPTER 12

MID STATES' CONTINGENCY PLANS REQUIREMENTS

States requirements

1.1. As indicated in Annex 11, Chapter 2, Para 2.32 as well as material related to contingency planning indicated in Annex 11, Attachment C, States Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO MID as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned. The States contingency plans should ~~include~~ be supported by contingency agreement with adjacent ACCs as well as regional arrangements, ~~to be implemented in the event of natural disasters, military conflicts or public health emergencies.~~

1.2. States should include in their contingency plans provisions related to the spread of communicable diseases such as COVID-19, based on the ICAO guidance related to the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA).

The State(s) responsible for providing air traffic services and related supporting services in particular portions of airspace is (are) also responsible, in the event of disruption or potential disruption of these services, for instituting measures to ensure the safety of international civil aviation operations and, where possible, for making provisions for alternative facilities and services. To that end the State(s) should develop, promulgate and implement appropriate contingency plans. Such plans should be developed in consultation with other States and airspace users (AUs) concerned and with ICAO MID, as appropriate, whenever the effects of the service disruption(s) are likely to affect the services in adjacent airspace.

1.2.1.3. The responsibility for appropriate contingency action in respect of airspace over the high seas continues to rest with the State(s) normally responsible for providing the services until, and unless, that responsibility is temporarily reassigned by ICAO to (an) other State(s).

1.4. States should periodically review their national contingency plan and coordinate any amendments with neighbouring States and ICAO MID Office. ~~And to provide an updated plan to the ICAO MID Regional Office.~~

1.3.1.5. The State contingency plan shall include an authorization to the CCT team (including ICAO MID Regional Office) to activate the plan and CCT ~~when~~ upon confirmation received from States focal point as mentioned in Appendix A that the current State/ANSP is subject to significant degradation or disruption ~~unable to~~ which is necessary to perform the expected level of ~~provide~~ the services.

~~1.4. MID States' Contingency Plans are available at the ICAO MID Regional Office and the status of contingency agreements in the MID Region is at Table 2.~~

States Focal Points

1.6 The List of the MID States ATM Contingency Focal Points is at Appendix A. This list should be reviewed and updated, as appropriate (at least one a year through ATM SG meeting).

States contingency notification

1.7 In Limited-Service situations: the individual States/ANSP will decide upon the level of notification necessary and take action as required to cascade the information.

1.8 In No Service situations: it is likely that the ATC facility involved will be subject to evacuation. In this instance, the States/ANSP should issue NOTAMs and broadcast on appropriate frequencies that contingency procedures have been initiated. The notification process employed by individual States/ANSPs should be detailed in their national plan. However, the general format will be as the following example of the type of information which may be promulgated:

NOTAM

“Due to emergency evacuation of [ATC unit] all ATC services are terminated. Flights within ([States]) FIR should continue as cleared and contact the next ATC unit as soon as possible. Flights not in receipt of an ATC clearance should land at an appropriate airfield or request clearance to avoid [State] FIR. Flights should monitor (defined frequencies).”

Broadcast an evacuation message on appropriate frequencies:

“Emergency evacuation of [ATC unit] is in progress. No air traffic control service will be provided by [ATC unit]. Use extreme caution and monitor [control frequencies], emergency frequencies and air to air frequencies. Contact the next air traffic control unit as soon as possible”.

1.9 In the event that the CAA is unable to issue the NOTAM, the (alternate) CTA/UTA/FIR will take action to issue the NOTAM of closure airspace upon notification by corresponding CAA or the ICAO MID Regional Office.

Traffic Information Broadcast by Aircraft (TIBA) procedures

1.10 States should consider procedures have been developed in accordance with the Traffic Information Broadcast by Aircraft (TIBA) recommended by ICAO, Annex 11 – Air Traffic Services, Attachment B.

Table 2. Status of Contingency Agreements in the MID Region

STATE	CORRESPONDING STATES			REMARKS*
BAHRAIN	<input checked="" type="checkbox"/> IRAN <input checked="" type="checkbox"/> KUWAIT	<input checked="" type="checkbox"/> QATAR <input checked="" type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE	Completed
EGYPT	<input checked="" type="checkbox"/> GREECE <input checked="" type="checkbox"/> JORDAN	<input checked="" type="checkbox"/> LYBIA <input checked="" type="checkbox"/> CYPRUS	<input checked="" type="checkbox"/> SAUDI ARABIA <input checked="" type="checkbox"/> SUDAN	Completed
IRAN	<input checked="" type="checkbox"/> ARMENIA <input type="checkbox"/> AZERBAIJAN <input type="checkbox"/> TURKMENISTAN <input type="checkbox"/> AFGHANISTAN	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAQ <input type="checkbox"/> KUWAIT <input checked="" type="checkbox"/> OMAN	<input checked="" type="checkbox"/> PAKISTAN <input checked="" type="checkbox"/> TURKEY <input checked="" type="checkbox"/> UAE	7/11
IRAQ	<input checked="" type="checkbox"/> IRAN <input type="checkbox"/> JORDAN	<input type="checkbox"/> KUWAIT <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA <input type="checkbox"/> TURKEY	4/6
JORDAN	<input checked="" type="checkbox"/> EGYPT <input type="checkbox"/> IRAQ	<input type="checkbox"/> ISRAEL <input checked="" type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA	2/5
KUWAIT	<input checked="" type="checkbox"/> BAHRAIN <input type="checkbox"/> IRAN	<input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> SAUDI ARABIA	2/4
LEBANON	<input type="checkbox"/> CYPRUS	<input type="checkbox"/> SYRIA		0/2
LIBYA	<input type="checkbox"/> ALGERIA <input type="checkbox"/> CHAD <input checked="" type="checkbox"/> EGYPT	<input type="checkbox"/> MALTA <input type="checkbox"/> NIGER	<input type="checkbox"/> SUDAN <input type="checkbox"/> TUNIS	1/7
OMAN	<input type="checkbox"/> INDIA <input checked="" type="checkbox"/> IRAN	<input type="checkbox"/> PAKISTAN <input type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE <input checked="" type="checkbox"/> YEMEN	3/6
QATAR	<input checked="" type="checkbox"/> BAHRAIN	<input type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE <input checked="" type="checkbox"/> Iran	2/3
SAUDI ARABIA	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> EGYPT <input type="checkbox"/> ERITREA <input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> JORDAN <input checked="" type="checkbox"/> KUWAIT <input type="checkbox"/> OMAN <input type="checkbox"/> QATAR	<input type="checkbox"/> SUDAN <input checked="" type="checkbox"/> UAE <input type="checkbox"/> YEMEN	5/11
SUDAN	<input type="checkbox"/> CENTRAL AFRICAN <input type="checkbox"/> CHAD <input checked="" type="checkbox"/> EGYPT	<input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA <input type="checkbox"/> LIBYA	<input type="checkbox"/> SAUDI ARABIA <input type="checkbox"/> SOUTH SUDAN	1/8
SYRIA	<input type="checkbox"/> IRAQ <input type="checkbox"/> JORDAN	<input type="checkbox"/> LEBANON <input type="checkbox"/> CYPRUS	<input type="checkbox"/> TURKEY	0/5
UAE	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAN	<input checked="" type="checkbox"/> OMAN <input type="checkbox"/> QATAR	<input checked="" type="checkbox"/> SAUDI ARABIA	4/5
YEMEN	<input type="checkbox"/> DJIBOUTI <input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA	<input type="checkbox"/> INDIA <input checked="" type="checkbox"/> OMAN <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SOMALIA	1/7

Agreement Signed Agreement NOT Signed *Signed Agreements / Total No. of required Agreements

CHAPTER 23

COMMON REGIONAL PROCEDURES

General

2.1 ICAO MID office is responsible to monitor the status of MID States' Contingency Plans with adjacent FIRs and provide update information in **Appendix B** to ATM SG for review, action and follow up.

2.2 This Plan is developed to provide **at least 3 alternative** routes for each Regional and International traffic flows between destinations within the MID Region, and connections to/from Asia, Africa, and Europe. which will allow aircraft operators to circumnavigate airspace in the MID Region, as deemed necessary, due to a perceived risk to the safety of flight with a minimum of disruption to flight operations.

Note 1: based on States TDS reports and routing options to MIDRMA, MID Office is responsible to update regional routing options accordingly.

Note 2: to achieve the requirement in para 2.2, ICAO MID office based on ANP Volume II, Table I, ATS route table should provide MID region ATS route network gap analysis report to ATM SG and RDWG meetings to take the required decisions and actions.

2.3 These alternative routes including permanent and temporary as well as conditional route (CDR) are based mainly on the existing route network or established earlier for this purpose. Concerned States, in consultation with AUs, might establish additional temporary routes to be able to accommodate extra traffic in a safe manner.

Note: Regional ATS routes which are allocated for provision of service during contingency situation are available in ANP Volume II, Table I, ATS route table under the condition of "Note 5-CDR" which will be used during specified period by issuing required NOTAM.

2.4 It is recognized that operators may incur economic penalties during application of the contingency scenarios by imposing additional track miles or implementation of air traffic flow management measures when deemed necessary.

2.5 The ICAO MID Regional Office will coordinate with ICAO HQ and the concerned Regional Offices any amendment to the Regional Contingency Plan. Accordingly, the appropriate ICAO Regional Office will distribute this contingency plan to all relevant States and international organizations within their own regions.

2.6 This Document is available to users through the ICAO MID website <https://www.icao.int/MID/MIDANPIRG/Pages/MID-Docs.aspx>. In order to maintain the effectiveness of the Plan, Stakeholders are encouraged to provide the ICAO MID Regional Office (icaomid@icao.int) with their comments/suggestions and updates, on yearly basis.

2.7 For harmonization at national, regional, and global levels, MID Region States are encouraged to take into consideration of this document for development or update their national contingency plan, and to share it with ICAO MID and adjacent FIRs/ATC units for activation in case major disruption of the services occurs.

~~Implementation of the plan~~ **Composition and task of Contingency Coordination Team (CCT)**

2.8 A Contingency Coordination Team (CCT) to be established from the following members:

- ICAO (HQ and MID Regional Offices Focal points) and IATA as permanent members;
- States concerned focal point(s) as essential members; and
- Other ICAO MID Regional Offices, Organizations, Agencies etc., when deemed necessary, as temporary members.

2.9 The main tasks of the CCT are as follows:

- initiate action for the upon notification, activation/deactivation of the regional cContingency Plan arrangement;
- monitor continuously monitor the progress of contingency status by using information from all available, valid, reliable and relevant sources;
- based on the States progress reports and challenges, take the required decision(s) and action(s) to manage/accommodate regional traffic flow in the safe and efficient manner.
- ~~initiate action for the activation/deactivation of the Contingency Plan;~~
- arrange for the constant supply of relevant operational and aeronautical information to the ICAO Regional Offices and Headquarters;
- liaise with international/regional organizations as appropriate;
- exchange up-to-date information with States directly concerned and States which are potential participants in contingency arrangements.
- Make a decision to deactivate CCT

Note: For efficient communication between stakeholders, ~~the notification/coordination process at Table 3 Appendix C would should be used to facilitate coordination between ICAO MID and concerned members~~ the challenges related to the implementation of contingency arrangements.

2.10 ICAO MID Office is responsible to disseminate agreed contingency arrangement to States focal points and regional organizations for further coordination with the relevant parties i.e. ANSP, airlines and etc. In the event of adoption of contingency procedures States/ANSPs will notify all affected agencies and operators appropriately. Using the available communication means (State letters, email, phone calls, social media (WhatsApp)).

2.1. ~~In No Service situations: it is likely that the ATC facility involved will be subject to evacuation. In this instance the States/ANSP will should issue NOTAMs and broadcast on appropriate frequencies that contingency procedures have been initiated. The notification process employed by individual States/ANSPs is should be detailed in their national plan. However the general format will be as the following example of the type of information which may be promulgated:~~

NOTAM

“Due to emergency evacuation of ([States] ACC [ATC unit]) all ATC services are terminated. Flights within ([States] ACC) FIR should continue as cleared and contact the next ATC agency unit as soon as possible. Flights not in receipt of an ATC clearance should land at an appropriate airfield or request clearance to avoid [(State)] FIR. Flights should monitor (defined frequencies).”

Broadcast an evacuation message on appropriate frequencies:

“Emergency evacuation of ([Sates] ACC [ATC unit]) is in progress. No air traffic control service will be provided by [(States] ACC)[ATC unit]. Use extreme caution and monitor [(control frequencies)], emergency frequencies and air to air frequencies. Contact the next air traffic control unit as soon as possible”.

Traffic Information Broadcast by Aircraft (TIBA) procedures

The following communications procedures have been developed in accordance with the Traffic Information Broadcast by Aircraft (TIBA) procedures recommended by ICAO (Annex 11 – Air Traffic Services, Attachment C). These procedures should be applied when completing an altitude change to comply with the ATC clearance.

At least 5 minutes prior to the commencement of a climb or descent the flight should broadcast on the last assigned frequency, 121.5, 243.0 and 123.45 MHz the following:

~~“ALL STATION (callsign) (direction) DIRECT FROM (landfall fix) TO (oceanic entry point) LEAVING FLIGHT LEVEL (number) FOR FLIGHT LEVEL (number) AT (distance)(direction) FROM (oceanic entry point) AT (time)”~~

When the level change begins, the flight should make the following broadcast:

~~“ALL STATIONS (callsign) (direction) DIRECTION FROM (landfall fix) TO (oceanic entry point) LEAVING FLIGHT LEVEL (number) NOW FOR FLIGHT LEVEL (number).”~~

When level, the flight should make the following broadcast:

~~“ALL STATIONS (callsign) MAINTAINING FLIGHT LEVEL (number).”~~

Table 31. Notification/coordination process

Airspace Avoidance				
Airlines	Airline Actions	IATA Actions	ICAO MID Office	States/ANSP
Monitor global activities that have an effect on flight operations. (currently in place)	NONE	NONE	NONE	NONE
Review state activity that requires airline safety and security review (currently in place)	Notify IATA as to effected FIR’ and factors under review. (security and or safety)	When more than (30%) of airlines reporting, notify ICAO MID	Call for the Contingency Coordination Team (CCT)	NONE
Identify specific Factors and pending trigger events (currently in place)	inform IATA on review findings and possible trigger events	Inform CCT on findings and number of airlines reporting	Notify effected states/ANSP on number of airlines reviewing current activity	NONE
Event triggered: reviewing avoidance options and select avoidance scenario	Inform IATA of selected scenario and volume/initial timelines.	Inform CCT	Notify effected States/ANSP scenario and volume/timelines	Review scenario and give feedback on feasibility
48 Hours prior to activation of planned avoidance re-routes	Notify IATA	Notify CCT	Notify effected states/ANSP	Prepare NOTAMS and avoidance scenario
24 Hours prior to activation of planned avoidance re-routes	Notify IATA	Notify CCT	Notify effected states/ANSP	Publish NOTAMS

CHAPTER 34

AIR TRAFFIC MANAGEMENT

ATS Responsibilities

- 3.1. Tactical ATC considerations during periods of overloading may require re-assignment of routes or portions thereof.
- 3.2. Alternative routes should be designed to maximize the use of existing ATS route structures and communication, navigation and surveillance services.
- 3.3. In the event that ATS cannot be provided within ~~the (XXX)~~ any portion of airspace (CTA/UTA/FIR...), the Civil Aviation Authority shall publish the corresponding NOTAM indicating the following:
- a) Time and date of the beginning of the contingency measures;
 - b) Airspace available for landing and overflying traffic and airspace to be avoided;
 - c) Details of the facilities and services available or not available and any limits on ATS provision (e.g., ACC, APP, TWR and FIS), including an expected date of restoration of services if available;
 - d) Information on the provisions made for alternative services;
 - e) ATS contingency routes;
 - f) Procedures to be followed by neighbouring ATS units;
 - g) Procedures to be followed by pilots; and
 - h) Any other details with respect to the disruption and actions being taken that aircraft operators may find useful.

~~The ICAO MID Office will facilitate the communication with the concerned State.~~

~~3.4.3.1. In the event that the CAA is unable to issue the NOTAM, the (alternate) CTA/UTA/FIR will take action to issue the NOTAM of closure airspace upon notification by corresponding CAA or the ICAO MID Regional Office.~~

Separation

~~3.5.3.4.~~ Separation criteria will be applied in accordance with the *Procedures for Air Navigation Services-Air Traffic Management* (PANS-ATM, Doc 4444) and the *Regional Supplementary Procedures* (Doc 7030).

Level Restrictions

~~3.6.3.5.~~ Where possible, aircraft on long-haul international flights shall be given priority with respect to cruising levels.

Other measures

~~3.7.3.6.~~ Other measures related to the closure of airspace and the implementation of the contingency scheme with the (XXX) CTA/UTA/FIR may be taken as follows:

- a) Suspension of all VFR operations;
- b) Delay or suspension of general aviation IFR operations; and
- c) Delay or suspension of commercial IFR operations.

Transition to Contingency Plan

~~3.8.3.7.~~ During times of uncertainty when airspace closures seem possible, aircraft operators should expect to be diverted to an alternate aerodrome or be prepared for a possible ~~change in~~ re-routing while in en-route phase, familiarization of the alternative routes outlined in the contingency plan as well as what may be promulgated by a State via NOTAM or AIP; or by the CCT team.

~~3.9.3.8.~~ In the event of airspace closure that has not been promulgated, ATC should, if possible, broadcast to all aircraft in their airspace, what airspace is being closed and to stand by for further instructions.

~~3.10.3.9.~~ ATS providers should recognize that when closures of airspace or airports are promulgated, individual airlines might have different company requirements as to their alternative routings. ATC should be ~~alert~~alerted to respond to any request by aircraft and react commensurate with safety.

~~3.11.3.10.~~ During the contingency operations, States concerned should take necessary measures to grant special over flight permissions to those flights avoiding the affected Airspace(s).

Transfer of Control and Coordination

~~3.12.3.11.~~ The transfer of control and communication should be at the common FIR boundary between ATS units unless there is mutual agreement between adjacent ATS units. ATS providers should also review current coordination requirements in light of contingency operations or short notice of airspace closure.

Approval process of national contingency plan

CHAPTER 45

AIRSPACE AND ALTERNATIVE ROUTINGS

4.1. This Contingency Plan has been developed based on existing ATS routes and making use of appropriate contingency routes in the MID Region. Priority has been given to safety considerations and to ensuring that to the extent possible, ATC operations are not complicated. Temporary routes may be established where necessary.

4.2. The contingency routings are designed to take into consideration that disruptions to normal traffic flows have the potential to create an additional burden and complexity to ATC. Therefore, temporary contingency routes would be designed to be safe and instantly manageable by ATC. This may require additional track miles to be flown by the aircraft operator.

~~4.3. The alternative routings were given “CR” designators based on various scenarios that may be implemented. It is to be highlighted that the scenarios drawn on the charts were developed based on the existing route network, and do not reflect new routes. Furthermore, one scenario could be used to avoid different FIRs, subject to users’ requirements. The scenarios are detailed in the Table 3 below:~~

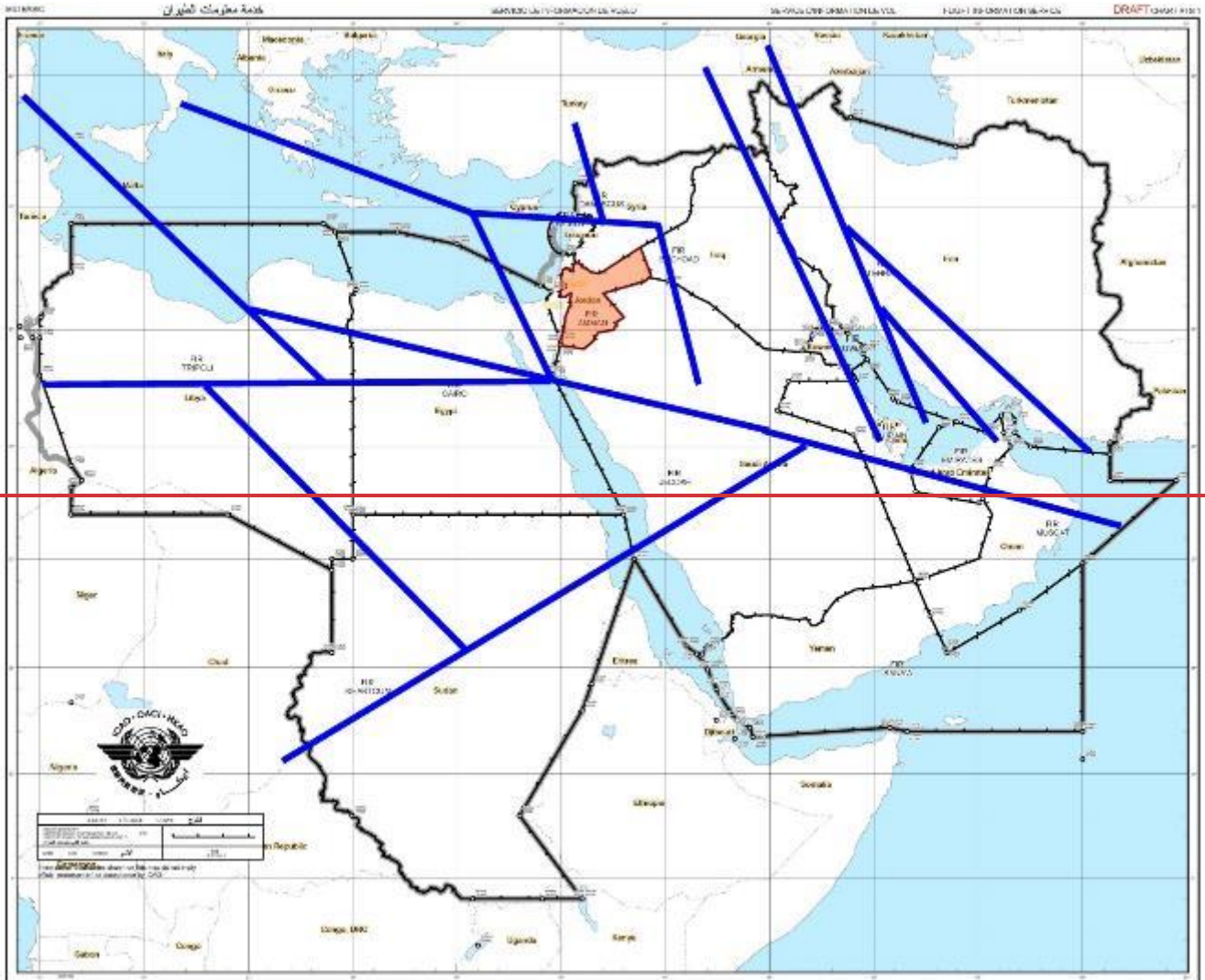
CR	FIR(s) to be Avoided	<i>Traffic Flows through the MID Region</i> <u>Alternative routings/FIRs Routing options</u>	Remarks
CR-1	Amman	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Jeddah ▪ Ankara, Tehran ▪ Ankara, Damascus, Baghdad, Jeddah <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Cairo, Jeddah ▪ Nicosia, Beirut, Damascus, Baghdad, Jeddah <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah <p><i>Southern Africa from/to Asia</i></p> <p>Not Applicable</p>	
CR-2	Baghdad <u>and</u> <u>Qatar</u>	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Tehran, (Kuwait) or (Bahrain) or (UAE) ▪ Ankara, Damascus, Amman, Jeddah <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah ▪ Nicosia, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Addis Ababa, (Asmara, Jeddah) or (Mogadishu, Sana’a) 	
CR-3	Bahrain	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, (Baghdad), Tehran, UAE, Muscat ▪ Ankara, Baghdad, Jeddah, Sana’a, Muscat <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah, Sana’a; Muscat ▪ Nicosia, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah, Sana’a, Muscat <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah, Sana’a, Muscat <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Sana’a, Muscat 	

		<ul style="list-style-type: none"> ▪ Addis Ababa, Mogadishu, Sana'a, Muscat 	
CR-4	Beirut, Damascus	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad Jeddah or Kuwait; ▪ Ankara, Tehran <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Cairo, Jeddah <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum Addis Ababa, Mogadishu, Sana'a ▪ Khartoum, Jeddah 	
CR-5	Cairo	<p><i>Eastern Europe from/to Asia</i> Not Applicable</p> <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah ▪ Nicosia, Damascus, Baghdad; Kuwait, Bahrain, UAE ▪ Malta, Tripoli, Khartoum, Jeddah ▪ Malta, Tripoli, Khartoum, Asmara, Jeddah or Sana'a <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Tripoli, Khartoum, Jeddah ▪ Tripoli, Khartoum, Asmara, Jeddah or Sana'a ▪ Algiers, Niamey, N'djamena, Khartoum, Asmara, Jeddah or Sana'a <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Sana'a, Muscat ▪ Addis Ababa, (Asmara, Jeddah) or (Mogadishu, Sana'a) 	
		—	
CR-6	Iran <u>Tehran</u>	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Baku, Turkmenbashi, Ashgabat, Turkmenabad, Kabul, Karachi, Muscat or Delhi ▪ Baghdad, Kuwait, Bahrain, UAE, Muscat ▪ Nicosia Damascus Amman, Jeddah <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah <p><i>Northern Africa from/to Asia</i> Not Applicable</p> <p><i>Southern Africa from/to Asia</i> Not Applicable</p>	
CR-7	Jeddah	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Kuwait, Bahrain, UAE, Muscat ▪ Ankara, Damascus, Amman, Baghdad, Kuwait, Bahrain, UAE <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Baghdad, Kuwait, Bahrain, 	

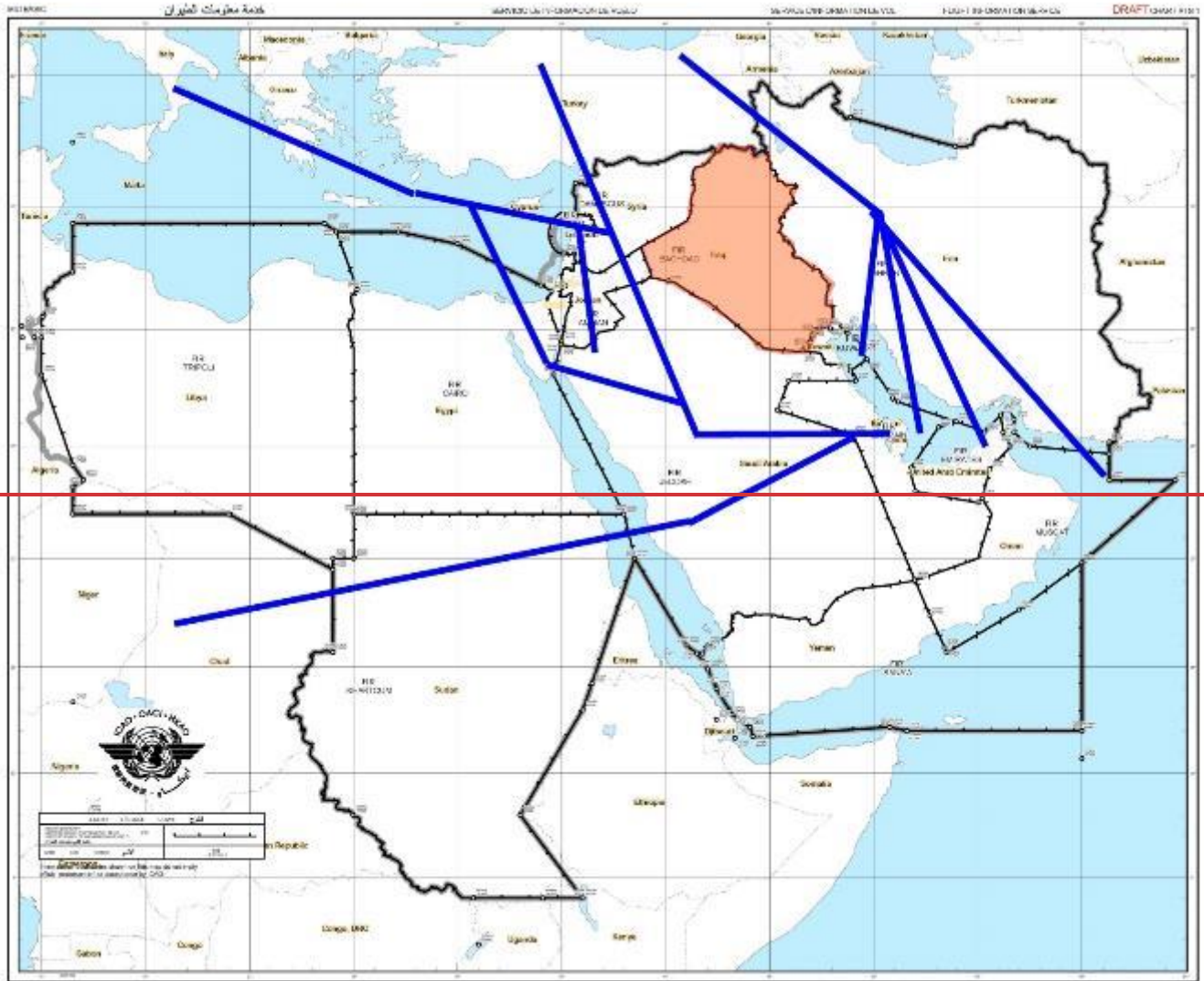
		<ul style="list-style-type: none"> ▪ Athens or Nicosia, Cairo, Amman, Baghdad, Kuwait, Bahrain <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Khartoum, Asmara, Sana'a <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Asmara, Sana'a ▪ Addis Ababa, Mogadishu, Sana'a, Muscat 	
CR 8	Khartoum	<p><i>Eastern Europe from/to Asia</i> Not Applicable</p> <p><i>Western Europe from/to Africa</i> Not Applicable</p> <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah ▪ Tripoli, N'djamena, Brazzaville, Kinshasa, Entebbe, Nairobi Addis Ababa, Mogadishu, Sana'a, Jeddah or Muscat. <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Kinshasa, Entebbe, Nairobi Addis Ababa, Mogadishu, Sana'a, Jeddah or Muscat 	
CR 9	Muscat, UAE	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Jeddah, Sana'a <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah, Sana'a ▪ Nicosia, Damascus, Amman, Jeddah ▪ Nicosia, Cairo, Jeddah, Sana'a <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah, Sana'a <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Sana'a ▪ Addis Ababa, (Asmara Jeddah) or (Mogadishu, or Sana'a) 	
CR 10	Sana'a	<p><i>Eastern Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Ankara, Baghdad, Tehran, UAE, Muscat ▪ Ankara, Baghdad, Jeddah, Bahrain, Muscat <p><i>Western Europe from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Nicosia, Beirut, Damascus, Amman, Jeddah, Bahrain; Muscat ▪ Nicosia, Damascus, Amman, Jeddah, Bahrain; Muscat ▪ Nicosia, Cairo, Jeddah, Bahrain; Muscat <p><i>Northern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Cairo, Jeddah, Bahrain; Muscat <p><i>Southern Africa from/to Asia</i></p> <ul style="list-style-type: none"> ▪ Khartoum, Jeddah, Bahrain; Muscat ▪ Addis Ababa, (Asmara Jeddah) or (Mogadishu, Mumbai, Muscat 	
CR 11	Tripoli	<p><i>Eastern Europe from/to Asia</i> Not Applicable</p> <p><i>Western Europe from/to Africa</i></p> <ul style="list-style-type: none"> ▪ Malta, Cairo, Khartoum <p><i>Northern Africa from/to South Africa or Middle East</i></p>	

		<ul style="list-style-type: none"> ▪ Malta, Athens, or Nicosia to Cairo, Khartoum or Jeddah ▪ Tunis, Algiers, Niamey, N'djamena <p><i>Southern Africa from/to Asia</i> Not Applicable</p>	
	<u>Doha</u>		

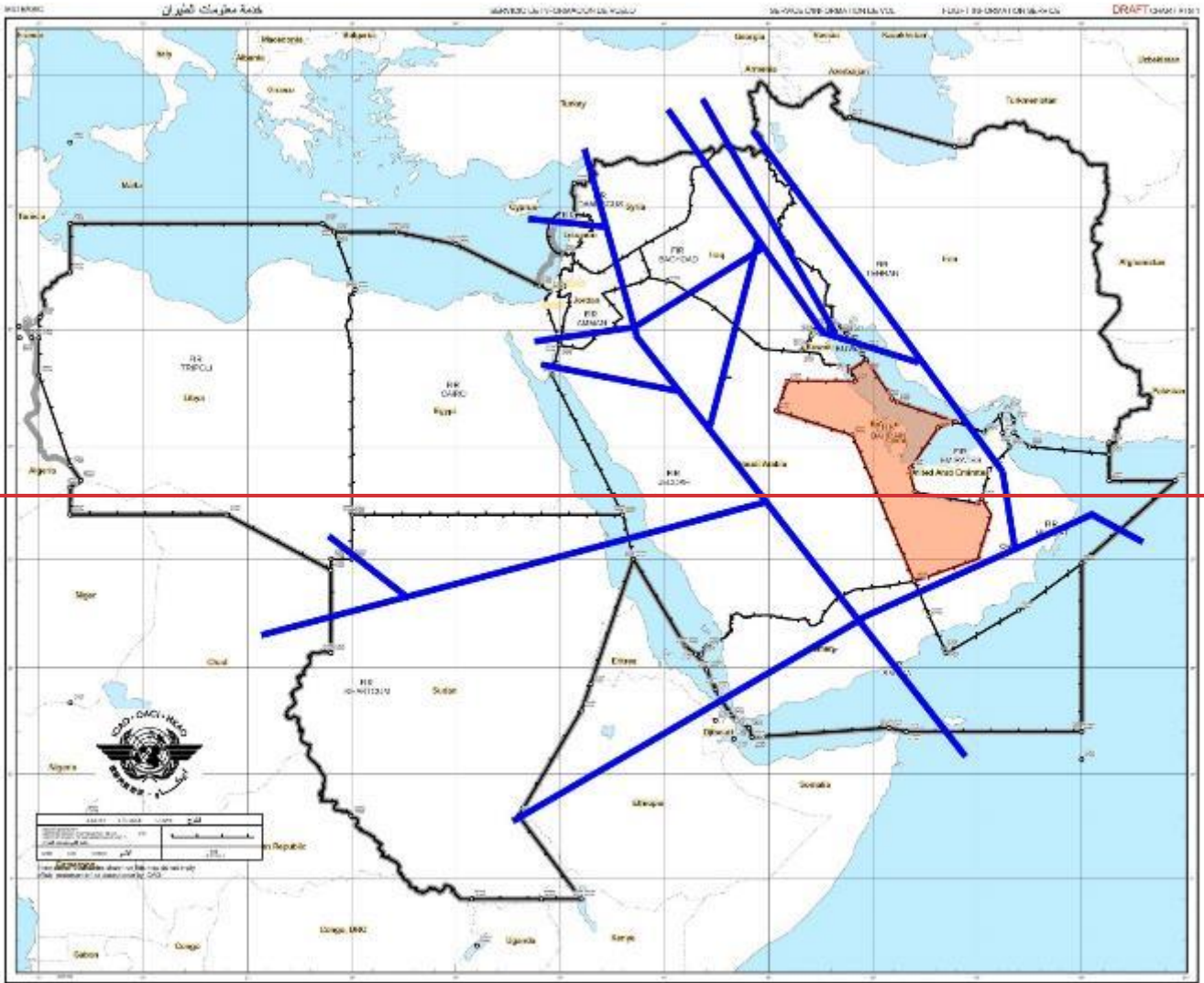
Table 3



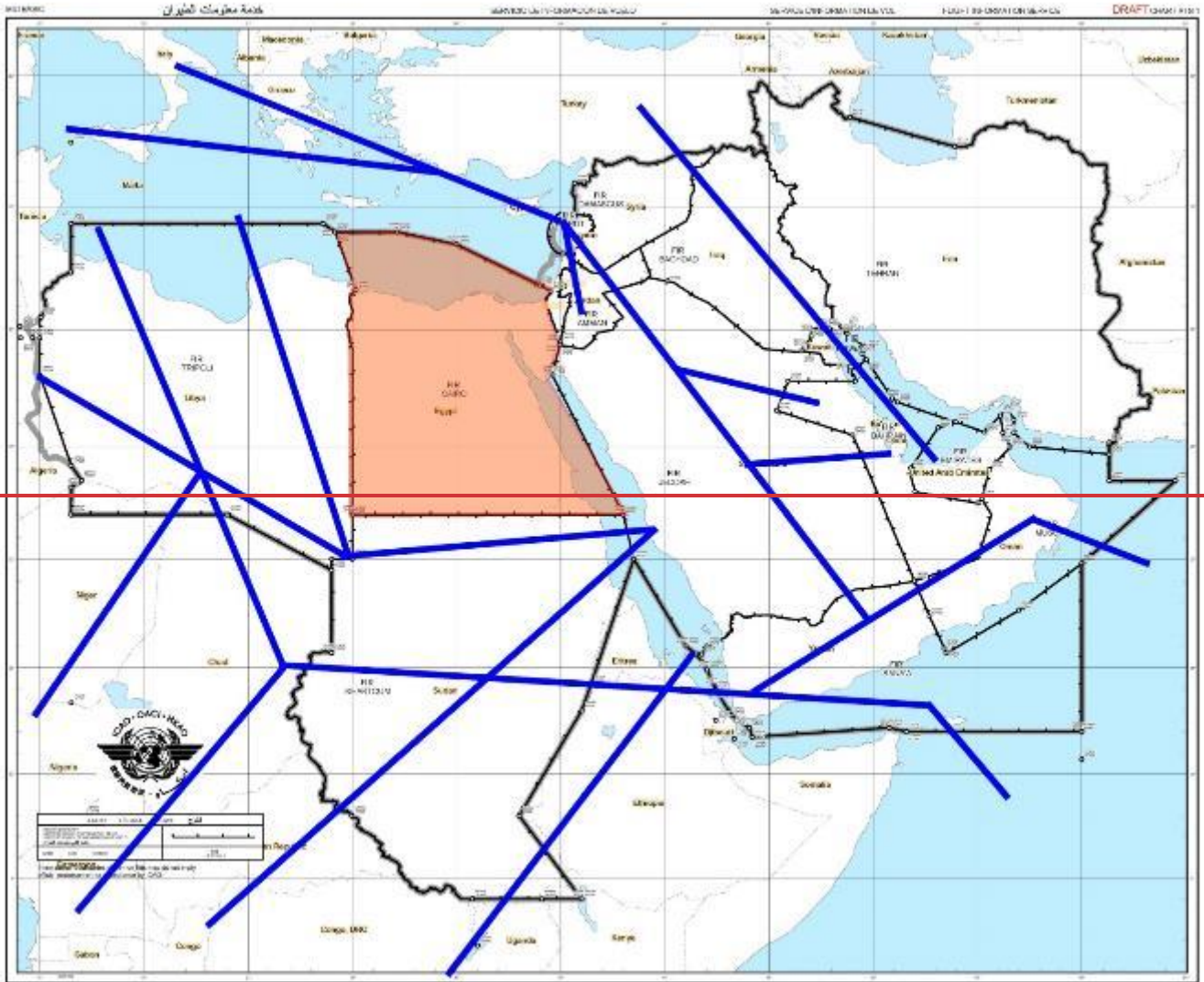
CR1



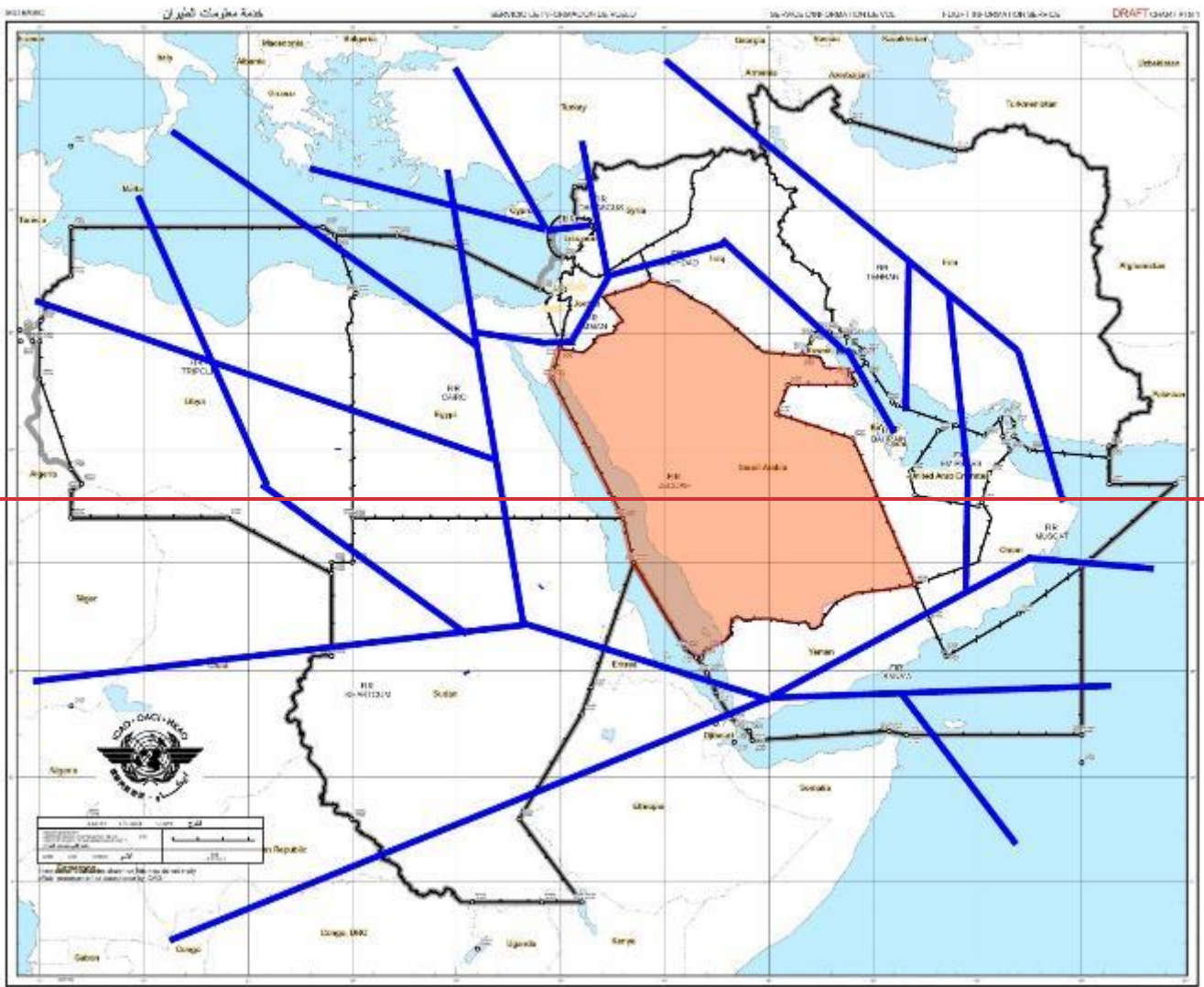
CR 2



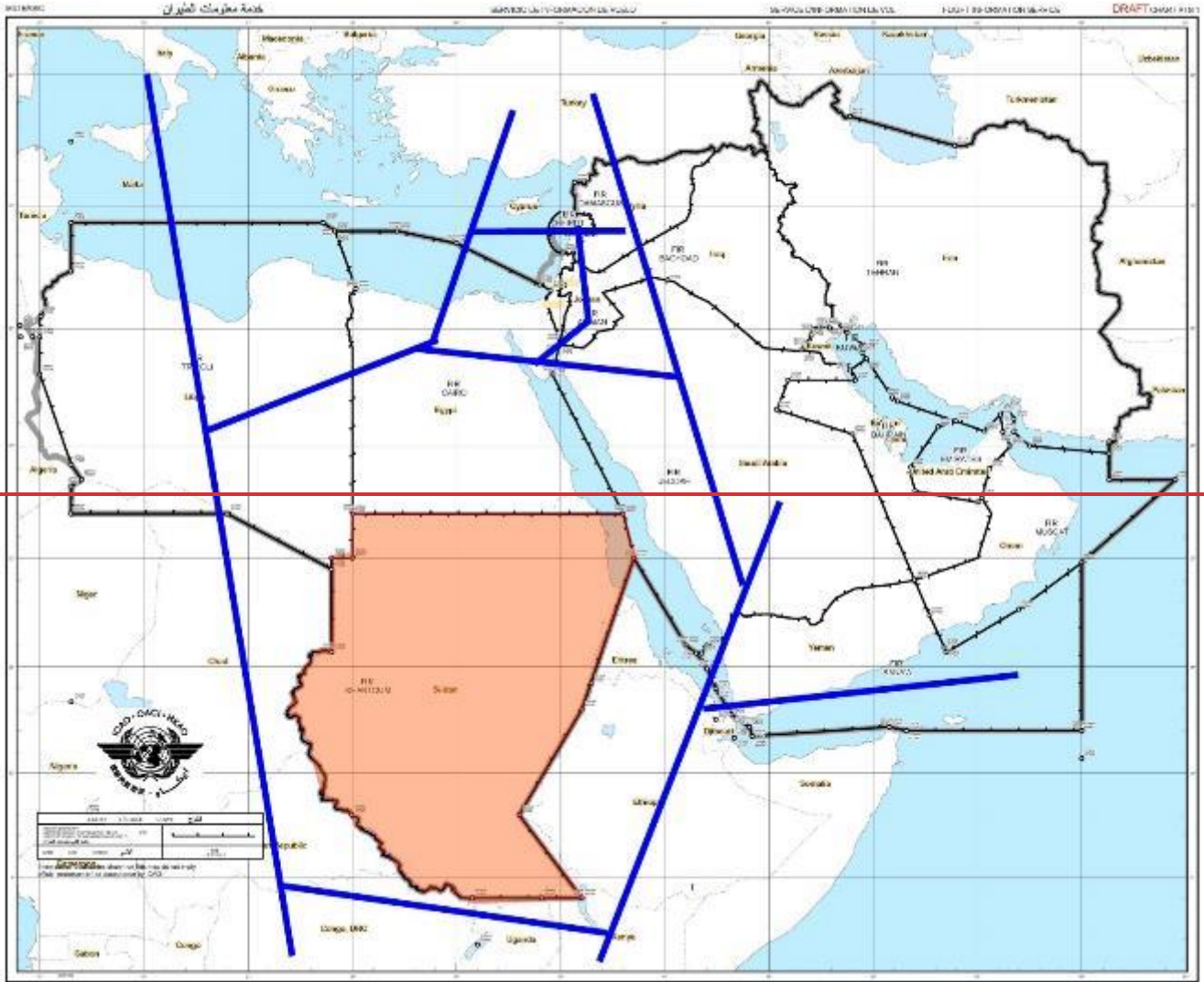
CR 3



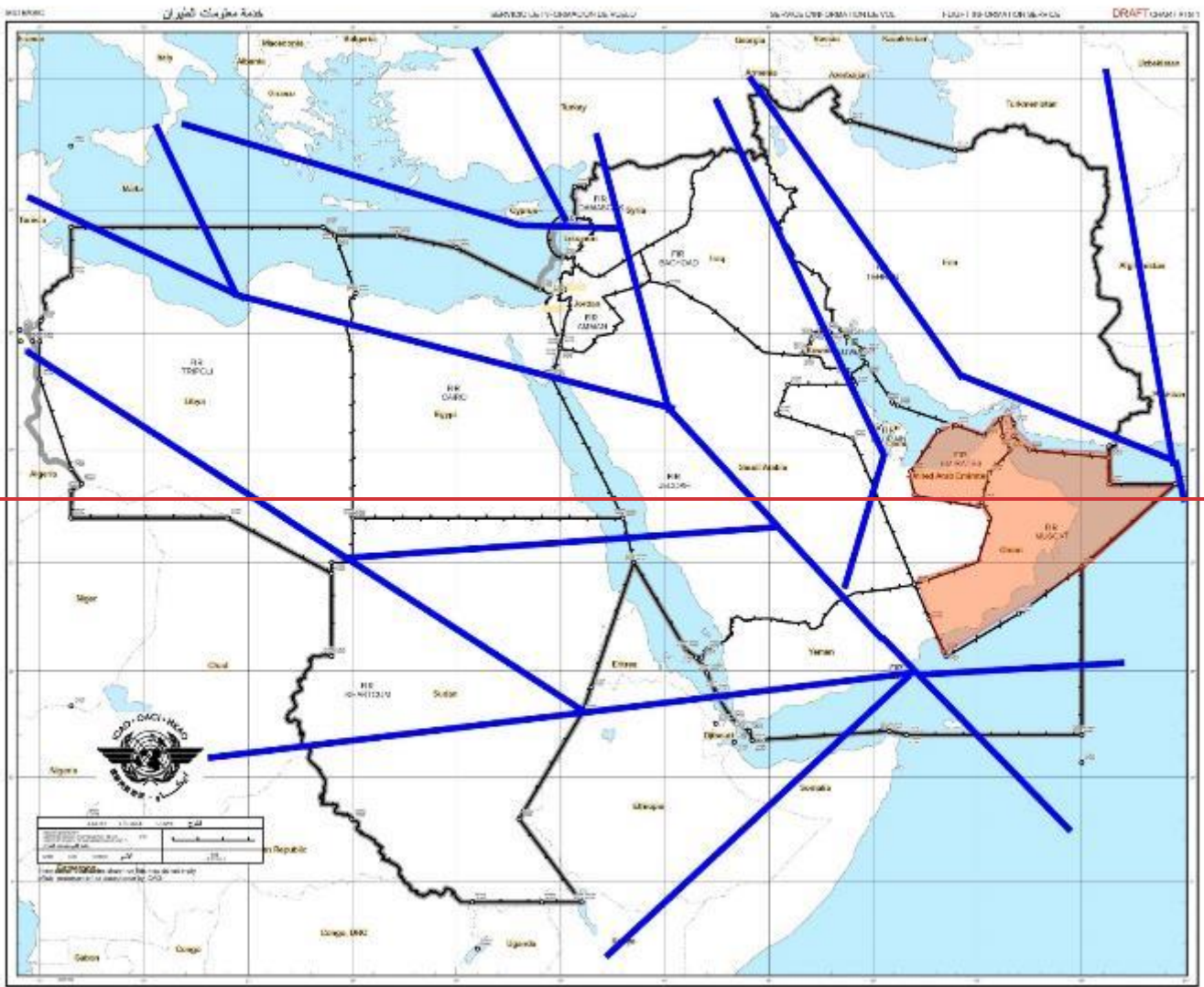
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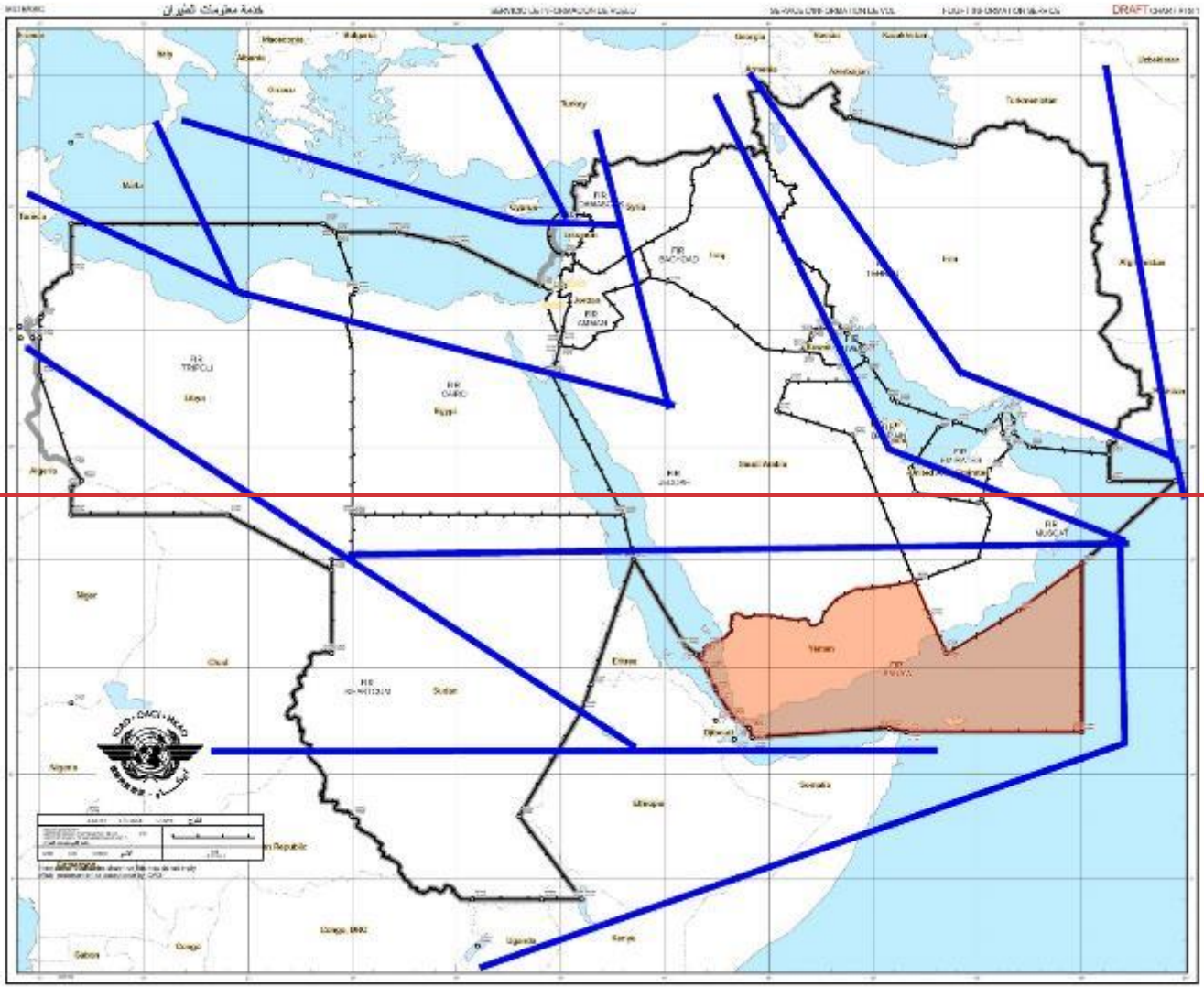
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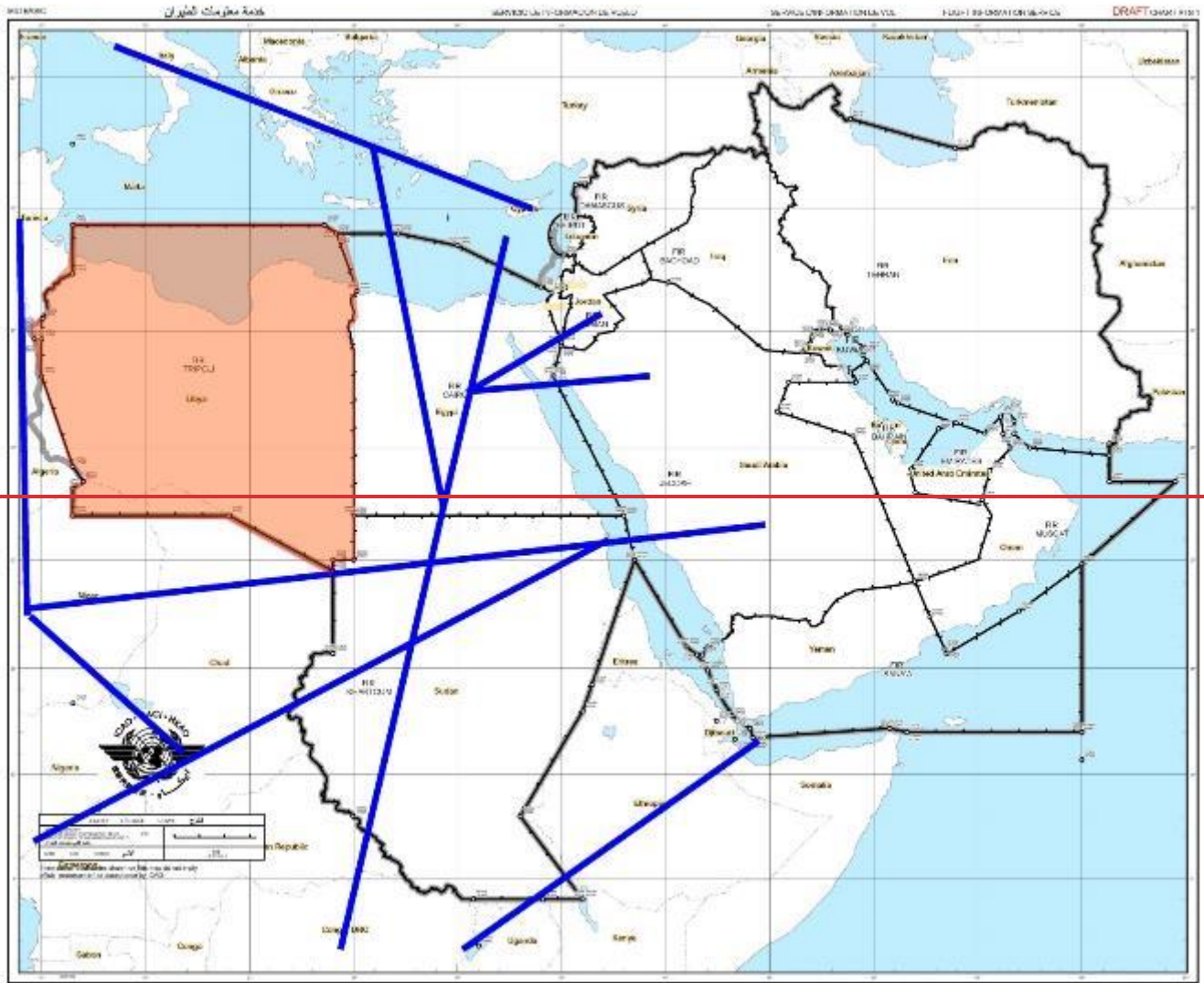
CR 8



CR 9



CR 10



CR 11

CHAPTER 56

MID REGION ATM VOLCANIC ASH CONTINGENCY PLAN

5.1. The MID Region ATM Volcanic Ash Contingency Plan (MID ATM VACP) was developed based on the VACP prepared by the International Volcanic Ash Task Force (IVATF) in August 2012. The MID ATM VACP sets out standardised guidelines and procedures for the provision of information to airlines and en-route aircraft before and during a volcanic eruption. The plan and its appendices are at **Attachment A** to this Document.

5.2. The MID ATM VACP includes the **pre-eruption, start of eruption, ongoing**; and **recovery** phases. It is to be highlighted that most MID States would practice the **ongoing** and **recovery** phases only as the **pre-eruption** and **start of eruption** phases would only apply to the States where volcanoes erupt. Furthermore, the MID Region would receive volcanic ash advisories and volcanic ash advisories in graphic form from the Volcanic Ash Advisory Center (VAAC) Toulouse.

5.3. Volcanic contamination, of which volcanic ash is the most serious, is a hazard for safe flight operations. Mitigating the hazards posed by volcanic ash in the atmosphere and/or at the aerodrome cannot be resolved in isolation but through collaborative decision making (CDM) involving all stakeholders concerned. During an eruption, volcanic contamination can reach and exceed the cruising altitudes of turbine-powered aircraft within minutes and spread over vast geographical areas within a few days. Encounters with volcanic ash may result in a variety of hazards including one or more of the following:

- a) the malfunction, or failure, of one or more engines leading not only to reduction, or complete loss of thrust but also to failures of electrical, pneumatic and hydraulic systems;
- b) the blockage of pitot and static sensors resulting in unreliable airspeed indications and erroneous warnings;
- c) windscreens rendered partially or completely opaque;
- d) smoke, dust and/or toxic chemical contamination of cabin air requiring crew to don oxygen masks, thus impacting verbal communication; electronic systems may also be affected;
- e) the erosion of external and internal aircraft components;
- f) reduced electronic cooling efficiency leading to a wide range of aircraft system failures;
- g) the aircraft may have to be manoeuvred in a manner that conflicts with other aircraft; and
- h) volcanic ash deposition on a runway may degrade aircraft braking performance, most significantly if the volcanic ash is wet; and in extreme cases, this can lead to runway closure.

5.4. Operators are required by ICAO Annex 6 – *Operation of Aircraft* to implement appropriate mitigation measures for volcanic ash in accordance with their safety management system (SMS), as approved by the State of the Operator/Registry. The guidelines provided in the MID ATM VACP document assume that the ICAO requirements regarding safety management systems have been implemented by the operators. Detailed guidance on Safety Risk Assessments (SRAs) for flight operations with regard to volcanic ash contamination can be found in the manual on *Flight Safety and Volcanic Ash – Risk Management of Flight Operations with Known or Forecast Volcanic Ash Contamination* (ICAO Doc 9974).

5.5. Distribution of applicable Aeronautical Information Services (AIS) and Meteorological (MET) messages related to volcanic ash are set out in relevant ICAO Annexes, specifically Annex 15–*Aeronautical Information Services* and Annex 3 – *Meteorological Service for International Air Navigation*.

5.6. Volcanic ash can also affect the operation of aircraft at aerodromes. Volcanic ash deposition at an aerodrome, even in very small amounts, can result in the closure of the aerodrome until all the deposited ash has been removed. In extreme cases, the aerodrome may no longer be available for operation at all, resulting in repercussions on the ATM system, e.g. diversions, revised traffic flows, etc.

5.7. Some aircraft types or engine technologies are more vulnerable to volcanic ash contaminants than others; therefore, any specific mitigation measures to be applied would have to take into account any such variance. Considering that a commercial aircraft travels about 150 km (80 NM) in 10 minutes and that volcanic ash can rise to flight levels commonly used by turbine-engine aircraft in half that time, a timely response to volcanic eruptions and volcanic ash in the atmosphere is essential.

5.8. It is imperative that information on the volcanic activity is disseminated as soon as possible. In order to assist staff in expediting the process of originating and issuing relevant AIS and MET messages, a series of templates should be available for different stages of the volcanic activity. For the list of ICAO registered volcanoes see the *Manual on Volcanic Ash*,

Radioactive Material and Toxic Chemical Clouds (ICAO Doc 9691). Volcanoes name, number and nominal position should be available at the State's International NOTAM office. Volcanic ash exercises (VOLCEX) should be conducted at a frequency determined by the ICAO Region concerned, in order to ensure the smooth implementation and effectiveness of the contingency plan in case of an actual volcanic eruption.

5.9. This document has been prepared, and is in line with a proposal for amendment to the *Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444)* paragraph 15.8 *Procedures for an ATC unit when a volcanic ash cloud is reported or forecast* — which is expected to become applicable in November 2014.

5.10. General considerations during the development of an ATM contingency plan for volcanic ash and anticipated flight crew issues when encountering volcanic ash are provided in **Appendices A** and **B**, respectively.

Appendix A

MID Region ATM Contingency Focal Points

NAMES	PHONE (WORK)	PHONE (HOME)	MOBILE PHONE	FAX	E-MAIL	OTHER CONTACT DETAILS
BAHRAIN						
Mr. Abdulla Al Qadhi	9731732 1116		973 36639955	973 17321 9966	aalqadhi@mtt.gov.bh	Bahrain ACC Duty Supervisor Tel: 973 1732 1081/1080 Fax : 973 1732 1029 Email : bahac@caa.mtt.bh
EGYPT						
Mr. Moatasseem Baligh	202 265 7849	202 639 1792	01001695252	202 268 0627	moatasseem_5@hotmail.com	
IRAN						
Mr. Masoud Nikbakht DG of ATM Department	98 21 445 44101		98-912326 3905	9821 44544102	masoudnikbakht@gmail.com	<i>Note.- During New Year Holidays in Iran (20 March – 5 April) or for any urgent message Contact Tehran ACC on +9821-44544116</i>
IRAQ						
Mr. Fadhil Getea Director ATS	96418133370		964 7828844998		atc@iraqcaa.com	
JORDAN						
Mr. Nayef Al Marshoud Director, ATM	9626 489 7729	962 5 3862584	962 797498992 962 777789470	9626 4891 266	nayefmarshoud@hotmail.com datm@carc.gov.jo	
KUWAIT						
Mustafa Al Tarrah			+96564444408		ma.altarrah@dgca.gov.kw	
Mr. Adel S. Boresli Director Air Navigation	965 24710268		96599036556	965 24346221	as.buresli@dgca.gov.kw	
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Mr. Kamal Nasserddine Chief Air Navigation Dept.	+ 961 1 628178		+961 71309409	+961 1 629023	ATM@beirutairport.gov.lb	AFTN OLBAZPZX
LIBYA						
Mr. Mohamed E. Bakar Director of ATM	218-61 360 5535		218-91 219 4477	218-21 360 5535	mohamed.bakar@caa.gov.ly	
OMAN						
Mr. Mubarak Gheilani Director ATS	+968-24 354 867		+968 9507 6157		m.alghelani@paca.gov.om	
SAUDI ARABIA						
Mr. Waleed M. Madanii	(966-12) 671 7717 Ext 1818		966-50 567 4867	9662 6401005	waleedmadani@gca.gov.com	
SUDAN						
Mr. Abubakr Elsiddig Elamin	24918378496 4		249912146745	24918378496 4	abubakratco@live.com	ATM Director ANS P.O. Box 137 code 11112, Khartoum, Sudan
SYRIA						
Mr.Hassan Hamoud ATM Director	00963115401 0180	00963116 460395	00963 988235106	963 11 540101801	ans@scaa.sy hamoud_hasan@yahoo.com	P.O.BOX:6257 Damascus, Syria
UNITED ARAB EMIRATES (UAE)						
Mr. Ahmed Al Jallaf Assistant Director General, ANS, GCAA	9712 599 6888		97150 614 9065	9712 599 6883	aljallaf@szc.gcaa.ae	9712 599 6999 SCZ

Mr. Muayyed Al Teneiji Senior Director ATM	971-2 5996830		+971 56 685 4505	971-2 5996836	mteneiji@szc.gcaa.ae	
YEMEN						
Mr. Abdullah Abdulwareth Aleryani	967-1-345403	967-1-344254	967777190602	967-1-345403	ernlabd@gmail.com	D.G ACC/FIC
Mr. Ahmed Mohammed Al-Koobati	967-1-344675	967-1-214375	967777241375	967-1-344047	CAMA70@yahoo.com	D.Air Navigation Operation
IATA						
Ms. Sharron Caunt					Caounts@iata.org	SFOMENA@iata.org
Ms. Zainab Khudair					khudhairz@iata.org	
ICAO MID						
Mr. Ahmad Amireh (RO ATM/SAR)	202 2267 4840/5 ext 4120		+201050214480	202 2267 4843	aamireh@icao.int icaomid@icao.int	
Mr. Ahmad Kaveh (RO ATM)	ext 4122		+201032182488		akaveh@icao.int	
ICAO APAC						
Mr. Shane Sumner (RO ATM)	662 537 8189 ext 152				ssumner@icao.int	
Mr. Takata Hiroyuki					htakata@icao.int	
ICAO ESAF						
Ms. Keziah Ogutu (RO ATM)					kogutu@icao.int	
Mr. Colin Bryant					cbryant@icao.int	
ICAO EUR/NAT						
Mr. Sven Halle (RO/ATM)					shalle@icao.int	
ICAO WACAF						
Mr. Albert Taylor (RO/ATM)					Ataylor@icao.int	
ICAO Headquarters						
Mr. Chris Dalton (C/AMO)	1514 954- 6711				cdalton@icao.int	

Appendix B

Table 2. Status of Contingency Agreements in the MID Region

<u>STATE</u>	<u>CORRESPONDING STATES</u>			<u>REMARKS*</u>
<u>BAHRAIN</u>	<input checked="" type="checkbox"/> <u>IRAN</u> <input checked="" type="checkbox"/> <u>KUWAIT</u>	<input checked="" type="checkbox"/> <u>QATAR</u> <input checked="" type="checkbox"/> <u>SAUDI ARABIA</u>	<input checked="" type="checkbox"/> <u>UAE</u>	<u>Completed</u>
<u>EGYPT</u>	<input checked="" type="checkbox"/> <u>GREECE</u> <input checked="" type="checkbox"/> <u>JORDAN</u>	<input checked="" type="checkbox"/> <u>LYBIA</u> <input checked="" type="checkbox"/> <u>CYPRUS</u>	<input checked="" type="checkbox"/> <u>SAUDI ARABIA</u> <input checked="" type="checkbox"/> <u>SUDAN</u>	<u>Completed</u>
<u>IRAN</u>	<input checked="" type="checkbox"/> <u>ARMENIA</u> <input type="checkbox"/> <u>AZERBAIJAN</u> <input type="checkbox"/> <u>TURKMENISTAN</u> <input type="checkbox"/> <u>AFGHANISTAN</u>	<input checked="" type="checkbox"/> <u>BAHRAIN</u> <input checked="" type="checkbox"/> <u>IRAQ</u> <input type="checkbox"/> <u>KUWAIT</u> <input checked="" type="checkbox"/> <u>OMAN</u>	<input checked="" type="checkbox"/> <u>PAKISTAN</u> <input checked="" type="checkbox"/> <u>TURKEY</u> <input checked="" type="checkbox"/> <u>UAE</u>	<u>7/11</u>
<u>IRAQ</u>	<input checked="" type="checkbox"/> <u>IRAN</u> <input type="checkbox"/> <u>JORDAN</u>	<input type="checkbox"/> <u>KUWAIT</u> <input type="checkbox"/> <u>SAUDI ARABIA</u>	<input type="checkbox"/> <u>SYRIA</u> <input type="checkbox"/> <u>TURKEY</u>	<u>1/6</u>
<u>JORDAN</u>	<input checked="" type="checkbox"/> <u>EGYPT</u> <input type="checkbox"/> <u>IRAQ</u>	<input type="checkbox"/> <u>ISRAEL</u> <input checked="" type="checkbox"/> <u>SAUDI ARABIA</u>	<input type="checkbox"/> <u>SYRIA</u>	<u>2/5</u>
<u>KUWAIT</u>	<input checked="" type="checkbox"/> <u>BAHRAIN</u> <input type="checkbox"/> <u>IRAN</u>	<input type="checkbox"/> <u>IRAQ</u>	<input checked="" type="checkbox"/> <u>SAUDI ARABIA</u>	<u>2/4</u>
<u>LEBANON</u>	<input type="checkbox"/> <u>CYPRUS</u>	<input type="checkbox"/> <u>SYRIA</u>		<u>0/2</u>
<u>LIBYA</u>	<input type="checkbox"/> <u>ALGERIA</u> <input type="checkbox"/> <u>CHAD</u> <input checked="" type="checkbox"/> <u>EGYPT</u>	<input type="checkbox"/> <u>MALTA</u> <input type="checkbox"/> <u>NIGER</u>	<input type="checkbox"/> <u>SUDAN</u> <input type="checkbox"/> <u>TUNIS</u>	<u>1/7</u>
<u>OMAN</u>	<input type="checkbox"/> <u>INDIA</u> <input checked="" type="checkbox"/> <u>IRAN</u>	<input type="checkbox"/> <u>PAKISTAN</u> <input type="checkbox"/> <u>SAUDI ARABIA</u>	<input checked="" type="checkbox"/> <u>UAE</u> <input checked="" type="checkbox"/> <u>YEMEN</u>	<u>3/6</u>
<u>QATAR</u>	<input checked="" type="checkbox"/> <u>BAHRAIN</u>	<input type="checkbox"/> <u>SAUDI ARABIA</u>	<input checked="" type="checkbox"/> <u>UAE</u> <input checked="" type="checkbox"/> <u>Iran</u>	<u>2/3</u>
<u>SAUDI ARABIA</u>	<input checked="" type="checkbox"/> <u>BAHRAIN</u> <input checked="" type="checkbox"/> <u>EGYPT</u> <input type="checkbox"/> <u>ERITREA</u> <input type="checkbox"/> <u>IRAQ</u>	<input checked="" type="checkbox"/> <u>JORDAN</u> <input checked="" type="checkbox"/> <u>KUWAIT</u> <input type="checkbox"/> <u>OMAN</u> <input type="checkbox"/> <u>QATAR</u>	<input type="checkbox"/> <u>SUDAN</u> <input checked="" type="checkbox"/> <u>UAE</u> <input type="checkbox"/> <u>YEMEN</u>	<u>5/11</u>
<u>SUDAN</u>	<input type="checkbox"/> <u>CENTRAL AFRICAN</u> <input type="checkbox"/> <u>CHAD</u> <input checked="" type="checkbox"/> <u>EGYPT</u>	<input type="checkbox"/> <u>ERITREA</u> <input type="checkbox"/> <u>ETHIOPIA</u> <input type="checkbox"/> <u>LIBYA</u>	<input type="checkbox"/> <u>SAUDI ARABIA</u> <input type="checkbox"/> <u>SOUTH SUDAN</u>	<u>1/8</u>
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<u>UAE</u>	<input checked="" type="checkbox"/> <u>BAHRAIN</u> <input checked="" type="checkbox"/> <u>IRAN</u>	<input checked="" type="checkbox"/> <u>OMAN</u> <input type="checkbox"/> <u>QATAR</u>	<input checked="" type="checkbox"/> <u>SAUDI ARABIA</u>	<u>4/5</u>
<u>YEMEN</u>	<input type="checkbox"/> <u>DJIBOUTI</u> <input type="checkbox"/> <u>ERITREA</u> <input type="checkbox"/> <u>ETHIOPIA</u>	<input type="checkbox"/> <u>INDIA</u> <input checked="" type="checkbox"/> <u>OMAN</u> <input type="checkbox"/> <u>SAUDI ARABIA</u>	<input type="checkbox"/> <u>SOMALIA</u>	<u>1/7</u>

Agreement Signed Agreement NOT Signed *Signed Agreements / Total No. of required Agreements

|

INTERNATIONAL CIVIL AVIATION ORGANIZATION



MID REGION ATM VOLCANIC ASH CONTINGENCY PLAN

MID REGION AIR TRAFFIC MANAGEMENT VOLCANIC ASH CONTINGENCY PLAN

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MID Region ATM Volcanic Ash Contingency Plan

1. TERMINOLOGY

1.1. Areas of Contamination

1.1.1. Information on areas of observed and/or forecast volcanic ash in the atmosphere is provided by means of appropriate MET messages in accordance with Annex 3 – *Meteorological Service for International Air Navigation*.¹

1.2. Danger Areas

1.2.1. If it is considered that the volcanic event could pose a hazard to aviation, a danger area² may be declared by NOTAM. However, this option should only be applied over and in the proximity of the volcanic source. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew. In this context it should be noted that the final responsibility for aircraft safety rests with the flight crew. Therefore, the final decision regarding route, whether it will be to avoid or proceed through an area of volcanic activity, is the flight crew's responsibility. Wherever this document discusses the possible establishment of danger areas, States are not prevented from establishing restricted or prohibited areas over the sovereign territory of the State if considered necessary by the State concerned.

1.2.2. Although it is the prerogative of the Provider State to promulgate a danger area in airspace over the high seas, it should be recognized that restrictions to the freedom of flight over the high seas cannot be imposed in accordance with the United Nations Convention on the Law of the Sea (Montego Bay 1982).

1.3. Phases of An Event

1.3.1. The response to a volcanic event that affects air traffic has been divided into four distinct phases in this document: Pre-Eruption, Start of Eruption, On-going Eruption and Recovery Phases as follows:

Pre-Eruption Phase (when applicable): The initial response, “raising the alert”, commences when a volcanic eruption is expected.

Appropriate AIS and MET messages may be issued in accordance with Annex 15 and Annex 3 respectively, and disseminated to affected aircraft in flight by the most expeditious means. It should be noted that, sometimes volcanoes erupt unexpectedly without any alert being raised; hence the pre-eruption phase may be omitted.

Start of Eruption Phase (when applicable): The start of eruption phase commences at the outbreak of the volcanic eruption and entrance of volcanic ash into the atmosphere and mainly pertains to aircraft in flight. Appropriate AIS and MET messages may be issued as appropriate in accordance with Annex 15 and Annex 3 respectively, and a danger area may be declared by NOTAM. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew.

On-Going Eruption Phase: The on-going eruption phase commences with the issuance of the first Volcanic Ash Advisory (VAA) containing information on the extent and movement of the volcanic ash cloud following completion of the previous reactive responses. Appropriate AIS and MET messages may be issued as appropriate in accordance with Annex 15 and Annex 3, respectively.

¹ Principally this will include volcanic ash advisory messages (issued by volcanic ash advisory centres) and SIGMET information on volcanic ash (issued by meteorological watch offices).

² Depending on the State's regulation, the area may be established as a “danger area”, “restricted area” or “prohibited area”. Over the high seas only “danger area” may be established.

Recovery Phase: The recovery phase commences with the issuance of the first VAA containing a statement that “NO VA EXP” (i.e. “no volcanic ash expected”) which normally occurs when it is determined that no volcanic ash is expected in the atmosphere and the volcanic activity has reverted to its pre-eruption state.

Note: These descriptions are amplified in Chapter 3 of this document.

1.3.2. Although the four distinct phases herein describe actions to be undertaken during an actual volcanic event, they are based on a theoretical scenario. Actual eruptions may not always be distinct with respect to ATM actions to be undertaken. Similarly, an eruption may occur without any pre-eruptive activity, or may cease and restart more than once. Hence, the first observation may be the presence of an ash cloud which is already some distance away from the volcano. It is essential that the contingency planning prepares the ATM system for an appropriate response depending on the actual conditions. Therefore, the “Pre-Eruption Phase” and “Start of Eruption Phase” described in this document are annotated “when applicable” in order to provide for flexibility in the application of the contingency plan in those parts of the world with insufficient volcano monitoring and alerting.

1.3.3. Flight crews are required to report observations of volcanic activity by means of a special air-report (Special AIREP). Arrangements should be put in place to ensure that such information is transferred without delay to the appropriate aeronautical institutions responsible for subsequent action. The communication and dissemination of pilot reports on volcanic activity is described in Appendix C.

2. PRE-ERUPTION PHASE

2.1. General

2.1.1. Where flight operations are planned in areas that are susceptible to volcanic eruptions, ATS units may expect to receive from flight crews the ICAO Volcanic Activity Report (VAR) form (published in the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444, Appendix 1).

2.1.2. The focus of this phase is to gain early recognition of volcanic events. This phase is frequently characterised by a very limited availability of information on the potential extent and severity of the impending eruption. The priority is to ensure the continued safety of aircraft in flight; this requires promulgating information as a matter of urgency. Notwithstanding the potentially limited extent of information available, the pre-eruption phase actions described below should be carried out for every expected eruption.

2.1.3. The initial response, “raising the alert”, commences when a volcanic eruption is expected. Initial awareness of the event may be by means of a Special AIREP/VAR and/or from information provided by meteorological or volcano-logical agencies. Arrangements in each State between designated volcano observatories, meteorological and air traffic management agencies should ensure that alerting information is provided expeditiously by the most appropriate means to provide continued safety of flight.

2.1.4. Emphasis is placed on raising awareness of the hazard and to protect aircraft in flight. The actions are based on well-prepared, well-exercised contingency plans and standard operating procedures. Aircraft are expected to clear or avoid the volcanic ash affected area based on standard operating procedures.

2.2. Originating ACC Actions (*eruption expected in its own flight information region*)

2.2.1. In the event of significant pre-eruption volcanic activity, which could pose a hazard to aviation, an area control centre (ACC)³, on receiving information of such an occurrence, should carry out the following:

³ Where the term “ACC” is used throughout this document, it is intended to also include all ATS facilities.

MID Region ATM Volcanic Ash Contingency Plan

- a) ensure that appropriate AIS messages are originated in accordance with Annex 15. These must provide as precise information as is available regarding the activity of the volcano. It is imperative that this information is issued by the international NOTAM office and disseminated as soon as possible in accordance with the provisions of Annex 15;
- b) when so required by the State, define an initial, precautionary danger area in accordance with established procedures. The size of the danger area should encompass a volume of airspace in accordance with the information available, aiming to avoid undue disruption of flight operations;
 - i. if no such procedures have been established, the danger area should be defined as a circle with a radius of xxx km (xx NM)⁴. The circle should be centred on the estimated or known location of the volcanic activity;
 - ii. although ATC would not normally initiate a clearance through a danger area, it will inform aircraft about the potential hazard and continue to provide normal services. It is the responsibility of the pilot-in-command to determine the safest course of action.
- c) advise the associated MET service provider(s) in accordance with national/regional arrangements unless the initial notification originated from such provider(s), who will then inform the appropriate air traffic flow management (ATFM) units;
- d) alert flights already within the area concerned and offer assistance to enable aircraft to exit the area in the most expeditious and appropriate manner. Flight crews should be provided with all necessary information required to make safe and efficient decisions in dealing with the hazards in the defined area. Aircraft that are close to the area should be offered assistance to remain clear of the area. Flights which would be expected to penetrate the area should be re-cleared onto routes that will keep them clear;
- e) immediately notify other affected ACCs of the event and the location and dimensions of the area concerned. The ACC should also negotiate any re-routings necessary for flights already coordinated but still within adjacent Flight Information Regions (FIRs) and provide any information on potential implications on traffic flow and its capability to handle the expected traffic. It is also expected that adjacent ACCs will be asked to reroute flights not yet coordinated to keep them clear of the area. It should be noted that flight crews may make the decision not to completely avoid the area based on, for example, visual observations; and
- f) implement flow management measures if necessary to maintain the required level of safety.

Note 1. — In order to assist staff in expediting the process of composing the AIS messages, a series of templates should be available for this stage of the volcanic activity.

2.2.2. In addition to sending the relevant AIS messages to the normal distribution list, it will be sent to the relevant meteorological facilities.

2.3. Adjacent ACC Actions

⁴ The size of the area is to be agreed in the region concerned and should be based on local knowledge as regards the volcano concerned.

2.3.1. During the pre-eruption phase, ATC will not normally initiate clearances through a danger area; however, it will inform aircraft about the potential hazard and continue to provide normal services. Adjacent ACCs should take the following action to assist:

- a) when advised, re-clear flights to which services are being provided and which will be affected by the area; and
- b) unless otherwise instructed, continue normal operations and:
 - i. if one or more routes are affected by the area, suggest re-routings to the affected aircraft onto routes clear of the area; and
 - ii. maintain awareness of the affected area.

2.4. ATFM Unit Actions

2.4.1. The ATFM unit and the associated Volcanic Ash Advisory Centre (VAAC) will determine how their initial communications will take place on the basis of bilateral agreements. Upon reception of preliminary information on volcanic activity from the lead VAAC, the ATFM unit should initiate actions in accordance with its procedures to ensure exchange of information in order to support CDM between air navigation service providers (ANSPs), Meteorological Watch Offices (MWOs), VAACs and aircraft operators concerned.

3. START OF ERUPTION PHASE

3.1. General

3.1.1. This phase commences at the outbreak of a volcanic eruption, with volcanic ash being ejected into the atmosphere. The focus of the processes in this phase is to protect aircraft in flight and at aerodromes from the hazards of the eruption through the collection and use of relevant information.

3.1.2. In addition to relevant actions described under the pre-eruption phase, major activities of the start of eruption phase such as the issuance of relevant AIS and MET messages in accordance with Annex 15 and Annex 3, respectively and provision of information and assistance to airborne traffic. Danger areas will be declared via NOTAM, as appropriate. This phase will last until such time as the on-going eruption phase can be activated.

3.2. Originating ACC Actions (eruption in its own FIR)

3.2.1. The ACC providing services in the FIR within which the volcanic eruption takes place should inform flights about the existence, extent and forecast movement of volcanic ash and provide information useful for the safe and efficient conduct of flights.

3.2.2. If necessary, rerouting of traffic should commence immediately or may be in progress if the alerting time has been sufficient to facilitate activation of the pre-eruption phase. The ACC should assist in rerouting aircraft around the danger area as expeditiously as possible. Adjacent ACCs should also take the danger area into account and give similar assistance to aircraft as early as possible.

3.2.3. During the start of eruption phase, although ATC will not normally initiate a clearance through a danger area, it will inform aircraft about the hazard and will continue to provide normal services. It is expected that aircraft will attempt to remain clear of the danger area. However, it is the responsibility of the pilot-in-command to determine the safest course of action.

3.2.4. During the start of eruption phase the ACC should:

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- a) ensure that a NOTAM is originated to define a danger area delineated cautiously so as to encompass a volume of airspace in accordance with the limited information available. In determining the area, information on upper winds should be taken into account, if available. The purpose is to ensure safety of flight in the absence of any prediction from a competent authority of the extent of contamination;
- b) maintain close liaison with MET facilities, who should issue appropriate MET messages in accordance with Annex 3;
- c) devise and update ATFM measures when necessary to ensure safety of flight operations, based on these forecasts and in cooperation with aircraft operators and the adjacent ACCs using the CDM process;
- d) ensure that reported differences between published information and observations (pilot reports, airborne measurements, etc.) are forwarded as soon as possible to the appropriate authorities to ensure its dissemination to all concerned;
- e) begin planning for the on-going eruption phase in conjunction with the aircraft operators, the appropriate ATFM unit and ACCs concerned; and
- f) issue appropriate AIS messages in accordance with Annex 15. Significant reductions in intensity of volcanic activity should take place during this phase and the airspace no longer is contaminated by volcanic ash. Otherwise, begin CDM planning for the on-going eruption phase in conjunction with aircraft operators, the appropriate ATFM unit and the affected ACCs.

3.3. Adjacent ACC Actions

3.3.1. During the start of eruption phase, adjacent ACCs should take the following actions:

- a) maintain a close liaison with the appropriate ATFM unit and the originating ACC to design, implement and keep up to date ATFM measures which will enable aircraft to ensure safety of flight operations;
- b) the adjacent ACC, in cooperation with the originating ACC and aircraft operators, should impose as required additional tactical measures to those issued by the appropriate ATFM unit;
- c) maintain awareness of the affected area; and
- e) begin planning for the on-going eruption phase in conjunction with the aircraft operators, the appropriate ATFM unit and ACCs concerned.

3.4. ATFM Unit Actions

3.4.1. During the start of eruption phase, depending on the impact and/or extent of the volcanic ash, the appropriate ATFM unit should organise the exchange of latest information on the developments with the associated VAACs, ANSPs, MWOs and operators concerned in order to support CDM.

4. ON-GOING ERUPTION PHASE

4.1. The on-going eruption phase commences with the issuance of the first volcanic ash advisory (VAA) by the lead VAAC which contains information on the extent and movement of the volcanic ash cloud in accordance with Annex 3 provisions.

Note 2 - Volcanic ash advisory information in graphical format (VAG) may also be issued by the VAAC, containing the same information as its text-based VAA equivalent.

- 4.2.** The VAA/VAG should be used to:
- a) prepare appropriate AIS and MET messages in accordance with Annex 15 and Annex 3 provisions, respectively; and
 - b) plan and apply appropriate ATFM measures.

4.3. The volcanic contamination may affect any combination of airspace; therefore, it is not possible to prescribe measures to be taken for all situations. Furthermore, it is not possible to detail the actions to be taken by any particular ACC. The following guidance therefore may prove useful during the on-going eruption phase but should not be considered mandatory or exhaustive:

- a) ACCs affected by the movement of the volcanic ash should ensure that appropriate AIS messages are originated in accordance with Annex 15. ACCs concerned and the appropriate ATFM unit should continue to publish details on measures taken to ensure dissemination to all concerned;
- b) depending on the impact and/or extent of the volcanic ash, the appropriate ATFM unit may take the initiative to organize teleconferences to exchange the latest information on the developments, in order to support CDM, with the VAACs, ANSPs and MWOs and operators concerned;
- c) ACCs and ATFM units should be aware that for the purposes of flight planning, operators could treat the horizontal and vertical extent of the volcanic ash contaminated area to be over-flown as if it were mountainous terrain; and
- d) any reported differences between published information and observations (pilot reports, airborne measurements, etc.) should be forwarded as soon as possible to the appropriate authorities (see Appendix C).

5. RECOVERY PHASE

5.1. The recovery phase commences with the issuance of the first VAA/VAG containing a statement that “NO VA EXP” (i.e. “no volcanic ash expected”) — which normally occurs when it is determined that the volcanic activity has reverted to its pre-eruption state and the airspace is no longer affected by volcanic ash contamination. Consequently, appropriate AIS messages should be issued in accordance with Annex 15.

5.2. ACCs and ATFM units should revert to normal operations as soon as practical.

6. AIR TRAFFIC CONTROL PROCEDURES

6.1. If a volcanic ash cloud is reported or forecasted in the FIR for which the ATS unit is responsible, the following actions should be taken:

- a) relay all pertinent information immediately to flight crews whose aircraft could be affected to ensure that they are aware of the ash cloud’s position and levels affected;
- b) request the intention of the flight crew and endeavour to accommodate requests for re-routing or level changes;
- c) suggest appropriate re-routing to the flight crew to avoid an area of reported or forecast ash clouds; and

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- d) request a special air-report when the route of flight takes the aircraft into or near the forecast ash cloud and provide such special air-report to the appropriate agencies.

Note 3.— The recommended escape manoeuvre for an aircraft which has encountered an ash cloud is to reverse its course and begin a descent if terrain permits.

Note 4. — The final authority as to the disposition of the aircraft, whether to avoid or proceed through a reported or forecast volcanic ash cloud, rests with the flight crew.

6.2. When advised by the flight crew that the aircraft has inadvertently entered a volcanic ash cloud, the ATS unit should:

- a) take such action applicable to an aircraft in an emergency situation; and
- b) do not initiate modifications of route or level assigned unless requested by the flight crew or necessitated by airspace requirements or traffic conditions.

Note 5.— General procedures to be applied when a pilot reports an emergency situation are contained in Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444, Chapter 15, 15.1.1 and 15.1.2).

Note 6.— Guidance material concerning the effect of volcanic ash and the impact of volcanic ash on aviation operational and support services is provided in Chapters 4 and 5 of the Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691).

7. ATFM PROCEDURES

7.1. Depending on the impact and/or extent of the volcanic ash and in order to support CDM, the appropriate ATFM unit should organize the exchange of the latest information on the developments with the associated VAACs, ANSPs, MWOs and operators concerned.

7.2. The ATFM unit will apply ATFM measures on request of the ANSPs concerned. The measures should be reviewed and updated in accordance with updated information. Operators should also be advised to maintain watch for relevant AIS and MET messages for the area.

APPENDIX A

GENERAL CONSIDERATIONS DURING THE DEVELOPMENT OF AN ATM CONTINGENCY PLAN FOR VOLCANIC ASH

1. In a contingency plan relating to volcanic ash contamination, certain steps need to be taken to provide a coordinated and controlled response for dealing with an event of this nature. Responsibilities should be clearly defined to ATS personnel. The plan should also identify the officials who need to be contacted, the type of messages that are to be created, the proper distribution of the messages and how to conduct business.
2. ATS personnel need to be trained and be made aware of the potentially hazardous effects if an aircraft encounters a volcanic ash cloud. Some particular aspects include:
 - a) volcanic ash contamination may extend for hundreds, or even thousands of miles horizontally and reach the stratosphere vertically;
 - b) volcanic ash may block the pitot-static system of an aircraft, resulting in unreliable airspeed indications;
 - c) braking conditions at aerodromes where volcanic ash has recently been deposited on the runway will affect the braking ability of the aircraft. This is more pronounced on runways contaminated with wet ash. Flight crews and ATS personnel should be aware of the consequences of volcanic ash being ingested into the engines during landing and taxiing. For departure, it is recommended that pilots avoid operating in visible airborne ash; instead they should allow sufficient time for the particles to settle before initiating a take-off roll, in order to avoid ingestion of ash particles into the engine. In addition, the movement area to be used should be carefully swept before any engine is started;
 - d) volcanic ash may result in the failure or power loss of one or all engines of an aircraft; and
 - e) aerodromes with volcanic ash deposition may be declared unsafe for flight operations. This may have consequences for the ATM system.
4. The area control centre (ACC) in conjunction with ATFM units serves as the critical communication link between affected aircraft in flight and the providers of information during a volcanic eruption. During episodes of volcanic ash contamination within the FIR, the ACC has two major communication roles. First and most important is its ability to communicate directly with aircraft enroute which may encounter the volcanic ash. Based on the information provided in SIGMET information for volcanic ash and volcanic ash advisories (VAAs), and working with MWOs, ATS personnel should be able to advise the flight crew of which flight levels are affected by the volcanic ash and the forecast movement of the contamination. Through various communication means, ATS units have the capability to coordinate with the flight crew alternative routes which would keep the aircraft away from the volcanic ash cloud.
5. Similarly, through the origination of a NOTAM/ASHTAM for volcanic activity the ACC can disseminate information on the status and activity of a volcano even for pre-eruption increases in volcanic activity. NOTAM/ASHTAM and SIGMET, together with AIREPs, are critical to dispatchers for flight planning purposes. Operators need as much advance notification as possible on the status of a volcano for strategic planning of flights and the safety of the flying public. Dispatchers need to be in communication with flight crew enroute so that a coordinated decision can be made between the flight crew, the dispatcher and ATS regarding alternative routes that are available. The ACC should advise the ATFM unit concerning the availability of alternative routes. However, it cannot be presumed that an aircraft which is projected to encounter ash will be provided with the most desirable route to avoid the contamination. Other considerations

have to be taken into account such as existing traffic levels on other routes and the amount of fuel reserve available for flights which may have to be diverted to other routes to allow for the affected aircraft to divert.

6. The NOTAM/ASHTAM for volcanic activity provides information on the status of activity of a volcano when a change in its activity is, or is expected to be, of operational significance. They are originated by the ACC and issued through the respective international NOTAM office based on the information received from any one of the observing sources and/or advisory information provided by the associated VAAC. In addition to providing the status of activity of a volcano, the NOTAM/ASHTAM also provides information on the location, extent and movement of the ash contamination and the air routes and flight levels affected. NOTAM can also be used to limit access to the airspace affected by the volcanic ash. Complete guidance on the issuance of NOTAM and ASHTAM is provided in Annex 15 — *Aeronautical Information Services*. Included in Annex 15 is a volcano level of activity colour code chart. The colour code chart alert may be used to provide information on the status of the volcano, with “red” being the most severe, i.e. volcanic eruption in progress with an ash column/cloud reported above flight level 250, and “green” at the other extreme being volcanic activity considered to have ceased and volcano reverted to its normal pre-eruption state. It is very important that NOTAM for volcanic ash be cancelled and ASHTAM be updated as soon as the volcano has reverted to its normal pre-eruption status, no further eruptions are expected by volcanologists and no volcanic ash is detectable or reported within the FIR concerned.

7. It is essential that the procedures to be followed by ATS personnel during a volcanic eruption, as well as supporting services such as MET, AIS and ATFM, should be translated into local staff instructions (adjusted as necessary to take account of local circumstances). It is also essential that such local staff instructions form part of the basic training for all ATS, AIS, ATFM and MET personnel whose jobs would require them to take action in accordance with the procedures. Background information to assist the ACC or Flight Information Centre (FIC) in maintaining an awareness of the status of activity of volcanoes in their FIR(s) is provided in the monthly Scientific Event Alert Network Bulletin published by the United States Smithsonian Institution and sent free of charge to ACCs/FICs requesting it.

APPENDIX B

ANTICIPATED FLIGHT CREW ISSUES WHEN ENCOUNTERING VOLCANIC ASH

1. ATS personnel should be aware that flight crews will be immediately dealing with some or all of the following issues when they encounter volcanic ash:

- a) smoke or dust appearing in the cockpit which may prompt the flight crew to don oxygen masks (could interfere with the clarity of voice communications);
- b) acrid odour similar to electrical smoke;
- c) multiple engine malfunctions, such as stalls, increasing exhaust gas temperature (EGT), torching, flameout, and thrust loss causing an immediate departure from assigned altitude;
- d) on engine restart attempts, engines may accelerate to idle very slowly, especially at high altitudes (could result in inability to maintain altitude or Mach number);
- e) at night, St. Elmo's fire/static discharges may be observed around the windshield, accompanied by a bright orange glow in the engine inlet(s);
- f) possible loss of visibility due to cockpit windows becoming cracked or discoloured, due to the sandblast effect of the ash;
- g) because of the abrasive effects of volcanic ash on windshields and landing lights, visibility for approach and landing may be markedly reduced. Forward visibility may be limited to that which is available through the side windows; and/or
- h) sharp distinct shadows cast by landing lights as compared to the diffused shadows observed in clouds (this affects visual perception of objects outside the aircraft).

2. Simultaneously, ATS personnel can expect flight crews to be executing contingency procedures such as the following:

- a) if possible, the flight crew may immediately reduce thrust to idle;
- b) exit volcanic ash cloud as quickly as possible. The shortest distance/time out of the ash may require an immediate, descend and/or 180 degrees turn (if terrain permit);
- c) don flight crew oxygen masks at 100 per cent (if required);
- d) monitor airspeed and pitch attitude. If unreliable airspeed is suspected, or a complete loss of airspeed indication occurs (volcanic ash may block the pitot system), the flight crew will establish the appropriate pitch attitude;
- e) land at the nearest suitable aerodrome; and
- f) upon landing, thrust reversers may be used as lightly as feasible.

APPENDIX C

COMMUNICATION AND DISSEMINATION OF PILOT REPORTS OF VOLCANIC ACTIVITY

1. INTRODUCTION

1.1. ICAO Annex 3-*Meteorological Service for International Air Navigation* (paragraph 5.5, g and h) prescribes that volcanic ash clouds, volcanic eruptions and pre-eruption volcanic activity, when observed, shall be reported by all aircraft. The ICAO *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) contain detailed provisions on this special air report requirement in paragraphs 4.12.3 and 4.12.5, and the Volcanic Activity Report form in Appendix 1.

1.2. Experience has shown that reporting and sharing of information on volcanic ash encounters in accordance with the above mentioned provisions (in-flight and post-flight) varies across the world. The efficiency and quality of reporting currently depends heavily on regional characteristics and the level of regional integration. A high level of global harmonization is essential to achieve the desired level of implementation and consistency of the information.

2. PURPOSES OF VOLCANIC ASH REPORTING AND DATA COLLECTION

2.1. The main purposes for volcanic ash reporting and data collection are to:

- a) locate the volcanic hazards;
- b) notify immediately other aircraft (in-flight) about the hazard;
- c) notify other interested parties: ANSPs (ATC, AIS, ATFM), VAACs, MWO, etc. to ensure the consistent production of appropriate information and warning products in accordance with existing provisions; and
- d) analyse collected reports from the post-flight phase in order to:
 - identify areas of concern;
 - validate and improve volcanic ash forecasts;
 - improve existing procedures;
 - assist in defining better airworthiness requirements; and
 - share lessons learned, etc.

3. PHASE OF OPERATIONS

3.1. The roles and responsibilities of the participants in the collection, exchange and dissemination of the volcanic information are distinctly different in two distinct phases:

- a) in-flight; and
- b) post-flight.

3.2. The following section analyses these separately.

4. PARTICIPANTS IN THE REPORTING PROCESS, THEIR ROLES AND RESPONSIBILITIES

4.1. Identification of the participants as well as their roles and responsibilities in general, but specifically during the two different phases of operations, is an important element in improving collection, exchange and dissemination of volcanic information. The number of participants and their roles and responsibilities depends on the phase of operations (in-flight, post-flight), their position in the information chain within one of these two phases and national/regional arrangements. One of the main issues regarding participants' roles and responsibilities is that each of them is, at one time or another, both a data/information provider and user of the information.

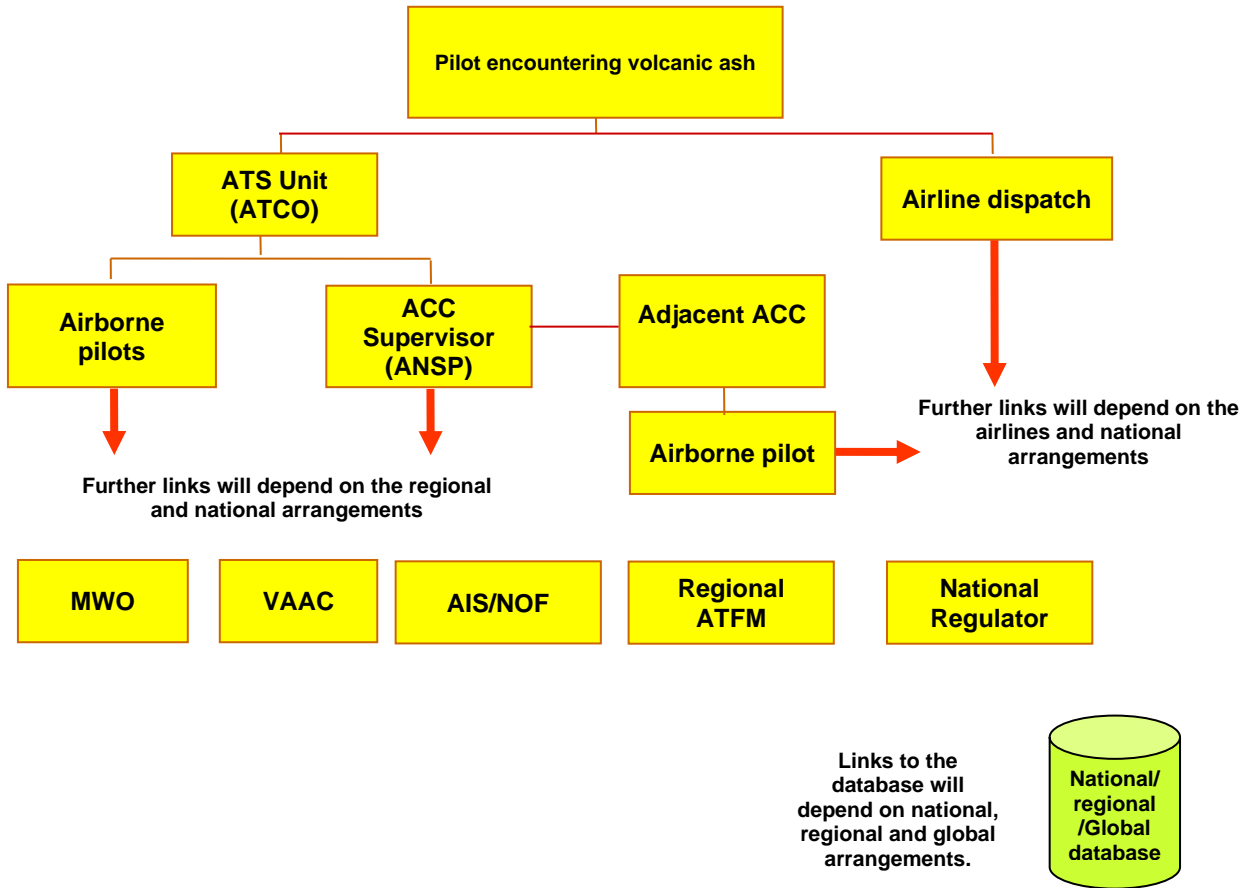
4.2. *In-Flight Phase*

4.2.1 Participants, Roles & Responsibilities:

Participants	Roles & Responsibilities
Pilots, civil and/or military, observing and/or encountering volcanic activity	To provide as much detailed information as possible about the type, position, colour, smell, dimensions of the volcanic contamination, level and time of the observation and forward VAR Part I immediately to the ATS unit with which the pilot is in radiotelephony (R/T) communication. Record the information required for VAR Part II on the appropriate form as soon as possible after the observation or encounter and file the report via data link, if available.
ATS unit receiving the information from the pilot encountering volcanic event	To ensure that information received by an air traffic controller from the pilot has been copied, clarified (if necessary), and disseminated to other pilots as well as to the ACC Supervisor. In addition, air traffic controllers could ask other pilots flying within the same area if they have observed any volcanic activity.
ATS unit/ACC Supervisor (if applicable) or other Air Navigation Service Provider responsible person	To use all means of communication and available forms to ensure that the information received from the air traffic controller has been: <ul style="list-style-type: none"> - passed on to the associated Meteorological organizations in accordance with national/regional arrangements; - fully and immediately disseminated across the organization, in particular to adjacent sectors and the associated NOTAM Office (NOF); - passed on to the neighbouring sectors and ACCs (if necessary); - passed on to the regional ATFM centre if existing (e.g. CFMU in Europe); - passed on to the national/regional authority responsible for the handling of contingency situations.
Neighbouring ANSPs (ACCs)	To ensure that information is provided to flight crews flying towards the area affected by the volcanic contamination; disseminated across the organization and the system prepared to cope with the possible changes of the traffic flows; and that the information is provided to the national authority responsible for the handling of contingency situations and passed on to the NOF and MWO as required.
MET Watch Office	To use the information originated by flight crews and forwarded by the ATS unit, in accordance with Annex 3.
VAAC	To use the information originated by flight crews, MWOs and other competent sources in accordance with Annex 3
AIS / NOF	To publish appropriate AIS messages in accordance with Annex 15
ATFM unit or centre (if existing)	To ensure that information received is stored and made available for information to all partners in its area of responsibility (ANSPs, airlines, VAAC, MET etc.). As part of the daily activity, coordinate ATFM measures with ACCs concerned.

4.2.2 *In-flight reporting – Sample Flow Chart of the volcanic ash information*

4.2.2.1 The chart below is a graphical representation of a possible path of the in-flight volcanic ash information and may differ between regions depending on regional arrangements. It also gives the position of the volcanic ash participants in the reporting chain. The flow chart is not exhaustive and the path of the information can be extended and new participants could be added depending of the national and regional requirements:



4.3

Post-Flight Operations Roles & Responsibilities and order of reporting

Participants	Roles & Responsibilities
Civil and/or military pilots/airlines having observed or encountered an eruption or volcanic contamination	To file the volcanic ash report with as much detailed information as possible about the volcanic activity and/or encounter (position, colour, smell, dimensions, FL, time of observation, impact on the flight, etc.). Ensure that the VAR is filed and transmitted to the relevant recipients as soon as possible after landing (if not filed via data link already during the flight). Make an entry into the Aircraft Maintenance Log (AML) in case of an actual or suspected encounter with volcanic contamination.
ANSP	To provide a summary report of effects of the volcanic activity that affected its operations at least once per day to the national authority with as much detailed information as possible about the number of encounters, impact on air traffic management, etc.).
AOC Maintenance - Post flight Inspection	To report about the observation of the aircraft surfaces, engine, etc., and to provide the information to the national, regional or global central data repository, where applicable.

Investigation authority	All aeronautical service providers (including operators, ANSPs, airports, etc.) shall investigate the effects of a volcanic activity, analyse the information, search for conclusions, and report the investigation results and relevant information to the national supervisory authority and any central data repository.
National Authority	To handle the national central data repository and report to the regional/global central data repository if any. To analyse reports from its aeronautical service providers and take action as appropriate.
Regional Central Data Repository	To collect the national data and make them available to interested stakeholders under agreed conditions.
MWO	To use the national and regional information coming from national and regional central data repositories.
VAAC	To use the information originated by flight crews, and other competent sources to: a) validate its products accordingly and; b) improve the forecast.
Global Data Repository (and research institutes - where appropriate)	To analyse the information stored in the regional central data repository and provide the research outcomes for lessons learnt process.
Knowledge management (e.g. SKYbrary)	To use the post-flight lessons learnt and disseminate them to interested stakeholders.
ICAO	To review/revise ATM volcanic ash contingency plans.

4.4 *Tools for presenting and sharing the volcanic ash information*

4.4.1 To report, transmit and disseminate the volcanic ash encounter information, different types of tools can be used. The list below is provided to give ideas as to what tools can be used. It could also be split into regulatory and general information tools. At any case, it is not an exhaustive list and can be updated with new elements depending on regional experiences.

- a) Radiotelephony and Data link Communications;
- b) VAR;
- c) NOTAM/ASHTAM;
- d) SIGMET;
- e) VAA/VAG;
- f) Central data repository e.g. CFMU Network Operations Portal (NOP);
- g) Centralized web based sites with the regularly updated information and maps – e.g. <http://www.eurocontrol.int/>
- h) Teleconferences;
- i) Periodic Bulletins with the set of information defined by the data providers and data users; e.g. Smithsonian Institution Weekly Bulletin; and/or
- j) Centralized internet-based sites for the sharing of lessons learnt (Knowledge management – e.g. SKYbrary http://www.skybrary.aero/index.php/Main_Page).

APPENDIX D

SIGMET and NOTAM EXAMPLES DURING VOLCANIC ASH

Volcanic Ash (VA) Cloud (CLD) in Kuwait FIR

WVKW31 OKBK 030900
OKBK SIGMET 1 VALID 030900/031500 OKBK-
OKAC KUWAIT FIR VA CLD OBS AT 0840Z W OF E48 FL180/320 MOV E 45KT NC FCST1500Z VA CLD APRX E OF E4730=

Cancellation SIGMET as volcanic ash cloud exits Kuwait FIR into Tehran FIR (sooner than expected)

WVKW31 OKBK 031400
OKBK SIGMET 2 VALID 031400/031500 OKBK-
OKAC KUWAIT FIR CNL SIGMET 1 030900/031500 VA MOV TO OIIX FIR=

VA CLD in Cairo FIR

WVEG31 HECA 030900
HECA SIGMET 1 VALID 030900/031500 HECA-
HECC CAIRO FIR VA CLD OBS AT 0840Z N OF LINE N3140 E2510 - N29 E30 W OF LINE N3150 E3359 – N29 E30 FL100/290 MOV SE 35KT NC FCST1500Z VA CLD APRX N OF LINE N3140 E2510 – N2806 E3435=

Cancellation SIGMET as volcanic ash cloud exits Cairo FIR into Jeddah FIR (sooner than expected)

WVEG31 HECA 031330
HECA SIGMET 2 VALID 031330/031500 HECA-
HECC CAIRO FIR CNL SIGMET 1 030900/031500 VA MOV TO OEJD FIR=

Example NOTAM based on SIGMET issued for Cairo FIR

Q) HECC/QWWXX/IV/NBO/W/100/290/999
A) HECC B) 1311030900 C) 1311031500
E) ATM AND ACFT TAKE NECESSARY ACTION DUE TO VOLCANIC ASH AREA OF HIGH/MEDIUM CONTAMINATION (FROM VOLCANO ETNA 211060, 37.734N 015.004E) AS FOLLOWS:
3400N 2410E – 3140N 2510E – 2900N 3000E – 3150N 3359E – 3330N 3000E – 3400N 2710E – 3400N 2410E
F) FL100 G) FL290

Special Air-Reports on Volcanic Ash

Special air-reports on volcanic ash sent to ACCs should then be sent via AFTN to the relevant Meteorological Watch Office (MWO) which is forwarded to the relevant Volcanic Ash Advisory Centre (VAAC) – for MID Region that is VAAC Toulouse.

SPECIAL AIREP ACC MWO VAAC

Pilots should use the special air-reports format on volcanic ash as at Table A4-1 in Appendix 4 of ICAO Annex 3.

ATTACHMENT B

MEASURES TAKEN BY QCAA AND ATS UNITS DURING COVID-19

The COVID-19 Worldwide pandemic had a significant impact on a global air transport industry and the provision of air navigation services with a massive decrease in aircraft movements during this period. Several recommendations /guidelines for contingency measures for a navigation service provider by ICAO, Eurocontrol, CANSO AND IFATCA were subsequently published to ensure the health of employees, mitigate any safety risks associated with impacted services to ensure continuous and safe provision of air traffic services. QCAA/AND have been closely monitored the rapidly developing situation prior to COVID-19 being formally declared as a pandemic including the active engagement/discussion with the Qatar National pandemic preparation committee spearheaded by QATAR Ministry of Public Health. The QCAA/Air Navigation Department took extraordinary measures to prevent the infection of essential employees and maintain a continuous and safe Air Traffic Services with support and guidelines provided by the Qatar Ministry of Public Health and the Aerodrome Operator (MATAR). Measures taken by AND to prevent the infection of staff to ensure continuous provision of air traffic services include but are not limited to the following:

1. Limit facility access to essential personnel (ATCO and ATCA, ATSEPs to maintain the ATM/CNS critical system and equipment that directly supports Air Traffic Service by allowing administration staff to work from home. Non-essential training and visitors 'access was suspended. Exceptions were made for the ATCO's training to maintain their currency and some exceptions were agreed and approved with the QCAA Regulatory Authority.
2. The ATC roster was adapted to ensure that minimum staff was available. Excess staff, due to the reduction in traffic, would be on standby at home to avoid crowded operational rooms. Standby teams were established in the event of any emergency situation/late notice staffing requirements and were rostered as additional cover.
3. Health and Safety measures were implemented such as the installation of hydro alcoholic distributors in the operational buildings, provision of wipes to disinfect the equipment touched by ATC personnel (mouse, keyboards, and VCCS panels).
4. Increase the frequently of facility cleaning, including periods of routine planned "deep cleaning" (OPS rooms, break rooms, wash rooms).
5. Due to the number of CWPs/Position available in excess of operational and back up requirements at OTBD, OTHH Towers and Doha Approach room, social distancing between different working position in the ATC rooms was implemented.
6. A procedure for operational rooms deep cleaning and sterilization was established. Contingency COVID-19 operations rooms to deliver air traffic service from alternatives/backup site in case of confirmed case reported in the main operation room were established to enable sterilization and deep cleaning of any affected areas.
7. Additional break rooms/space were provided to staff.
8. Essential staff vaccination was prioritized by the Air Navigation Department in coordination with the Qatar Ministry of Public Health.
9. Employees were encouraged to follow the Qatar Ministry of Public Health recommendations and measures (social distancing, health and safety measures: washing hands, staying at home if not feeling well and self-testing, not sharing their headsets, encourage employees to clean their own position) . These were promoted by e-mails, circulars and posters located within the building.
10. Implement temperature taking stations at the building entrance and Etheraz checks.
11. COVID rapid antigen tests were provided to employees requesting these.
12. Providing sterilization materials on the facility (units, break rooms, elevators).

Factors that played a major role in facilitating the implementation of these measures and the measures which were either recommended or required to be taken as advised or mandated by the local Public Health Authority:

- The size of the operational rooms
- The numbers of back up working positions available
- The aircraft movement decrease
- The number of essential staff
- The establishment of COVID contingency rooms
- The awareness and communication with the employees

Status of Contingency Agreements in the MID Region

STATE	CORRESPONDING STATES			REMARKS*
BAHRAIN	<input checked="" type="checkbox"/> IRAN <input checked="" type="checkbox"/> KUWAIT	<input checked="" type="checkbox"/> QATAR <input checked="" type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE	Completed
EGYPT	<input checked="" type="checkbox"/> GREECE <input checked="" type="checkbox"/> JORDAN	<input checked="" type="checkbox"/> LYBIA <input checked="" type="checkbox"/> CYPRUS	<input checked="" type="checkbox"/> SAUDI ARABIA <input checked="" type="checkbox"/> SUDAN	Completed
IRAN	<input checked="" type="checkbox"/> ARMENIA <input type="checkbox"/> AZERBAIJAN <input type="checkbox"/> TURKMENISTAN <input type="checkbox"/> AFGHANISTAN	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAQ <input type="checkbox"/> KUWAIT <input checked="" type="checkbox"/> OMAN	<input checked="" type="checkbox"/> PAKISTAN <input checked="" type="checkbox"/> TURKEY <input checked="" type="checkbox"/> UAE	7/11
IRAQ	<input checked="" type="checkbox"/> IRAN <input type="checkbox"/> JORDAN	<input type="checkbox"/> KUWAIT <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA <input type="checkbox"/> TURKEY	1/6
JORDAN	<input checked="" type="checkbox"/> EGYPT <input type="checkbox"/> IRAQ	<input type="checkbox"/> ISRAEL <input checked="" type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA	2/5
KUWAIT	<input checked="" type="checkbox"/> BAHRAIN <input type="checkbox"/> IRAN	<input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> SAUDI ARABIA	2/4
LEBANON	<input type="checkbox"/> CYPRUS	<input type="checkbox"/> SYRIA		0/2
LIBYA	<input type="checkbox"/> ALGERIA <input type="checkbox"/> CHAD <input checked="" type="checkbox"/> EGYPT	<input type="checkbox"/> MALTA <input type="checkbox"/> NIGER	<input type="checkbox"/> SUDAN <input type="checkbox"/> TUNIS	1/7
OMAN	<input type="checkbox"/> INDIA <input checked="" type="checkbox"/> IRAN	<input type="checkbox"/> PAKISTAN <input type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE <input checked="" type="checkbox"/> YEMEN	3/6
QATAR	<input checked="" type="checkbox"/> BAHRAIN	<input type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> UAE	2/3
SAUDI ARABIA	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> EGYPT <input type="checkbox"/> ERITREA <input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> JORDAN <input checked="" type="checkbox"/> KUWAIT <input type="checkbox"/> OMAN <input type="checkbox"/> QATAR	<input type="checkbox"/> SUDAN <input checked="" type="checkbox"/> UAE <input type="checkbox"/> YEMEN	5/11
SUDAN	<input type="checkbox"/> CENTRAL AFRICAN <input type="checkbox"/> CHAD <input checked="" type="checkbox"/> EGYPT	<input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA <input type="checkbox"/> LIBYA	<input type="checkbox"/> SAUDI ARABIA <input type="checkbox"/> SOUTH SUDAN	1/8
SYRIA	<input type="checkbox"/> IRAQ <input type="checkbox"/> JORDAN	<input type="checkbox"/> LEBANON <input type="checkbox"/> CYPRUS	<input type="checkbox"/> TURKEY	0/5
UAE	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAN	<input checked="" type="checkbox"/> OMAN <input type="checkbox"/> QATAR	<input checked="" type="checkbox"/> SAUDI ARABIA	4/5
YEMEN	<input type="checkbox"/> DJIBOUTI <input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA	<input type="checkbox"/> INDIA <input checked="" type="checkbox"/> OMAN <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SOMALIA	1/7

Agreement Signed Agreement NOT Signed *Signed Agreements / Total No. of required Agreements

TABLE ATM II-MID-1 MID REGION ATS ROUTE NETWORK

EXPLANATION OF THE TABLE

Column

- 1* *Designator of ATS route and Type (Conventional, RNAV5 or RNAV1 etc.)*
- 2* *Significant points defining the ATS routes. Only prominent locations have been listed. Additional points where facilities are provided to complete navigational guidance along a route, but not otherwise marking significant characteristics of the route (change of heading of centre line, intersection with other routes, etc.) have normally not been included. Locations shown in parentheses indicate significant points outside the Region.*
- Note 1.* *Not representing the operator's requirements. Operator's required route and/or nav aids are shown in square brackets ([]).*
- Note 2.* *Subject to further study. Including the associated navigation aid coverage.*
- Note 3* *Subject to military agreement.*
- Note 4.* *Not acceptable at present.*
- Note 5.* *At present, implementation possible only during specific periods (e.g. weekends, nights, etc., as published).*
- Note 6.* *At present, implementation of the RNAV route only possible above FL 300, or as published.*
- Note 7.* *Unidirectional use.*
- Note 8.* *For ATS route or part thereof is RNAV 1*

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
A16	RASDA 330600N 0305700E MELDO 320201N 0310406E BALTIM (BLT) 313144N 0310721E DEGDI 311429N 0311035E CAIRO (CVO) 300532N 0312318E
A408	(SOLIR 135224N 421918E) SALEH 140000N 0422500E ORNIS 141615N0423657E HODEIDAH (HDH) 144622.1N 0425911.1E
A410	KAFIA 084400N 0233100E ALMAM 093345N 0244451E RADAG 110340N 0270020E ELOBEID (OBD) 130640.53N 0301335.25E IMSUT 142048N 0312230E RADKA 145006N 0315040E VATEN 153358N 0323312E
A411	(MITBA 333919N 0111142E) TANLI 332938N 0113000E CLAMS 331700N 0120800E DERKA 330900N 0132202E KAVOX 325700N 0145603E GARUS 324000N 0170000E PRAWN 324000N 0180500E BENINA (BNA) 320728N 0201513E MKILY 315900N 0222000E NASER 315112N 0235518E LOSUL 314100N 0250800E SIDI BARANI (BRN) 313432N 0260020E
A412	TANF (TAN) 332900N 0383920E RAFIF 331247N 0381919E ZELAF 325700N 0380000E DAXEN 3244445N 0374105E NADEK 322728N 0371429E ASLON 321211N 0365111E KUPRI 320825N 0364530E LUDAN 320256N 0363713E GETUP 315833.47N 0363037.47E QUEEN ALIA (QAA) 314423.41N 0360926.59E OSAMA 315550N 0353706E
A414	DEBER 375006N 0580200E BOJNORD (BRD) 372942.2N 0571923.8E EGLUL 372407N 0564855E ORSEK 370517N 0551109E ALNIT 370022N 0544645E GORGAN (GGN) 365544.7N 0542233.3E IMPIR 364958N 0535846E DATOL 364717N 0534706E DASHT-E-NAZ (DNZ) 363853.6N 0531120.1E LABET 360950N 0530127E BUBUX 353023N 0524814E DEHNAMAK (DHN) 351515.0N 0524312.0E
A416	TABRIZ (TBZ) 380853.5N 0461246.5E EGVON 381647N 0475421E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ARDABIL (ARB) 381856.5N 0482605.1E
	GIVTA 380050N 0484744E
	GABMI 374115N 0491052E
	RASHT (RST) 371934.8N 0493657.1E
	KOBUB 370621N 0501031E
	EGMAN 370311N 0501827E
	RAMSAR (RSR) 365412.5N 0504049.6E
	ALKUP 364702N 0510409E
	NOSHAHR (NSR) 363946.1N 0512751.4E
	IMKER 363938N 0515239E
	MODEK 363918N 0523407E
	DASHTE NAZ (DNZ) 363853.6N 0531120.1E
	GORGAN (GGN) 365544.7N 0542233.3E
	LOVEN 363926N 0553355E
	ODKOL 363136N 0560702E
	SABZEVAR (SBZ) 361011N 0573414.9E
	LOXED 355854N 0580609E
	RIBUX 360112N 0582647E
	MASHHAD (MSD) 361352.2N 0593902E
	SOGES 351600N 0595822E
	SOKAM 331316N 0603754E
A418	KUMUN 254000N 0551515E
	PAPAR 264000N 0542700E
	*Note 7 (OI and OM)
	Segment KUMUN-PAPAR
	SHIRAZ (SYZ) 293224N 0523520E
A422	UROMIYEH (UMH) 374114N 0450503.7E
	RABEM 374841N 0452949E
	SETNA 375615N 0455522E
	TABRIZ (TBZ) 380853.5N 0461246.6E
	MURID 382744N 0463525E
	DARUN 383339N 0464235E
	DASDA 384135N 0465214E
	PARSABAD-E-MOGHAN (PAD) 393443N 0475803E
	PARSU 393748N 0480448E
A424	LOVEK 322208N 0444001E
	LOTAN 295942N 0433848E
	RAFHA (RAF) 293713N 046074632953E
	LUDEP 290948N 0430646E
	TAMRO 283838N 0424047E
	SIKLI 275801N 0420721E
	HAIL (HIL) 272530N 0414059E
	*Note 7 (JDW-HIL)
	HAMED 265133N 0411706E
	LAKRO 263051N 0410241E
	ORMAD 260353N 0404401E
	GOMRA 253656N 0402534E
	MIXUG 251537N 0401104E
	MADINAH (PMA) 243251N 0394219E
	DEGVU 234245N 0393941E
	ORMEK 233454N 0393917E
	RULEB 230059N 0393731E
	DATAP 223927N 0392910E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
A453	(GADER 294100N 0612800E)
	PIRAN 293407N 0612809E
	ZAHEDAN (ZDN) 292912.3N 0605405.7E
	ULOVI 291948N 0603429E
	DANOV 291444N 0602357E
	PEKES 285929N 0595221E
	NABOX 281630N 0582601E
	DAVEP 274226N 0572009E
	BANDAR ABBAS (BND) 271149.4N 0562200.3E
	PAVON 270206N 0561149E
	GHESHM ISLAND (KHM) 264547.1N 0555427.6E
	*Note 7 (KHM-BAH)
	SERDU 264715N 0545757E
	ROSUM 264741N 0543637E
	KAPIP 264322N 0521403E
	MIDSI 264142N 0515442E
	BOTOB 263350N 0514505E
	SOLOB 262241N 0513132E
	TOBLI 262134N0512301E
	SOGAT 262029N 0511443E
	RIKET 261952N 0510954E
	ASTAD 261812N 0505646E
	BAHRAIN (BHR) 261530N 0503919E
	ELOSO 262409N 05035501E
	DESBU 263240N 0503241E
	EGMOR 264211N 05029067E
	LOTOR 264854N 0502200E
	RAMSI 270249N 0500714E
	ORNAK 2728534N 0493248E
	SOLEM 275229N 0491136E
	KUMBO 281705N 0485526E
	GESAK 283430N 0484353E
	DEBTI 284407N 04829245E
	KUWAIT (KUA) 291457N 0475717E
A454	(PARET 252518N 0645102E)
	*Note 7 (PARET-PASOV)
	TAPDO 242400N 0612000E
	VUSET 235540N 0590812E
	UMEKO N240620 E0583450
	BORER N242623 E0573048
	PASOV 243841N 0565037E
A647	NAZAR 363929N 0601926E
	MASHHAD (MSD) 361352.2N 0593902.0E
	SABZEVAR (SBZ) 361011.0N 0573414.9E
	MITUS 360535N0565748E
	ULANO 354937N 0550052E
	ODKAT 354650N 0544146E
	MIRUR 354221N 0541139E
	RAPKI 353454N 0532208E
	BUBUX 353023N0524814E
	VARAMIN (VR) 352033.6N 0513813.8E
	IMAMKHOMAINI (IKA) 352434.8N 0511042.5E
	RUDESHUR (RUS) 352643.7N 0505419.3E
	LOXAM 350415N 0491601E
	HAMADAN (HAM) 345200.8N 0483301.0E
	KERMANS SHAH (KMS) 342023.0N 0471008.9E
	RAGET 333048N 0455348E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
A727	CAIRO (CVO) 300532N 0312318E
	SOLAM 294201N 0313106E
	RASMI 285901N 0314506E
	SEMRU 280200N 0320306E
	NABED 271801N 0321706E
	LUXOR (LXR) 254458N 0324607E
	BOVAR 244140N 0322419E
	LOPID 231900N 0315530E
	ABU SIMBLE (SML) 222118N 0313719E
	NUBAR 220000N 0313806E
	MEROWE (MRW) 182449N 0314949E
	ALPOX 171131N 0320831E
	GOPDA 161115N 0325135
	GAGNI 135430N 0324706E
	KHARTOUM (KTM) 153358N 0323312E
	KENANA (KNA) 130141N 0325423E
	AVONO 092606N 0335418E
	KUTOP 080407.80N 0341704.20E
	EPSIX 063808N 0344002E
	AMATO 051836N 0350124E
	ANTAX 040000N 0352248E
	LODWAR (LOV) 030627N 0353646E
A775	REXOD 211230N 0613830E
	TUMET 222307N 0595702E
	IMDEK 224647N 0592217E
	OBTIN 230216N 0585920E
	*Note 7 (OBTIN-KUSRA)
	KUSRA 232426N 0582611E
A777	TONVO 250500N 0563200E
	*Note 7 (TONVO-VAXIM)
	BUBAS 245938N 0570003E
	NADSO 244957N 0574926E
	MUNGA 242516N 0584533E
	MIXOL 240523N 0592959E
	VAXIM 231900N 0611100E
A788	HALAIFAH (HLF) 262603N 0391609E
	LOXOR 270903N 0410002E
	HAIL (HIL) 272530N 0414059E
	ORNIL 273503N 0422443E
	TOTAD 275043N 0433904E
	LOXOM 275648N 0440832E
	LOTOK 280834N 0450402E
	HAFR AL BATIN (HFR) 282126N 0460703E
	*Note 7 (HFR-PATIR)
	DERKO 282751N 0465213E
	SOROR 283417N 0473932E
	WAFRA (KFR) 283715N 0475729E
	DEBTI 284407N 0482925E
	BOXIK 284814N 0484734E
	DANAL 285128N 0490450E
	RETEL 285236N 0491048E
	PATIR 285606N 0492923E
	KHARK ISLAND (KHG) 291550N 0501900.7E
	IVERA 292303N 0511540E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	RUBAK 292617N 0514218E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
A791	LALDO 251806N 0563600E
	GIDIL 251742N 0564923E
	IMLOT 251708N 0570804E
	KATUS 251600N 0574700E
	PEDEX 251211N 0592131E
	KINOX 250945N 0600942E
	EGPIC 250811N 0603730E
	EGRON 250444N 0613245E
	(BIVIN 250349.80N 0614744.40E)
B121	OXADU 350837N 0511226E
	RUDESHUR (RUS) 352643.7N 0505419.3E
	VEBER 354209N 0504400E
	DAVMI 355657N 0503401E
	PAXID 361703N 0502021E
	ALTIV 364131N 0500330E
	RARTA 365323N 0495516E
	RASHT (RST) 371934.8N 0493657.1E
	SIVIT 373553N 0490511E
	DASDA 384135N 0465214E
	MAGRI 385408N 0462300E
B400	MUSCAT (MCT) 233528.04N 0581536.48E
	ITURA 232351N 0580720E
	GEPOT N232351 E0580720
	GEVED N231446 E0580053
	IZKI (IZK) 225318.6N 0574542.73E
	DARAT N222000 E0572830
	KEBAS N214330 E0570948
	ITSAG N213720 E0570640
	MEVLI N211632 E0565606
	VUTAP N205411 E0564449
	ORSIT N202306 E0562915
	HAIMA (HAI) 195813.31N 0561650.82E
	*Note 7 (HAI-DAXAM)
	KUKDI N193022 E0555953
	ITUVO N190315 E0554328
	LABED N182135 E0551827
	ASTUN 180832N0551040E
	DAXAM 171612N 0544715E
	MUTVA 165325N 0543201E
	IMKAD 155245N 0535147E
	NODMA 152603N 0533359E
	RIGAM 143932N 0530414E
	RAPDO 132317N 0521532E
	VEDET 120134N 0512420E
	(MOGADISHU) MOGDU 020024N 0451736E
B403	(AXIKU 112332N 0493519E)
	BOMIX 121002N 0502757E
	ODBEN 123747N 0505648E
	KAVAN 133250N 0515431E
	RIGAM 143932N 0530414E
B404	(ESTIK 112206N 0471854E)
	DEMGO 120258N 0483040E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	PURKA 131208N 0503042E
	GESIX 134440N 0512823E
	RIGAM 143932N 0530414E
B407	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	DENBU 210129N 0382031E
	KAROX 205717N 0381547E
	MAHDI 202600N 0373918E
	PORT SUDAN (PSD) 192404.12N 0371430.21E
B411	TAKSU 293625N 0343623E
	*Note 7 (TAKSU-ULINA)
	KARIK 292633N 0344541E
	ULINA 292451N 0345818E
	ELETA 293201N 0352900E
	TAMIM 293640N 0354840E
	PETRA 294206N 0362210E
	DEESA 294509N 0364102E
	OBSOT 295451N 0373455E
	AL SHIGAR (ASH) 300722N 0384753E
	NEVOL 302446N 0393841E
	KAVID 303552N 0401147E
	ARAR (AAR) 305429N 0410832E
	MURIB 311337N 0415136E
	RALTI 314208N 0430001E
	RUKAM 315008N 0431938
	ELODI 320256N 0435126E
	LOVEK 322208N 0444001E
	LONOR 323839N 0450458E
	NOLDO 324932N 0452129E
	PAPUS 325334N 0452707E
	PAXAT 332056N 0460519E
	ILAM (ILM) 333442.3N 0462455.4E
	YASER 335850N 0470456E
	IVELI 343459N 0482952E
	DAXIL 345135N 0493454E
	SAVEH (SAV) 350106.8N 0502216.9E
	SOGOL 350829N 0503128E
	OXADU 350837N 0511226E
	NAGIN 350619N 0515308E
	DEHNAMAK (DHN) 351515N 0524312E
	*Note 7 (DHN-MSD)
	GIBAB 353213N 0543656E
	ITELO 353534N 0550052E
	RABAM 355442N 0572955E
	LOXED 355854N 0580609E
	RIBUX 360112N 0582647E
	MASHHAD (MSD) 361352.2N 0593902E
	TANBU 353422N 0603430E
	PAMTU 351006N 0610806E
B412	HALAIFA (HLF) 262603N 0391609E
	RABIGH (RBG) 224731N 0390550E
	[KING ABDULAZIZ] (JDW) 214244N 0390723E
B413	LADEN 185342N 0380506E
	(DULAB 181006N 0390018E)
	KOBAS 170428N 0402029E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DANAK 160800N 0412900E
	RIBOK 154700N 0415230E
	ERSAL 151352N 0422905E
	MIPIN 150608N 0423735E
	HODEIDAH (HDH) 144622.10N 0425911.10E
	UKNAN 141839N 0432901E
	ULBIR 135919N 0434940E
	TAIZ (TAZ) 134150N 0440819E
	GOMRI 131816N 0443224E
	ADEN (KRA) 124952.20N 0450125E
	UMEBU 121559N 0452325E
	ZIZAN 115136N 0453912E
B415	DOHA HAMAD INTL (DOH) 251459.66N 0513634.80E
	*Note 8 (DOH-BUNDU)
	KUPSA 250445N 0521151E
	BUNDU 250024N 0522924E
	*Note 7 (BUNDU-SIXIV)
	ASNAX 245659N 0524054E
	EGPOG 244727N 0531950E
	UKILI 243815.5N 0535636.4E
	KUGTO 243231N 0542224E
	RURAL 243045N 0543156E
	SIXIV 242009N 0550439E
B416	KUWAIT (KUA) 291457N 0475717E
	*Note 7 (KUA-KUVER)
	BOXIK 284814N 0484734E
	IMDOX 283455N 0491438E
	AMBIK 283222N 0492025E
	*Note 8 (AMBIK-KUVER)
	KUVER 280924N 0500600E
	IMDAT 274100N 0511100E
	DURSI 271219N 0520144E
	PEGET 270434N 0521515E
	EGMIT 263340N 0530825E
	LEVNA 261535N 0533857E
	ORSAR 260430N 0535730E
	PEBAT 255153N 0542357E
	DESDI 253603N 0544230E
B417	EGVEL 344258N 0503005E
	UKITA 330657N 0500041E
	IMKEN 314407N 0493611E
	BANDAR MAHSHAHR (MAH) 303322.8N 0490858E
	UKNAR 295538N 0490450E
	TULAX 293853N 0490301E
	DESLU 292800N 0490150E
	EGVAL 292448N 0484545E
	ALVAX 292030N04824422E
	KUWAIT (KUA) 291457N 0475717E
	*Note 3
	BONIM 285929N 0472925E
	BOSID 284234N 0465228E
	HAFR AL BATIN (HFR) 282126N 0460703E
	KING SAUD AB (KMC) 275250N 0453321E
	EMARO 273342N 0451330E
	ALKIR 270758N 0444343E
	RARLO 265939N 0443410E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ASNID 264600N 0441835E
	GASSIM (GAS) 261753N 0434647E
	*Note 7 (JDW-GAS)
	AMBIV 254816N 0431649E
	KINOB 253146N 0430018E
	KURDO 245306N 0422158E
	BIR DARB (BDB) 241951N 0414928E
	ASVIV 235532N 0412121E
	DASOR 234116N 0410459E
	PATOR 231639N 0403657E
	EGREP 222754N 0395007E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
B419	KING FAHD (KFA) 262951N 0494643E
	*Note 7 (KFA-RAMSI)
	NAGTO 263717N 0495137E
	KASES 264538N 0495709E
	ITESA 265016N 0500014E
	METLA 265645N 0500433E
	RAMSI 270249N 0500714E
B424	ITOLI 152825N 0450927E
	MEGPA 160017N 0461653E
	LABRA 161813N 0465113E
	IMTAN 163253N 0471943E
	ALSOD 164203N 0473753E
	TASBI 165853N 0481118E
	KANEM 173700N 0492655E
	IMPOS 183137N 0511848E
	SABEL 185158N 0520339E
	NOVNO 193313N 0535858E
	OTISA 201000N 0554556E
	KASIN 201853N 0555742E
	VELIK 203322N 0561656E
	TUBSA 204029N 0562626E
	VUTAP 205411N 0564449E
	*Note 7 (VUTAP-GISKA)
	GISKA 213503N 0574014E
B441	NABOX 281630N 0582601E
	SILKO 295558N 0584138E
	BOPAG 304413N 0584929E
	KUVAV 313426N 0585747E
	BIRJAND (BJD) 325820.7N 0591200.5E
	BOPEB 331913N 0591448E
	ASVIS 334633N 0591828E
	NOTSO 351416N 0593034E
	MASHHAD (MSD) 361352.2N 0593902E
	ALMUX 362736N 0605121E
	OTRUZ 363108N 0610956E
	MARAD 363730.6N 06127.48E
B451	DEHNAMAK (DHN) 3515145N 0524312E
	RAPKI 353454N 0532208E
	ITMEL 360729N 0542812E
	SHAHROUD (SHR) 362522.3N 0550519.5E
	RIBOB 371705N 0565226E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	BOJNORD (BRD) 372942.2N 0571923.8E
	DEBER 375006N 0580200E
	(ASHGABAT) (ASB) 380011N 0582008E
B457	NARMI 261802N 0501939E
	BAHRAIN (BHR) 261530N 0503919E
	TULUB 260644N 0510041E
	DENVO 260452N 0510509E
	PATOM 255821N 0511836E
	EMISA 254658N 0514207E
B505	LALDO 251806N 0563600E
	*Note 7/8 (LALDO-PASNI)
	NADSO 244957N 0574926E
	ITLOB 244325N 0590701E
	EGTAL 243458N 0603724E
	APELO 243455N 0612000E
	(PASNI (PI) 251717N 0632055E)
B524	NADSO 244957N 0574926E
	*Note 7 (NADSO-ALPOR)
	DAMUM 243236N 0591307E
	ASLOM 242113N 0600552E
	VEKAN 241235N 0604454E
	ALPOR 240441N 0612000E
B526	KHARTOUM (KTM) 153358N 0323312E
	DENDI 153006N 0341642E
	KASSALA (KSL) 152427.47N 0362014.05E
	TESON 152054N 0371042
	(ASMARA (ASM) 151704.01N 0385402.92E)
	(ZULAC 150136N 0410106E)
	(PURAD 145500N 0415354E)
	FARES 145400N 0420100E
	EMABA 145138N0421943E
	HODEIDAH (HDH) 144622.10N 0425911.10E
	UMILI 144609N 0435133E
	SOKAT 144606N 0440145E
	PAVEN 144602N 0441112E
	OBNAM 144541N 0444448E
	PEBIX 144447N 0454637E
	DASIT 144412N 0462931E
	IVORA 144342N 0470342E
	MEGPO 144257N 0473438E
	RASBA 144124N 0484128E
	MUKALLA (RIN) 144015.30N 0492329.30E
	DANAN 144010N 0495334E
	KUSOL 144009N 0501534E
	TATNA 144000N 0515200E
	RIGAM 143932N 0530414E
B527	KHARTOUM (KTM)153358N 0323312E
	SUVRI 135436N 0321800E
	RABAK 130110N 0320957E
	MALAKAL (MLK) 093347.40N 0313911.41E
	JUBA (JUB) 045234N 0313559E
	OVELA 040000N 0311454E
	GOTOD 014501.20N 0305149.80E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
B535	JUBA (JUB) 045234N 0313559E
	TAPOS 055408N 0332002E
	DAGAP 062400N 0341200E
	(EPSIX 064014N 0343956E)
	(IMTOR 064641N 0345102E)
	(APKOD 074053N 0362448E)
	(KOFTA 081258N 0372041E)
	(ITPOT 084406N 0380951E)
	(GAWASA (GWZ) 090622.33N 0384611.71E)
	(ASOLE 095626N 0401357E)
	(NIDEG 103632N 0412400E)
	(LAKBE 110224N 0420939E)
	(DJIBOUTI (DTI) 1132545.67N 04305336.77E)
	(KASOL 115248N 0433546E)
	TORBA 121036N 0440206E
	KATAN 122724N 0442728E
	ADEN (KRA) 124952.20N 0450125E
	BANAR 130604N 0453855E
	TAMIM 134751N 0471703E
	ULAXI 141524N 0482317E
	BAROM 142432N 0484533E
	MUKALLA (RIN) 144015.30N 0492329.30E
	NAKAD 150056N 0500402E
	EGMIX 151811N 0503810E
	NANRI 160754N 0521603E
	ASMAK 162327N 0524634E
	KAPET 163322N 0530614E
	LADAR N165324 E0534655
	SALALAH (SLL) 170259.35N 0540656.91E
	*Note 7 (ASTUN-SLL)
	DARAB 174632N 0544902E
	ASTUN 180832N 0551040E
B538	ALEPPO (ALE) 3610476.86N 03712343.76E
	KARIATAIN (KTN) 3412487.82N 0371551.15E
B540	GERAR 240600N 0573616E
	*Note 7 (GERAR-MIVEK)
	DEGNU 242734N 0570613E
	PASOV 243841N 0565037E
	KUPMA 245148N 0562648E
	ORKOB 245309N 0562421E
	MIVEK 245240N 0561516E
B541	LAR (LAR) 274030.7N 0542454.7E
	NABEX 271157N 0541334E
	DELBU 265021N 0540506E
	KISH ISLAND (KIS) 263130.6N 0535744.7E
	ORSAR 260430N 0535730E
B544	(KILIS 364213N 0372402E)
	TUSYR 363915N 0372341E
	ALEPPO (ALE) 361047N 0371234E
	TUDMU 343100N 0380754E
	TANF (TAN) 332900N 0383939E
	NAMBO 331826N0383939E
	DAPUK 330139.44N 0384026.29E
	MODAD 323539.88N 0384138.14E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	SODAR 315602N 0384326E
	TURAI (TRF) 314146N 0384408E
	ORKAS 304725N 0384617E
	AL SHIGAR (ASH) 300722N 0384753E
	LABAD 291922N 0385411E
	ENABI 290639N 0385550E
	SOBAS 275600N 0390453E
	HALAIFA (HLF) 262603N 0391609E
	*Note 7 (PMA-HLF)
	BELAL 254629N 0392523E
	ALTEP 252157N 0393103E
	MADINAH (PMA) 243251N 0394219E
	*Note 7 (PMA-JDW)
	SISUD 234505N 0392538E
	ASLAD 233742N 0392305E
	RABIGH (RBG) 224731N 0390550E
	NOMDA 224257N 0390556E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	*Note 7 (NOBSU-JDW)
	BOSUT 204705N 0393158E
	LOVIL 201553N 0394537E
	TORBI 195514N 0401610E
	QUNFIDAH (QUN) 192211N 0410429E
	RABGO 191452N 0411452E
	ITESO 184436N 0415732E
	ABHA (ABH) 181431N 0423925E
	LALGI 173029N 0430453E
	NOBSU 171554N 0431315E
	MIXON 163035N 0432931E
	IMSIL 155738N 0434112E
	IMKAR 153511N 0435039E
	MUTEX 152524N 0435445
	NAGIL 152024N 0435651E
	MISAN 150001N 0440522E
	PAVEN 144602N 0441112E
	GEVEL 141229N 0442547E
	MOGEM 132655N 0444529E
	ADEN (KRA) 124952.20N 0450125E
B549	THAMUD 171700N 0495500E
	ITELI 171310N 0502605E
	GOGRI 170752N 0510857E
	TONRO 165850N 0522235E
	PUTRA 165432N 0525631E
	LADAR 165324N 0534655E
	MUTVA 165325N 0543201E
	KIVEL 165306N 0553633E
G55	ABADAN (ABD) 302231.1N 0481314.2E
	UKNAR 295538N 0490450E
	KHARK ISLAND (KHG) 291550.0N 0501900.7E
	BUSHEHR (BUZ) 285704.7N 0504933.5E
	TOTNO 291052N 0515336E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
G183	(KAROL 3252.00N 03229.00E)
	PASOS 311300N 0330600E
	NADOL 311734N 0334100E
	EL ARISH (ARH) 310423N 0334955E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	TABA (TBA) 293624N 0344751E
G202	(VELOX 3349.00N 03405.00E)
	SILKO 3347.9N 03435.0E
	ELIKA 334455N 0343500E
	KHALDEH (KAD) 334827N 0352910E
	*Note 4 (OS)
	DAKWE 3338.957N 03554595.0E
	DAMASCUS (DAM) 332154N 0362807E
	SOFIA 332301N 0364941E
	ABBAS 332610N 0374320E
	SULAF 332718N 0381027
	TANF (TAN) 332900N 0383920E
	MODIK 332806.1N 0390100E
	RAPLU 332300N 0414530E
	PUSTO 332100N 0424500E
	DELMI 331918N 0431328E
	LAGLO 331539N 0441457E
	ITOVA 331951N 0444129E
	SINKA 332137N 0444753E
	RAGET 333048N 0455348E
	ILAM (ILM) 333442.3N 0462455.4E
	ALTET 333209N 0470047E
	MIPON 332801N 0475344E
	KHORAM ABAD (KRD) 332603.1N 0481730.7E
	UKSIS 332159N 0484002E
	NOTSA 331745N 0490315E
	RASLA 331202N 0493409E
	UKITA 330657N 0500041E
	BOMID 325904N 0504029E
	IMRAG 325142N 0511643E
	ESFAHAN (ISN) 334449.1N 0514940.8E
	PARUG 324704N 0522947E
	LABOT 324839N 0530053E
	ALNER 325124N 0540202E
	MITET 325226N 0542850E
	NODLA 325330N 0545850E
	ORSOK 325502N 0554532E
	IMSOG 325636N 0564649E
	ROSOS 325815N 0584814E
	BIRJAND (BJD) 325820.7N 0591200.5E
	KAMAR 323900N 0604400E
G208	(PANJGUR (PG) 265710.21N 0640813.06E)
	KEBUD 273552N 0625024E
	DANIB 290706N 0611717E
	ZAHEDAN (ZDN) 292912.3N 0605405.7E
	DAPAP 294630N 0602554E
	TOVUS 300643N 0595235E
	BOPAG 304413N 0584929E
	DARBAND (DAR) 314659.4N 0565940.4E
	NIVRA 315905N 0563810E
	SOGOT 324008N 0552339E
	NODLA 325330N 0545850E
	ROVAD 333131N 0535240E
	RADAL 345423N 0522023E
	ELEDI 350136N 0520356E
	IMAM KHOMAINI (IKA) 352434.8N 0511042.5E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	VEBER 354209N 0504400E
	GOLNU 355711N 0502052E
	PAROT 361128N 0495841E
	LOXUB 363640N 0484942E
	ZANJAN (ZAJ) 364646.8N 0482111.9E
	AMBEX 370356N 0472143
	GETOB 371227N 0465129E
	PARAS 373133N 0454134E
	TOTBO 373455N 0452858E
	UROMIYEH (UMH) 374114N 0450503.7E
	ALRAM 374230N 0443736E
	(SIIRT)
G216	LAKLU 232235N 0570401E
	IVAKU 232919N 0574103E
	MUSCAT (MCT) 233528.04N 0581536.48E
	*Note 7 (LAKLU-SIDKA)
	ITILA 234055N 0584817E
	SODEB 234747N 0593023E
	DERTO 235033N 0594746E
	ALPOR 240441N 0612000E
	(SIDKA 240844N 0614745E)
G452	SHIRAZ (SYZ) 293224.60N 0523519.60E
	NALBI 294650N 0535357E
	RIKAS 295337N 0543224E
	DAVUT 300214N 0552301E
	GETIS 301145N 0562226E
	KERMAN (KER) 301658.1N 0465632.3E
	ALKES 301045N 0573025E
	ORDAD 300608N 0575454E
	SILKO 295558N 0584138E
	DANUS 293628N 0602030E
	ZAHEDAN (ZDN) 292912.3N 0605405.7E
	DERBO 292542N 0611701E
	(SOKIR 290801N 0642502E)
G462	ROVOS 241825N 0552143E
	*Note 7 (ROVOS-TUMAK)
	TUBGO 242403N 0551219E
	ULODA 243530N 0545301E
	KUVDA 244309N 0543909E
	ORBOL 245134N 0542348E
	UKUVO 251228N 0534707E
	OXARI 252535N 0533458E
	PURLI 253644N 0532436E
	TUMAK 255031N 0531108E Requested by Bahrain, in this case G462 will be only inside of UAE/Not requested by UAE
G482	TABRIZ (TBZ) 380853.5N 0461246.6E
	MAGRI 385408N 0462300E
G650	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	RIBAM 204231N 0390551E
	RASKA 190732N 0390329E
	(DULAB 181006N 0390018E)
G652	ADEN (KRA) 124952.20N 0450125E
	IVOSO 131734N 0453107E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	BORIL 132617N 0454029E
	IVORA 144342N 0470342E
	MEMTA 150322N 0472434
	DEKMA 152226N 0474553E
	NABUP 155417N 0482143E
	DANIN 160544N 0483438E
	GIBAX 162047N 0485137E
	IVINA 163253N 0490514E
	THAMD 171700N 0495500E
	IMPOS 183137N 0511848E
	DUDRI 190000N 0520000E
	*Note 7 & 8 (NALKI-DUDRI)
	DAVOX 194400N 0524817E
	MIPUB 200004N 0530607E
	GEROL 201443N 0532243E
	OBSUS 203905N 0534952E
	LONOV 211856N 0543516E
	KOBES 214504N 0550526E
	TOKRA 220925N 0553350E
	*Note 7 (NALKI - TOKRA)
	DEBAV 221532N 0554617E
	DATBU 222243N 0560054E
	NAMVA 223309N 0562223E
	NALKI 224928N 0565614E
	TULBU 230005N 0571827E
	GEPOT 231446N 0580053E
	KUSRA 232426N 0582611E
	SODEB 234747N 0593023E
	*Note 7 (TAPDO-SODEB)
	VEKAN 241235N 0604454E
	TAPDO 242400N 0612000E
G656	JUBA (JUB) 045234N 0313559E
	ATUGA 040000N 0314800E
G660	(ARBEG 131355N 0205740)
	GENEI 132859N 0222748E
	EL FASHIR (FSR) 133554.09N 0251810.66E
	EL OBEID (OBD) 130640.53N 0301335.25E
	IMSUT 142048N 0312230E
	RADKA 145006N 0315040E
	KHARTOUM (KTM) 153357.93N 0323312.16E
	BOPID 163948N 0335142E
	PORT SUDAN (PSD) 192404.12N 0371430.21E
	BOGUM 200636N 0380300E
	MIPOL 203322N 0382145E
	*Note 7 (MILPO-JDW)
	EGMEG 205130N 0383336E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
G662	BUSRA 322000N 0363700E
	KUPRI 320826N 0364530E
	DESLI 314900.10N 0365900.60E
	ALKOT 313254N 0371122E
	GURIAT (GRY) 312445N 0371712E
	*Note 7 (ASH-GRY)
	AL SHIGAR (ASH) 300722N 0384753E
	ODBAT 293221N 0392626E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	NIMAR 290635N 0395425E
	EGVOP 275458N 0411024E
	HAIL (HIL) 272530N 0414059E
	DAROP 270505N 0421936E
	MODIV 263842N 0430840E
	GASSIM (GAS) 261753N 0434647E
	*Note 7 (GAS-KIA)
	KUSRO 255138N 0444328E
	VELOS 252126N 0454712E
	KING KHALID (KIA) 245310N 0464534E
G663	UMENA 262832N 0483952E
	TABTA 262837N 0484325E
	*Note 7 (TABTA-ULADA)
	KING FAHD (KFA) 262951N 0494643E
	RABKA 263531N 0495728E
	*Note 8 (ALSER)
	ULADA 264527N 0501624E
	LOTOR 264854N 0502200E
	RAKAK 265221N 0502618E
	TOLMO 265504N 0502927E
	KOBOK 265839N 0503349E
	GETAL 270410N 0504040E
	*Note 7 (DASDO-GETAL)
	VEDOR 270855N 0504630E
	ALSER 271100N 0504900E
	IMDAT 274100N 0511100E
	DEPSU 283409N 0515047E
	DASDO 285401N 0520551E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
	KINOT 303207N 0531731E
	DEDAK 305600N 0533439E
	BONEG 312826N 0535815E
	YAZD (YZD) 315351.6N 0541657.7E
	BOMIT 321257N 0544414E
	DANEM 322854N 0550717E
	SOGOT 324008N 0552339E
	ORSOK 325502N 0554532E
	ALMUD 331758N 0561941E
	RIBEN 332902N 0563620E
	TABAS (TBS) 334021.2N 05653340.9E
	PATEN 340825N 0572334E
	TASLU 342531N 0574131E
	RAMIL 352909N 0584941E
	MASHHAD (MSD) 361352.2N 0593902E
G665	ARAR (AAR) 305429N 0410832E
	ABADAN (ABD) 30221631.1N 048134214.2E
	DEMPO 301717N 0484329E
	VATAN 300800N 0493533E
	BOTAS 295241N 0505515E
	KAVIL 294820N 0511704E
	EGSIR 294615N 0512735E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
	*Note 5 (OI)
	VAVAS 291650N 0535340E
	BOTUX 285828N 0552205E
	SOLAK 285156N 0555215E
	ASMET 284758N 0561019E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	NANTO 284140N 0563831E
	RIGUT 283136N 0572226E
	NABOX 281630N 0582601E
	LOXOL 274556N 0604538E
	ASVIB 265724N 0631812E
	(PANJGUR (PG) 265710.21N 0640813.06E)
G666	SHIRAZ (SYZ) 293224.6N 0523519.6E
	KUPTO 282418N 0525432E
	LAMERD (LAM) 272222.2N 0531102.3E
	LAVAN ISLAND (LVA) 264843.4N 0532121.1E
	DATUT 263332N 0533538E
	ELIRA 262105N 0534502E
	ORSAR 260430N 0535730E
	LUDAM 255508N 0535859E
	KIVUS 254522N 0540032E
	TOTKU 253534N 0540410E
	ULIVA 252647N 0540611E
	VEGEK 251837N 0540803E
	REVAV 250909N 0541012E
	ITOMI 250152N 0541151E
	ELOVU 245721.3N 0542017.5E
G667	PUTMA 374800N 0515736E
	NOSHAHR (NSR) 363946.1N 0512751.4E
	DANEH 362001N 0512408E
	NAGMO 360214N 0512055E
	TEHRAN (TRN) 354149.1N 0511701.6E
	RUDESHUR (RUS) 352643.7N 0505419.3E
	SOGOL 350829N 0503128E
	SAVEH (SAV) 350106.8N 0502216.9E
	ARAK (ARK) 3408143.9N 04951143.8E
	RASLA 331202N 0493409E
	ALTAX 323014N 0492142E
	NAGRO 321015N 0491549E
	RABIM 315839N 0491225E
	EGVAX 314337N 0490802E
	AHWAZ (AWZ) 312015.3N 0484552.5E
	GABSU 305319N 0483035E
	ABADAN (ABD) 30221631.1N 048134214.2E
	ALSAN 295707N 0481456E
	RALKA 292611N 0481819E
	KUWAIT (KUA) 291457N 0475717E
	WAFRA (KFR) 283715N 0475729E
	*Note 7 (KFR-KIA)
	KATOD 283141N 0475554E
	COPPI 275033N 0474359E
	EMENI 273234N 0473848E
	RADGI 272640N 0473708E
	MANNI 270812N 0473152E
	LUGAL 264603N 0472235E
	MAGALA (MGA) 261720N 0471225E
	AVOBO 260334N 0470719E
	ESRAT 255117N 0470247E
	KING KHALID (KIA) 245310N 0464534E
	MUNTO 235345N 0463459E
	DEBAS 231059N 0462728E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	KITUB 224922N 0462342E
	TABNA 211842N 0453653E
	WADI ALDASIR (WDR) 203019N 0451219E
	TASMU 190016N 0450120E
	NEJRAN (NEJ) 173625N 0442456E
	NETAS 172600N 0442305E
	ELONA 165753N 0442124E
	LABDO 164842N 0442032E
	XABIP 161001N 0441653E
	ASREM 154637N 0441443E
	SANAA (SAA) 153000N 0441311E
	MISAN 150001N 0440522E
	SOKAT 144606N 0440145E
	DEPDA 143206N 0435807E
	ULBIR 135919N 0434940E
	PARIM 123142N 0432712E
	(DJIBOUTI (DTI) 113254.67N 0430536.77E)
G669	AL SHIGAR (ASH) 300722N 0384753E
	AL JOUF (AJF) 294722N 0400418E
	VELAL 294602N 0403821E
	PAXAN 294418N 0411833E
	TOKLU 294213N 0420220E
	RAFHA (RAF) 293713N 0432953E
	NISER 293030N 0441825E
	*Note 3 (OK)
	SOLAT 290942N 0463810E
	BUBER 291118N 0470057E
	KUWAIT (KUA) 291457N 0475717E
	SESRU 290909N 0485450E
	NANPI 290457N 0493157E
	VELUT 291001N 0495341E
	KHARK ISLAND (KHG) 291550N 0501900.7E
	IVERA 292303N 0511540E
	RUBAK 292617N 0514218E
	SHIRAZ (SYZ) 293224.6N 052352019.6E
G670	RASHT (RST) 371934.8N 0493657.1E
	MODIL 374925N 0494117E
	LALDA 381615N 0494511E
G674	MADINAH (PMA) 243251N 0394219E
	*Note 7 (BPN-PMA)
	KUKNI 245451N 0403140E
	EMURI 250545N 0405627E
	ROSUL 253945N 0421519E
	MUNPI 260112N 0430621E
	GASSIM (GAS) 261753N 0434647E
	MOBAD 263607N 0442629E
	SERPU 264608N 0444833E
	BOPAN (BPN) 270314N 0452643E
G775	ASHGHABAT (ASB) 380011N 0582008E
	ORPAB 374200N 0583430E
	MIDMO 370543N 0590124E
	MASHHAD (MSD) 361352.2N 0593902E
	NOTSA 351416N 0593034E
	ASVIS 334633N 0591828E
	BOPEB 331913N 0591448E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	BIRJAND (BJD) 325820.7N 0591200.5E
	*Note 1
	ODBES 323050N 0592556E
	ELOKA 312325N 0595922E
	LUDAX 295658N 0604101E
	ZAHEDAN (ZDN) 292912.3N 0605405.7E
G781	(VAN)
	BONAM 380256300N 0441759800E
	TUDNU 375301N 0444447E
	UROMIYEH (UMH) 374114N 0450503.7E
	TUBAR 373018N 0452609E
	ROVON 371601N 0455322E
	ZANJAN (ZAJ) 364646.8N 0482111.9E
	LABKA 364142N 0504342E
	NOSHAHR (NSR) 363946.1N 0512751.4E
G782	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	*Note 7 (KFR-JDW)
	KAPAV 220645N 0394620E
	VEMEM 221554N 0400118E
	BOPEV 225127N 0410011E
	DAFINAH (DFN) 231658N 0414310E
	ASMUN 233116N 0424514E
	TUKVU 234626N 0435319E
	RAGAHBA (RGB) 235533N 0443547E
	DURMA 242710N 0454610E
	KING KHALID (KIA) 245310N 0464534E
	ESRAT 255117N 0470247E
	AVOBO 260334N 0470719E
	MAGALA (MGA) 261720N 0471225E
	LUGAL 264603N 0472235E
	MAANI 270812N 0473152E
	RADGI 272640N 0473708E
	EMENI 273234N 0473848E
	COPPI 275033N 0474359E
	KATOD 283141N 0475554E
	WAFRA (KFR) 283715N 0475729E
	KUWAIT (KUA) 291457N 0475717E
G783	PURDA 210805N 0510329E
	ASNUR 212654N 0514335E
	SILBU 214512N 0522304E
	ALROK 215400N 0524217E
	IMGOV 221828N 0533624E
	DANUX 223605N 0541558E
	TANSU 224136N 0542828E
	RIGIL 230146N 0551430E
	UKRAG 233056N 0552306E
	ELUDA 235107N 0552905E
	ASPED 240036N 0553154E
	VAVIM 241535.1N 0553622.9E
	*Note 7 (GIDIS-VAVIM)
	DESVU 242222N 0554253E
	GIDIS 243600N 0555600E
G792	BODKA 3939.0N 05130.0E
	GIRUN 380612N 0562018E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	BOJNORD (BRD) 372942.2N 0571923.8E
	SILPO 370806N 0580006E
	BOTEK 364755N 0583734E
	MASHHAD (MSD) 361352.2N 0593902E
	TANBU 353422N 0603430E
	PAMTU 351006N 0610806E
G795	RALKA 292611N 0481819E
	*Note 7 (RALKA-BSR)
	TASMI 300120N 0475505E
	BASRAH (BSR) 303132.30N 0472112.10E
	RAFHA (RAF) 293713N 0432953E
G799	MADINAH (PMA) 243251N 0394219E
	*Note 7 (ELONU-PMA)
	ELONU 240942N 0403053E
L124	(VAN)
	BONAM 380256300N 0441759800E
	TUDNU 375301N 0444447E
	PARAS 373133N 0454134E
	GETOB 371227N 0465129E
	AMBEX 370356N 0472143
	ZANJAN (ZAJ) 364646.8N 0482111.9E
	TULGU 362836N 0484235E
	SAVEH (SAV) 350106.8N 0502216.9E
	EGVEL 344258N 0503005E
	PEKAM 332904N 0510118E
	SIVUD 330119N 0520009E
	PARUG 324704N 0522947E
	RANDU 323240N 0525917E
	YAZD (YZD) 315351.6N 0541657.7E
	BOMUN 313648N 0544555E
	UKVEV 310557N 0553718E
	ALMOB 303434N 0562824E
	KERMAN (KER) 301658.1N 0465632.3E
	PEKES 285929N 0595221E
	SODOK 281113N 0613652E
	KEBUD 273552N 0625024E
	(PANJGUR (PG) 265710.21N 0640813.06E)
L125	(NAKHCHIVAN (NAX) 390954.30N 0452909.40E)
	DULAV 385700N 0453800E
	RABDI 384804N 0454431E
	SIBVU 384444N 0454657E
	BUDED 375313N 0472032E
	MURPU 373043N 0480319E
	ASPOK 365918N 0484948E
	PAROT 361128N 0495841E
	GOLNU 355711N 0502052E
	VEBER 354209N 0504400E
	IMAM KHOMAINI (IKA) 352434.8N 0511042.5E
	ELEDI 350136N 0520356E
	RADAL 345423N 0522023E
	ROVAD 333131N 0535240E
	NODLA 325330N 0545850E
	SOGOT 324008N 0552339E
	NIVRA 315905N 0563810E
	DARBAND (DAR) 314659.4N 0565940.4E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	BOPAG 304413N 0584929E
	TOVUS 300643N 0595235E
	DAPAP 294630N 0602554E
	ZAHEDAN (ZDN) 292912.3N 0605405.7E
	DANIB 290706N 0611717E
	KEBUD 273552N 0625024E
L126	PUSTO 3321.00N 04245.00E
	SOGUM 3412.12N 0435454.9E
	SIGNI 340006.1N 0444200.2E
	MIGMI 334554.9N 0452724.4E
	ILAM (ILM) 333442N 0462455E
L200	OSAMA 315550N 0353706E
	AMMAN (AMN) 320014.65N 0360357.55E
	LOXER 320256N 362500E
	MESLO 320231N0363148E
	LUDAN 320256N 0363713E
	KUPRI 320825N 0364530E
	ASLON 321211N 0365111E
	NADEK 322728N 0371429E
	DAXEN 324444N 0374105E
	ORNAL 324755N0375153E
	KAREM 325110N 0380324E
	KUMLO 325811N 0382807E
	DAPUK 330139N 0384026E
	PASIP 330600N 0385600E
	GIBUX 330500N 0411100E
	SIGBI 330200N 0422000E
	SILBO 325900N 0432900E
L223	(AGRI (ARI) 393844.90N 0430137.50E)
	*Note 7 (ARI-DASIS)
	DASIS 385435N 0441230E
	*Note 7 (UMH-DASIS)
	UROMIYEH (UMH) 374114N 0450503E
	KAPES 372520N 0452004E
	REXAN 355850N 0463935E
	TAVNI 353807N 0465631E
	TUKLO 351014N 0471751E
	UKSIS 332159N 0484002E
	ALTAX 323014N 0492142E
	KIXOB 310917N 0502459E
	EGSIR 294615N 0512735E
	RUBAK 292617N 0514218E
	TOTNO 291052N 0515336E
	DASDO 285401N 0520551E
	LAGSA 283306N 0522056E
	LAMERD (LAM) 272222.2N 0531102.3E
	KISH ISLAND (KIS) 263130.6N 0535744.7E
	SIRRI (SIR) 255452N 0543211E by UAE
	TATLA 254753N 0544008E
	*Note 7 (TATLA-TARDI)
	VUTEB 253644.6N 0545149.4E
	LOVEM 252645.4N 0551440.4E
	IVOXI 251239.6N 0552513.1E
	LAGTA 250602N 0553315E
	ANVIX 244655.0N 0555616.0E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	PEDUL 244116N 0560205E
	KIPOK 243611N 0560719E
	TARDI 243418N 0560915E
	LAKLU 232235N 05704 01E
L300	LUXOR (LXR) 254458N 0324607E
	*Note 7 (YEN-LXR)
	MEMPO 252518N 0335457E
	OTEMO 250341N 0350810E
	GIBAL 243713 N0363443E
	YENBO (YEN) 240858N 0380219E
L301	(ANKOX 220256N 0662842E)
	RASKI 230330N 0635200E
	VAXIM 231900N 0611100E
	*Note 7 (VAXIM-RAGMA)
	RAGMA 232301N 0603846E
L305	DOHA HAMAD INTL (DOH) 251459.66N 0513634.80E
	*Note 7 (DOH- EMOTA)
	*Note 8 (DOH-ASTOG)
	ORMAL 252304N 0522201E
	ENANO 252348N 0522559E
	ALSEM 252703N 0524322E
	ASTOG 252822N 0525025E
	PURLI 253644N 0532436E
	GODKI 254122N 0534347E
	KIVUS 254522N 0540032E
	ITBUL 254910N 0541227E
	EMOTA 255254N 0542414E
L306	TOKRA 220925N 0553350E
	*Note 7 (TOKRA-LAKLU)
	DEMKI 224941N 0562308E
	LAKLU 232235N 0570401E
L308	DAROR 270244N 0495815E Requested by Bahrain
	*Note 7 (NAGSA-DAROR)
	EGREX 270433N 0492158E
	SILBA 270554N 0485301E
	GESOR 270322N 0475751E
	SIBLI 265459N 0462334E
	ALMUL 262943N 0450553E
	NAGSA 261811N 0443117E
	GASSIM (GAS) 261753N 0434647E
	DEGSO 261054N 0531946E Requested by Bahrain
	QBNET 260032N 0534514E Requested by Bahrain
	ITITA 254410N 0541839E
	DESDI 253603N 0544230E
	RAGOL 252743N 0550739E
	SERSA 251945N 0553118E
	TUKLA 251936N 0554010E
	NADNI 251915N 0555658E
	LALDO 251806N 0563600E
	IMLOT 251708.1N 0570804.1E
	KATUS 2516005.9N 05747.00E
	DIVAB 2510.7N 05952.1E
	EGPIC 2508.6N 06029.5E
	(JIWANI) (JI) 250350N 0614744E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	LATEM 243144.7N 0644944.7E
L310	BOXAK 244536N 0540032E *Note 7 & 8 to LALDO SIGBO 245526.4N 0545653.9E NALTA 250242.7N 0553955.8E AVAMI 250554.9N 0555647.8E LALDO 251806N 0563600E
L311	KAROX 205717N 0381547E MAHDI 202600N 0373918E PASIL 161331N 0332010E VATEN 153358N 0323312E RADKA 145006N 0315040E IMSUT 142048N 0312230E ELOBEID (OBD) 130640.53N 0301335.25E RADAG 110340N 0270020E ALMAM 093345N 0244451E KAFIA 084400N 0233100E
L313	TARDI 243418N 0560915E KIPOK 243611N 0560719E IMPED 245824.5N 0560406.2E KULBA 251326N 0560153E EGPEP 255746.8N 0555822.5E
L314	NABAN 163124N 0430148E DAROV 160637N 0431338E GOBLO 154050N 0432550E LUDOX 152034N 0433524E RAMLO 151033N 0434007E UMILI 144609N 0435133E DEPDA 143206N 0435807E GOMRI 131816N 0443224E
L315	CAIRO (CVO) 300532N 0312318E *Note 7 (CVO- HGD) OBTAV 280120N 0330657E SOKOT 273104N 0333127E HURGHADA (HGD) 271040N 0334747E SOBEL 265011N 0341040E *Note 7 (GIBAL- SOBEL) MOGAP 260055N 0350455E GIBAL 243713N 0363443E
L317	MAHDI 202600N 0373918E AZAZA 173046N 0335009E ASNON 150818N 0305312E ITGAL 125209N 0281244E KAPIB 104917N 0255200E LOVAB 100147N 0245828E KAFIA 084400N 0233100E
L319	BAHRAIN (BHR) 261530N 0503919E *Note 7 (BAH- DASDO) DAVRI 264936N 0505732E OBTAR 265934N 0510309E DASDO 285401N 0520551E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	IMGOD 301419N 0513050E
	RADID 302444N 0512613E
	NOTSA 331745N 0490315E
	KEBEP 350454N 0474014E
	PAREX 360527N 0465154E
	ROVON 371601N 0455322E
	PARAS 373133N 0454134E
	TUDNU 375301N 0444447E
	BONAM 380300N 0441800E
L320	KAROX 205717N 0381547E
	RAKTA 190506N 0352358E
	SOGAD 171404N 0324125E
	DATIM 152833N 0301323E
	DELAM 144001N 0290644E
	HASAN 130129N 0265813E
	KISAL 101811N 0232526E
L321	OBRAN 302957N 0290522E
	*Note 7 (SML-OBRAN)
	REXUM 301822N 0291917E
	KUNKI 290726N 0291949E
	SOBAM 264529N 0301336E
	EGNAM 262856N 0301942E
	GIBAD 253635N 0303807E
	KUNAK 252745N 0304112E
	LUGAV 224205N 0313722E
	ABU SIMBEL (SML) 222118N 0313719E
L323	TONTU 223446N 0284313E
	SISIDENABU 220000N0280838E Requested by Sudan
	ELOXO 183827N 0255031E
	ASKOL 154854N 0240005E
L324	(TEZAK 332750.40N 0314711.60E)
	LAKTO 323800N 0320500E
	GENIV 314831N 0330714E
L333	(DORUK 391645N 0421107E)
	DASIS 385435N 0441230E
	BORES 382829N 0452137E
	VUVAG 382529N 0452926E
	TABRIZ (TBZ) 380853.5N 0461246.6E
	RAKED 375621N 0470712E
	BUDED 375313N 0472032E
	RALGO 372840N 0490112E
	RASHT (RST) 371934.8N 0493657.1E
	KOBUB 370621N 0501031E
	EGMAN 370311N 0501827E
	RAMSAR (RSR) 365412.5N 0504049.6E
	ALKUP 364702N 0510409E
	NOSHAHR (NSR) 363946.1N 0512751.4E
	LABET 360950N 0530127E
	MIRUR 354221N 0541139E
	GIBAB 353213N 0543656E
	ALROT 351116N 0554136E
	LUBIX 345214N 0563219E
	TASLU 342531N 0574131E
	ALPEX 340919N 0582221E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ASVIS 334633N 0591828E
	SOKAM 331316N 0603754E (DANOD 322422N 0620032E)
L417	VUSEB 361637N 0434800E
	DAXOG 354612N 0434527E
	UMESA 351741N 0434307E
	MUTAG 343003N 0433834 E
	LAGLO 3351538.6 0441457.0E
	ELOSI 330800N 0441800E
	LOVEK 322208.1N 04440.01E
	ELIBA 320915N 0444645E
	NADOX 310505N 0451851E
L425	BOSUT 204705N 0393158E
	*Note 7 (BOSUT- BSH)
	AMBAL 202506N 0401625E
	GODSA 201258N 0404040E
	BISHA (BSH) 195840N 0423728E
	KATIX 200212N 0425406E
	WADI ALDAWASIR (WDR) 203019N 0451219E
	EGREN 202236N 0464422E
	DENKU 201123N 0484331E
	ASTIN 200410N 0495320E
	MEDMO 194837N 0521027E
	DAVOX 194400N 0524817E
	GOBRO 193622N 0534741E
	NOVNO 193313N 0535858E
	ITUVO 190315N 0554328E
	DEDSO 185811N 0560041E
	BOVOS 182230N 0575844E
	ASPUX 174404N 0600004E (MAMIG 164100N 0614641E)
L427	KAROX 205717N 0381547E
	BILAL 184044N 0330227E
	ASRAV 172442N 0301943E
	BOXIG 155958N 0272606E
	GIPSA 150616N 0253946E
	ELGENIENAD (GNA)132824.39N 0223207.30E
L430	VAXIM 231900N 0611100E
	ASLOM 242113N 0600552E
	MESPO 244817N 0595040E
	PEDEX 251211N 0592131E
	NOVSU 263407N 0573849E
	MELMI 264625N 0572300E
	VELAP 272556N 0565950E
	TAVNO 281112N 0563253E
	ASMET 284758N 0561019E
	SIRJAN (SRJ) 293322.5N 0553937E
L438	LONOS 283027N 0491713E Requested by Bahrain
	LOPOL 281849N 0492845E
	ATBAG 280842N 0493844E
	GODRI 280256N 0494307E
	RAKSO 275326N 0495032E
	GOGRA 274918N 0495344E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	OBNAX 272650N 0501103E
	DEKTA 271605N 0501946E
	VELOG 270215N 0503055E
	KOBOK 265839N 0503349E
	MOGAS 264759N 0503909E
	TOSTA 262746N 0504912E
	ASTAD 261811N 0505646E
L440	KANIP 241040.7N 05520.7E
	*Note 7
	RETAS 235754N 0553423E
L443	RABAP 283625N 0492722 Requested by Bahrain
	TESSO 282852N 0492723E
	LOPOL 281849N 0492845E
	ENAVI 275552N 0493151E
	GIRSI 274126N 0493310E
	ORDAN 271706N 0495442E
	RAMSI 270249N 0500714E
	GASSI 270257N 0502229E
L444	KIPOL 230410N 0612903E
	*Note 7 (KIPOL-TOLDA)
	VUSIN 225940N 0605510E
	MIBSA 225400N 0601338E
	KAXEM 225103N 0595243E
	IMDEK 224647N 0592217E
	TOLDA 224008N 0583624E
L513	MURAK 345600N 0364200E
	BRAVO 344118N 0363500E
	LEBOR 341656N 03634514E
	LOTAX 335952N 0363231E
	DAMASCUS (DAM) 332154N 0362807E
	*Note 3 (OS)
	BUSRA 322000N 0363700E
	LOSAR 320930.06N 0362849.77E
	LOXER 320147.76N 0362251.46E
	QUEEN ALIA (QAA) 314423.41N 0360926.59E
	QATRANEH (QTR) 311454.41N 0360334.31E
	MUNRA 304944N 0360835E
L519	PATAT 261613N 0560059E
	*Note 7 (PATAT-ATUDO)
	EGPEP 255746.8N 0555822.5E
	ITLAP 254925N 0555010E
	PUVAL 253558.0N 0554258.0E
	DETKU 252623.9N 0553604.6E
	SERSA 251945N 0553118E
	IVOXI 251239.6N 0552513.1E
	VEKAL 250333.5N 0550340.5E
	KUTLI 245151.3N 0545618.0E
	GEVIV 244118N 0545000E
	ELEPO 243211N 0544410E
	ODKUN 242608N 0544017E
	VUXOD 242005N 0543625E
	ATUDO 241708.0N 0543432.0E
L550	WAFRA (KFR) 283715N 0475729E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	NIDAP 283857N 0473656E
	BOSID 284234N 0465228E
	SIBSA 284506N 0462006E
	LAKSO 284751N 0454129E
	VATIM 285136N 0444443E
	RASMO 285713N 0433119E
	ORSAL 290235N 0421107E
	TOLDI 290329N 0415621E
	NORGI 290515N 0412546E
	ULAKO 290758N 0403440E
	NIMAR 290635N 0395425E
	ENABI 290639N 0385550E
	ASTUM 290628N 0382237E
	OBNAK 290554N 0373032E
	EGSIS 290515N 0362850E
	KITOT 290205N 0345050E
	NUWEIBAA (NWB) 290156N 0344016E
	KARIK 292733N 0344641E
	TAKSU 293625N 0343623E
	DATOK 293624N 0341400E
	SERMA 312200N 0330834E
	GENIV 314831N 0330714E
	PASOS 321300N 0330600E
	(STEPS 324859N 0322349E)
L551	ANTAR 334800N 0281600E
	*Note 7 (NOZ-ANTAR)
	GOMVA 320010N 0292615E
	NOGLI 321249N 0291811E
	ALEXANDRIA (NOZ) 311115N 0295703E
L553	AXOTI 100330N 0341318E Requested by Sudan
	GINPU 102031N 0312036E
	RAMKO 102439N 0303926E
	KAPIB 104917N 0255200E
	KURAM 110204N 0225614E
L554	NUBAR 220000N 0313824E
	PASAB 184553N 0313836E
	SISOR 124543N 0313859E
	ITOX A 102401N 0313908E
	MALAKAL (MLK) 093347.40N0313911.41E
	KUNDI 083920N 0313819E
	EGBIM 072916N 0313716E
	JUBA (JUB) 045234N 0313559E
L555	TOTOX 215030N 0622230E
	TUMET 222307N 0595702E
	TOLDA 224008N 0583624E
L556	EGREN 202236N 0464422E
	NONGA 205048N 0492014E
	PURDA 210805N 0510329E
	*Note: 7 (PURDA-KUTVI)
	IVABO 204749N 0530058E
	SEMSI 204455N 0531724E
	OBSUS 203905N 0534952E
	IMDAM 202416N 0550801E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	OTISA 201000N 0554556E
	KEDON 200503N 0555901E
	HAIMA (HAI) 195813.3N 0561650.82E
	GIVNO 195011N 0563059E
	KUTVI 184306N 0582642E
L557	TUMAK 255031N 0531108E Requested by Bahrain
	*Note 7 (TUMAK-RAGAS)
	VEDOM 260109N 0524456E
	ORLUP 260651N 0523216E
	VELAK 261307N 0521821E
	RAGAS 263537N 0521337E
L558	DASTU 074921N 0330800E
	IMDUR 074114N 0323107E
	EGBIM 072916N 0313716E
	DASAG 070454N 0294914E
	ASKON 061745N 0262537E
L559	DAPOK 235956N 0572959E
	*Note 7 (DAPOK-FJV)
	PASOV 243841N 0565037E
	MENSA 245750N 0563249E
	FUJAIRAH (FJV) 250603N 0562116E
L560	LAKTO 323800N 0320500E
	LOVEX 320951.69N 0322847.72E
	SERMA 312200N 0330834E
	VUTAR 293627.47N 0334901.26E
	SIMSA 291428.47N 0335715.76E
	SHARM EL SHEIKH (SHM) 275953N 0342448E
	SILKA 263400N 0352900E
L561	MAHDI 202600N 0373918E
	SUVRI 135436N 0321800E
	NABUS 110003N 0295910E
	ZENUB 094106N 0285841E
	ASKON 061745N 0262537E
L564	DOHA/HAMAD (DOH) 251459.66N 0513634.80E
	LADEM 245545N 0513714E
	EMEXA 245052N 0513604E
	DATRI 244239N 0513407E
	DENSI 242519N 0512959E
	*Note 8 (DOH)
	BATHA (BAT) 241257N 0512707E
	SOMAL 232844N 0512716E
	KUTNA 231341N 0512730E
	MIGMA 225035N 0512749E
	RAGPO 222759N 0510600E
	LOTOS 220000N 0503912E
	ALNUG 213009N 0500453E
	NONGA 205048N 0492014E
	DENKU 201123N 0484331E
	GERUG 185530N 0473402E
	ASKET 181905N 0470113E
	PATOG 180241N 0464631E
	VUVOD 173941N 0463200E
	TULIS 173033N 0462616E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ULBON 171426N 0461512E
	RAGNI 163454N 0454815E
	LOPAD 161651N 0453738E
	ITOLI 152825N 0450927E
	OBNAM 144541N 0444448E
	GEVEL 141229N 0442547E
	NOPVO 135436N 0441536E
	TAIZ (TAZ) 134150N 0440819E
	PARIM 123142N 0432712E
L566	ASMAK 162327N 0524634E
	TAKMI 160542N 0522012E
	PURUG 151204N 0510142E
	KUSOL 144009N 0501534E
	NOTBO 142609N 0495530E
	EMABI 141627N 0494139E
	SOKEM 134235N 0485329E
	DATEG 123549N 0471627E
L570	ROTOX 283323N 0494809E
	AGHAJARI (AJR) 304441.1N 0494049.3E
	IMKEN 314407N 0493611E
	ALTAX 323014N 0492142E
	NOTSA 331745N 0490315E
L572	LESRI 370420N 0411348E
	KAMISHLY (KML) 370200N 0412006E
	HASSAKEH (HAS) 362900N 0404600E
	DIER ZZOR (DRZ) 351831N 0401102E
	TANF (TAN) 332900N 0383920E
L573	DAFINAH (DFN) 231658N 0414310E
	MADINAH (PMA) 243251N 0394219E
	WEJH (WEJ) 261045N 0362917E
L601	(ADANA (ADA) 365626.10N 0351237.40E)
	*Note 7 (ADA-KTN)
	TUNLA 355300N 0360200E
	SALIM 352908N 0361847E
	KARIATAIN (KTN) 341248N 0371551E
L602	TUMAK 255031N 0531108E
	*Note 7 (TUMAK-KTN)
	VEDOM 260109N 0524456E
	ORLUP 260651N 0523216E
	VELAK 261307N 0521821E
	LABOP 261907N 0520429E
	ALTOM 262230N 0515639E
	BOPOV 262430N 0515043E
	ALMOK 262832N 0513840E
	GITBO 263527N 0511750E
	VEDOS 264106N 05100445E
	MOGAS 264800N 0503909E
	TOLMO 265504N 0502927E
	EGLIT 270256N 0502006E
	TOKMA 270939N 0501159E
	ORSOL 272135N 0500208E
	ITNAS 274644N 0493957E

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DAMUR 280137N 04926378E
	ITEVO 281558N 0491332E
	DAVUS 282346N 0490622E
	BOXIK 284814N 0484734E
	FRALKA 292611N 0481819E
	TASMI 300120N 0475505E
	GADSI 303358N 0471116E
	ALPET 311219N 0461844E
	UROKO 314735N 0452917E
	MUTLO 321019N 0445703E
	LOVEK 322208N 0444001E
	DELM1 331918N 0431328E
	ASNOT 333000N 0425717E
	GEPAP 334906N 0422851E
	ELEXI 344130N 04140900E
	KUKSI 364508N 0374910E
	GAZIANTEP (GAZ) 3657051N 03728234E
L604	(PALEOCHORA (PLH) 351339.49N 0234051.04E)
	SALUN 340000N 0242700E
	SIDI BARANI (BRN) 313432N 0260020E
	DANAD 285106N 0280609E
	ALTAT 263602N 0294618E
	EGPAR 261448N 0300148E
	EL KHARGA (KHG) 252654N 03035274E
	KUNAK 252745N 0304112E
	EMENA 253749N 0315147E
	LUXOR (LXR) 254458 N 0324607E
	ASRAB 254726N 0330619E
	LORAS 255649N 0342714E
	MOGAP 260055N 0350455E
	IMRAD 260506N 0354444E
	WEJH (WEJ) 261046N 0362917E
	NADIK 261815N 0374637E
	RABDA 262048N 0381440E
	HALAIFA (HLF) 262603N 0391609E
	MUPVI 262943N 0403437E
	LAKRO 263051N 0410241E
	DAXAP 262142N 0430228E
	GASSIM (GAS) 2617543N 0434647E
	*Note 7 (GAS-NARMI)
	NAGSA 261811N 0443117E
	LABIS 261815N 0451755E
	PUSLA 261758N 0461706E
	LOROX 261751N 0463021E
	MAGALA (MGA) 261720N 0471225E
	MUSRI 261647N 0474137E
	KASOM 262111N 0480312E
	UMENA 262832N 0483952E
	TABTA 262837N 0484325E
	KING FAHD (KFA) 262951N 0494643E
	NARMI 261802N 0501939E Requested by Bahrain
	BAHRAIN (BAH) 261551N 0503855E
	DENV0 260452N 0510509E
	PATOM 255821N 0511836E
	EMISA 254658N 0514207E
	KAPAX 254218N 0515118E
	ORSIS 252801N 0521636E
	ENANO 252348N 0522559E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	TOSNA 251612N 0524116E
L607	(SITIA (SIT) 350406.32N 0261120.63E) *Note 7 (SIT-NABSI) PAXIS 335706N 0272000E NABSI 314353N 0290419E
L612	(SITIA (SIT) 350406.32N 0261120.63E) *Note 7 (SIT-BLT) KUMBI 334250N 0284500E MIVOR 322922N 0300603E BAL TIM (BLT) 313144N 0310721E
L613	ABU SIMBEL (SML) 222118N 0313719E EL KHARGA (KHG) 252654N 0303527E DEPNO 262438N 0301413E BOPOS 264318N 0300722E IMREK 290643N 291220E KIVIL 293845N 0284415E MERSA MATRUH (MMA) 311911N 0271320E *Note 7 (MMA- AMAXI) ITEXO 325832N 0265834E TANSA 340000N 0264900E (AMAXI 350552N 0254658E)
L617	CAIRO (CVO) 300532N 0312318E *Note 7 (CVO- SIT) MENKU 310531N 0301806E ALEXANDRIA (NOZ) 311115N 0295703E SOBAX 313508N 0291835E NABSI 314353N 0290419E TANSA 340000N 0264900E (SITIA (SIT) 350406.32N 0261120.63E)
L620	(ALSUS 350206N 0343924E) BALMA 342856.30N 0350302.30E KALDE (KAD) 334826.70N 0352909.53E
L631	TOTOX 215030N0622230E *Note 7 (TOTOX-MCT) IVOMA 223408N 0605430E DEBDA 224327N 0603525E MIBSA 225400N 0601338E AMBOS 230324N 0595405E ELIGO 232458N 0590848E KARAR 233042N 0585438E MUSCAT (MCT) 233528.04N 0581536.48E
L677	CAIRO (CVO) 300532N 0312318E MENLI 294700N 0315206E KAPIT 291700N 0323606E SHARM EL SHIEKH (SHM) 275953N 0342448E *Note 7 (PASAM-SHM) PASAM 273045N 0345542E DARAX 264713N 0354703E WEJH (WEJ) 261046N 0362917E *Note 7 (PASAM-JDW)

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	RAGNO 251617N 0371123E
	YENBO (YEN) 240858N 0380219E
	RIDEP 233847N 0381558E
	MIGDA 223829N 0384253E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	*Note 7 (JDW-ABKAR)
	RIBAM 204231N 0390551E
	PATUS 192945N 0393720E
	ABKAR 190511N 0401612E
	IMRAM 175604N 0413004E
	LUBAL 171544N 0421228E
	JAZAN (GIZ) 165428N 0423439E
	*Note 7 (GIZ-IMSIL)
	NABAN 163123N 0430150E
	IMSIL 155738N 0434112E
	SANAA (SAA) 152959.60N 0441310.60E
L681	GESOR 270322N 0475751E
	*Note 5 & 7 & 8 (GESOR-ULIKA)
	LABLI 264522N 0482100E
	RABSA 263050N 0483951E
	TABTA 262837N 0484325E
	EMOGA 261647N 0490230E
	BOSIV 261258N 0490837E
	DEMKA 261008N 0491310E
	GISRA 253344N 0501047E
	ULIKA 251545N 0503849E
L692	ALRIK 220631N 0482535E
	*Note 7 (ALRIK-GISKA)
	LOTOS 220000N 0503912E
	DEBEP 215700N 0514434E
	VATIX 215522N 0521638E
	ALROK 215400N 0524217E
	DEBIN 214716N 0543309E
	KOBES 214504N 0550526E
	DAPOL 214301N 0553416E
	EMAVA 214208N 0554936E
	ITSAG 213720N 0570640E
	GISKA 213503N 0574014E
L695	PAROK 231030N 0590245E
	*Note 7 (PAROK-ITURA)
	ITURA 232351N 0580720E
L700	GHESHM ISLAND (KHM) 264547.1N 0555427.6E
	ULDUN 262429N 0560924E
	BOTOV 252812N 0564307.80E
	GIDIL 251742N 0564923E
	BUBAS 245938N 0570003E
	GERAR 240600N 0573616E
	MIXAM 234139N 0575523E
L703	LONOS 283027N 0491713E
	LOPOL 281850N 0492845E
	GEPUT 281307N 0493423E
	GODRI 280257N 0494308E
	GOGRA 274918N 0495344E
	OBNAX 272651N 0501103E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DEKTA 271605N 0501946E
	VELOG 270215N 0503056E
	KOBOK 265839N 0503349E
	RIKET 261952N 0510954E
	RASDI 260425N 0512407E
L704	LONOS 283027N 0491713E Requested by Bahrain
	*Note 7 (LONOS-TOSNA)
	LOPOL 281850N 0492845E
	GEPUT 281307N 0493423E
	GODRI 280257N 0494308E
	GOGRA 274918N 0495344E
	OBNAK 272651N 0501103E
	DEKTA 271605N 0501946E
	VELOG 270215N 0503056E
	KOBOK 265839N 0503349E
	DEBEN 265254N 0504856E
	DAVRI 264936N 0505732E
	SODAK 264634N 0510530E
	DANOB 263946N 0512640E
	BOTOB 263350N 0514505E
	VEDED 260558N 0514628E
	ORSIS 252801N 0521636E
	ENANO 252348N 0522559E
	TOSNA 251612N 0524116E
L710	UKRAG 233056N 0552306E
	*Note 7 (UKRAG to DEDSO)
	MENTU 232517N 0552443E
	GOGMI 230215N 0553159E
	ITKUN 223731N 0553934E
	DEBAV 221532N 0554617E
	EMAVA 214208N 0554936E
	ITETA 211618N 0555208E
	IVENI 205158N 0555430E
	KASIN 201853N 0555742E
	KEDON 200503N 0555901E
	KUKDI 193022N 0555953E
	DEDSO 185811N 0560041E
L713	DASHT E NAZ (DNZ) 363853.6N 0531120.1E
	IMDUX 361511N 0534211E
	GIBAB 353213N 0543656E
	PAXER 350901N 0550000E
	ULETA 342805N 0554002E
	EMITI 335811N 0560845E
	RIBEN 332902N 0563620E
	OTISO 331451N 331451N
	EGPOD 324901N 0571545E
	NADSA 321438N 0575002E
	TOVUS 300643N 0595235E
	ULOVI 291948N 291948N
	SODOK 281113N 0613652E
	KEBUD 273552N 0625024E
L717	RANRU 300115N 0610048
	LUDAX 295658N 0604101E
	PEKES 285929N 0595221E

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	(OGOGO 302457N 0630904.20E)
L720	RIKOP 374026N 0581450E BOJNORD (BRD) 372942.2N 0571923.8E ODKOL 363136N 0560702E IBRAV 362041N 0555430E ULANO 355228N 0552043E ITELO 353534N 0550052E
L721	LAVAN ISLAND (LVA) 264843.4N 0532121.1E EGMIT 263340N 0530825E IMLUV 262936N 0530101E ELIDU 262424N 0525133E *Note 7 (ELIDU-BAYAN) UKNEP 262127N 0524818E UKUBU 261428N 0524039E ORLUP 260651N 0523216E ITMUB 255919N 0522402E ALKAN 255214N 0521615E SENKI 254637N 0520928E LABOV 253412N 0515521E BAYAN 252926N 0514849E
L764	MUSCAT (MCT) 233528N 0581536E ALMOG 233524N 0574940E IVETO 233520N 0570704E PAXIM 240245N 0561631E
L768	ALPOB 254218N 0530055E *Note 7 (ALPOB to FIRAS) *Note 8 (ALPOB-COPPI) ROTAG 255353N 0523621E ITMUB 255919N 0522402E MODOG 261012N 0515935E RAMKI 261138N 0515625E RABLA 261506N 0514834E SOLOB 262241N 0513132E ALREP 262541N 0512209E ORDIG 262738N 0511603E MEDMA 263421N 0505454E OBMON 263832N 0504125E EGMOR 264211N 0502907E ULADA 264527N 0501624E ITESA 265016N 0500014E JUBAIL (JBL) 270043N 0492443E LAKSI 271306N 0490004E ITUDA 273432N 0481647E IVOBA 274138N 0480219E COPPI 275033N 0474359E DUSBO 280616N 0465254E AL QAISUMAH/HAFR AL BATIN (HFR) 282126N 0460703E VATIM 285136N 0444443E RAFHA (RAF) 293713N 0432953E ARAR (AAR) 305429N 0410832E OVANO 314801N 0390951E OTILA 320131N 0390153E MODAD 323542N 0384136E KUMLO 325811.82N 0384138.14E SOKAN 330806N 0382206E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	RAFIF 331247N 0381919E
	SULAF 332718N 03810247E
	FIRAS 335218N 0375512E
L852	UROMIYEH (UMH) 374114.0N 0450503.7E
	TESVA 381709N 0442947E
	(ESENK 384441.40N 425616.80E)
L883	REXOD 211230N 0613830E
	GADMA 211439N 0600938E
	TAVKO 211519N 0593147E
	UMILA 211555N 0584738E
	*Note 7 (UMILA to ALNUG)
	MEVLI 211632N 0565606E
	KUROV 211627N 0561853E
	ALNUN 211625N 0561041E
	ITETA N211618 E0555208
	SITOL 211604N 0552514E
	LONOV 211856N 0543516E
	DASAP 212047N 0540045E
	EGSAB 212446N 0523634E
	ASNUR 212654N 0514335E
	EGSIT 212746N 0511956E
	ALNUG 213009N 0500453E
	*Note 7 (ALRIK to ALNUG)
	ALRIK 220631N 0482535E
	KITUB 224922N 0462342E
	UMRAN 231508N 0452023E
	*Note 7 (PMA to URMAN)
	DASTO 232236N 0445953E
	NADLI 233725N 0441843E
	TUKVU 234626N 0435319E
	KODIS 240254N 0425312E
	BIR DARB (BDB) 241951N 0414928E
	GOKSA 242442N 0410403E
	MEDRO 242730N 0403649E
	MADINAH (PMA) 243251N 0394219E
L934	PATOM 255821N 0511836E
	LUBET 261441N 0510347E
	EGPUD 262904N 0505019E
	OBMON 263832N 0504125E
	OVUPI 265320N 0502727E
	TOKMA 270939N 0501159E
	ORSOL 272135N 0500208E
	ITNAS 274644N 0493957E
	DAMUR 280137N 0492638E
	ITEVO 281558N 0491332E
	DAVUS 282346N 0490622E
M203	PUSTO 332100N 0424500E
	*Note 7 (PUSTO to ILMAP)
	SILBO 325900N 0432900E
	LOVEK 322208N 0444001E
	KODAV 314500N 0460400E
	ILMAP 312133N 0465702E
M300	(KADOL 190003N 0633602E)

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APPENDIX 4D

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	LOTAV 203700N 0605700E
	GADMA 211439N 0600938E
	GOLBA 213318N 0594600E
	EMURU 221357N 0585338E
M301	(PURAD 145500N 0415354E)
	KIPAM 150030N 0421526E
	MIPIN 150608N 0423735E
	LUDOX 152034N 0433524E
	MUTEX 152524N 0435445E
	SANAA (SAA) 15295960N 0441310.60E
	ITOLI 152825N 0450927E
	PASAD 153634N 0460713E
	PAPOR 154322N 0465652E
	GIBIT 154849N 0473804E
	NABUP 155417N 0482143E
	SAYUN (SYN) 155742.64N 0484710.18
	XAGAG 160206N 0492722E
	GINBO 160349N 0494017E
	RARBA 161021N 0503920E
	SIMKO 161821N 0515526E
	ASMAK 162327N 0524634E
M303	MUSCAT (MCT) 233528.04N 0581536.48E
	*Note 7 (MCT-KIPOL)
	SEVLA 233321N 0591122E
	KIPOL 230410N 0612903E
M305	SIDI BARANI (BRN) 313432.5N 0260020.3E
	ATMUL 200000N 0290527.4E
	*Note 3
M309	KING KHALED (KIA) 245310N 0464534E
	*Note 1 (KIA-VEMEM)
	DURMA 242710N 0454610E
	RAGHBA (RGB) 235533N 0443547E
	LAKMI 232424N 0430827E
	DIPEX 231656N 0424758E
	KUTOL 230718N 0422147E
	ITOLO 224602N 0412244E
	ALPUT 224019N 0410705E
	VUTEX 223418N 0405044E
	VEMEM 221554N 0400118E
M316	KATUS 251600N 0574700E
	SEVDA 260217N 0590549E
	NAGES 262451N 0594514E
	SOLUV 264157N 0601533E
	GOKSO 265542N 0604012E
M317	GABKO 260404N 0554755E
	RADEB 261140N 0554719E
	NANPA 262301N 0553136E
	ORPEN 263119N 0552008E
	SERDU 264715N 0545757E
	ROTAL 273241N 0535320E
	KUPTO 282418N 0525432E
	IMGOD 301419N 0513050E
	RADID 302444N 0512613E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	NOTSA 331745N 0490315E
	KEBEP 350454N 0474014E
	PAREX 360527N 0465154E
	*Note 9 (RABEM-DASIS)
	RABEM 374841N 0452949E
	KHOY (KHY) 382601.4N 0445758.9E
	DASIS 385435N 0441230E
M318	RIKOP 374026N 0581450E
	*Note 7 (ATUDO-RIKOP)
	SILPO 370806N 0580006E
	BONEM 363826N 0574647E
	SABZEVAR (SBZ) 361011.0N 0573414.9E
	RABAM 355442N 0572955E
	SITEL 351304N 0571825E
	DAPIN 342034N 0570413E
	TABAS (TBS) 334021.2N 0565330.9E
	OTISO 331451N 0564936E
	IMSOG 325636N 0564649E
	NIVRA 315905N 0563810E
	PARID 313041N 0563358E
	MIRER 305943N 0562926E
	GETIS 301145N 0562226E
	ASMET 284758N 0561019E
	ASMUK 280952N 0560453E
	GHESHM ISLAND (KHM) 264547.1N 0555427.6E
	RADEB 261140N 0554719E
	GABKO 260404N 0554755E
	DAVMO 255127.0N 0553900.0E
	TOVIV 253302N 0551942E
	LOVEM 252645.4N 0551440.4E
	MITIX 251746.4N 0550729.7E
	EGTAG 250856N 0545652E
	VEKOV 245750N 0544925E
	TULON 245511.4N 0544739.1E
	KUVDA 244309N 0543909E
	IMLIP 243648N 0543549E
	RURAL 243045N 0543156E
	ATUDO 241708.0N 0543432.0E
	MUSEN 241429N 0543236E
	BOPIT 235947N 0540404E
	DANOK 234220N 0533111E
	ESROM 232424N 0525729E
	GOLGU 231051N 0523109E
	MUXIT 230229N 0523024E
	KATIT 224928N 0522923E
	MEDPO 222421N 0520751E
	DEGPA 221801N 0520227E
	DEBEP 215700N 0514434E
	EGSIT 212746N 0511956E
	PURDA 210805N 0510329E
	ASTIN 200410N 0495320E
	KUTMA 182927N 0481202E
	NITPO 174554N 0472624E
	SHARURAH (SHA) 172813N 0470802E
	NADKI 171417N 0464703E
	RAGNI 163454N 0454815E
	IMDEN 162101N 0452744E

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	MUTAB 155314N 0444700E
	RAKID 154134N 0442959E
	SANAA (SAA) 152959.60N 0441310.60
	NAGIL 152024N 0435651E
	RAMLO 151033N 0434007E
	HODEIDEH (HDH) 144622.10N 0425911.10E
M319	ULINA 292451N 0345818E
	SESMO 293458N 0351159E
	LOXUS 301301N 0352601E
	LOSIL 304951N 0354841E
	QATRANEH (QTR) 311454N 0360334E
	MOUAB 314758.00N 0353559.00E
M320	KING FAHD (KFA) 262153N 0494910E
	KODAG 2703.3N 04920.4E
	JUBAIL (JBL) 270222N 0492426E
	RAS MISHAB (RAS) 280441N 0483653E
	KUWAIT (KUA) 291457N 0475717E
	ASVIR 283220N 0482220E
M321	HALAIFA (HLF) 262603N 0391609E
	*Note 7 (KIA-HLF)
	IMROV 260936N 0402145E
	ORMAD 260353N 0404401E
	ROSUL 253945N 0421519E
	KINOB 253146N 0430018E
	MIRAS 251508N 0443001E
	OVEKU 250955 0445701E
	IVONU 250323N 0454030E
	KING KHALED (KIA) 245310N 0464534E
	RESAL 240649N 0470427E
	AMBAG 230529N 0474611E
	BOSOB 224130N 0480218E
	ALRIK 220631N 0482535E
	DAXOK 213157N 0485041E
	NONGA 205048N 0492014E
	ASTIN 200410N 0495320E
	SILPA 184953N 0510158E
	IMPOS 183137N 0511848
	LOTEL 180926N 0514103
	PUTRA 165432N 0525631E
M323	IMDUR 074114N 0323107E
	BOTOK 102859N 0334548E
	EGTOT 144511N 0353913E
	MIPOL 203322N 0382145E
M324	RIKOP 374026N 0581450E
	LOXED 355854N 0580609E
	TABNI 353052N 0575840E
	TASLU 342531N 342531N
	ROXEK 331123N 0572138E
	EGPOD 324901N 324901N
	DARBAND (DAR) 314659.4N 0565940.4E
	PURBO 311346N 0565832E
	KERMAN (KER) 301658.1N 0565632.3E
	NANTO 284140N 0563831E
	BANDAR ABBAS (BND) 271149.4N 0562200.3E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	MOBET 264406N 0560908E
	PATAT 261613N 0560059E
M425	ELIKA 334955N 0343500E
	CHEKA (CAK) 341801.81N 0354159.64E
M428	IVURO 251940N 0560915E
	*Note 7/8 (IVURO/MUNGA)
	SUTVO 251531N 0562153E
	GOMTA 251115N 0563447E
	TARBO 244351N 0574637E
	MUNGA 242516N 0584533E
M430	KING KHALID (KIA) 245310N 0464534E
	*Note 5 (KIA-DOH)
	*Note 7 (ULIKA-KIA)
	DEGLA 250243N 0472847E
	KOBOX 250716N 0475046E
	GOLNO 251155N 0483658E
	KIREN 251447N 0490724E
	*Note 8 (KIREN-TOSNA)
	AL AHSA (HSA) 251645N 0492903E
	SALWA 251538N 0503048E
	ULIKA 251545N 0503849E
	GINTO 251606N 0510416E
	LAGNO 251613N 0511518E
	DOHA/HAMAD (DOH) 251459.66N 0513634.80E
	*Note 7 (OXARI-DOH)
	BOVIP 251555N 0523135E
	TOSNA 251612N 0524116E
	PUTIB 251900N 0525755E
	RORON 252053N 0530916E
	TAGDU 252258N 0532153E
	OXARI 252535N 0533458E
M434	UMESA 351741N 0434307E
	OTALO 351700N 0441900E
	TOTAM 351601N 0444006E
	DAVAS 351724N 0451235E
	BOXIX 351724N 0460921E
	ASLAX 351607N 0463118E
	NOLTO 351435N 0465623E
	SANANDAJ (SNJ) 351419.7N 0470029.2E
	TUKLO 351014N 0471751E
	LOVID 350740N 0472841E
	KEBEP 350454N 0474014E
	HAMADAN (HAM) 345200.8N 0483301.0E
	ORLOG 345512N 0490915E
	SAVEH (SAV) 350106.8N 0502216.9E
M440	KING KHALED (KIA) 245310N 0464534E
	OTALI 243313N 0474744E
	SITER 241107N 0485443E
	KUTNA 231341N 0512730E
	BOPEK 230059N 0520007E
	KATIT 224928N 0522923E
	*Note 7 (KATIT-TULBU)
	DAVLU 224136N 0533310E

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APPENDIX 4D

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DANUX 223605N 0541558E
	MIDGU 222706N 0552230E
	DEMKI 224941N 0562308E
	TULBU 230005N 0571827E
M444	DOHA/HAMAD (DOH) 251459.66N 0513634.80E
	EMISA 254658N 0514207E
	PATOM 255821N 0511836E
	DENVO 260452N 0510509E
	TULUB 260644N 0510041E
	BAHRAIN (BHR) 261530N 0503919E
	ELOSO 262409N 05035501E
	DESBU 263240N 0503241E
	EGMOR 264211N 0502907E
	LOTOR 264854N 0502200E
	*Note 7 (LOTOR- DAVUS)
	RAMSI 270249N 0500714E
	ORDAN 271706N 0495442E
	GIRSI 274126N 0493311E
	ENASO 275707N 0491911E
	EMORI 281434N 0491051E
	DAVUS 282346N 0490622E
M449	BUSRA 322000N 0363700E
	GIBOX 320700N 0363308E
	MESLO 320231N 0363148E
	GETUP 315833.47N 0363037.47E
	ALNOR 313955.26N 0362507.52E
	EGLOT 311656.94N 0361823.86E
	MUNRA 304944.29N 0360834.88E
	KINOD 301200.30N 0361600.60E
	PETRA 294206N 0362210E
	GIBET 292620N0362501E
	EGSIS 290515N 0362850E
	RABUG 283622N 0363402E
	TABUK (TBK) 282153N 0363637E
	NETOL 270748N 0363226E
	WEJH (WEJ) 261046N 0362917E
M550	GOLGU 231051N 0523109E
	RIBOT 230844N 0522428E
	BOPEK 230059N 0520007E
	MIGMA 225035N 0512749E
	*Note 7 (MIGMA- MEVDO)
	MEVDO 223205N 0494616E
M551	(DONSA 143518N 0651136E)
	ANGAL 161404N 0600004E
	OTOTO 164004N 0570435E
	KIVEL 165306N 0553633E
	DAXAM 171612N 0544715E
M554	TOKAR 180624N 0374812E
	MIPOL 203322N 0382145E
M555	ALRAM 374230N 0443736E
	KAPES 372520N 0452004E
M556	ORMID 253354N 0525434E- Requested by Bahrain

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DASLO 254537N 0523029E
	ALKAN 255214N 0521615E
	RABLA 261506N 0514834E
	SOLOB 262241N 0513132E
	ALREP 262541N 0512209E
	ORDIG 262738N 0511603E
	MEDMA 263421N 0505454E
	BAHRAIN (BHR) 261530N 0503919E
	NARMI 261802N 0501939E
M557	IVOXI 251239.6N 0552513.1E
	MITIX 251746.4N 0550729.7E
	RIDAP 252553.7N 0543701.2E
	OTIKI 253229N 0541441E
	TOTKU 253534N 0540410E
	GODKI 254122N 0534347E
	RALMI 254505N 0533033E
	TUMAK 255031N 0531108E
M559	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	*Note 7 (JDW- LABNI)
	RIBAM 204231N 0390551E
	PATUS 192945N 0393720E
	IMLIL 171949N 0403219E
	LABNI 165620N 0410921E
	NISMI 162415N 0421838E
	DAROV 160637N 0431338E
	IMSIL 155738N 0434112E
	ASREM 154637N 0441443E
	RAKID 154134N 0442959E
	ITOLI 152825N 0450927E
	LONIS 151910N 0460016E
	MEMTA 150322N 0472434E
	OBNIS 145840N 0474903E
	BOSAX 144740N 0484553E
	MUKALLA (RIN) 144015.30N 0492329.30E
	EMABI 141627N 0494139E
	XANLO 135653N 0495628E
	PURKA 131208N 0503042E
	ODBEN 123747N 0505648E
	VEDET 120134N 0512420E
M561	RAGAS 263537N 0521337E
	*Note 7 (RAGAS-KIS)
	EGMIT 263340N 0530825E
	KISH ISLAND (KIS) 263130.6N 0535744.7E
	MIVUN 263151N 0541953E
	DENSA 263158N 0542920E
	BANDAR LENGEH (LEN) 263210.1N 0545104.2E
	BOSOS 264325N 0554311E
	GHESHM ISLAND (KHM) 264547.1N 0555427.6E
	*Note 7 (KHM- ASVIB)
	PAVON 270206N 0561149E
	RUKOT 265324N 0580339E
	LADPA 265331N 0592514E
	GOKSO 265542N 0604012E
	ASVIB 265724N 0631812E
	(PANJGUR (PG) 265710.21N 0640813.06E)

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
M562	VATEN 153358N 0323312E PASIL 161331N 0332010E BOPID 163948N 0335142E IMTPARX 1706092005N 03423314026E Requested by Sudan PORT SUDAN (PSD) 19240412N 037143021E BOGUM 200636N 0380300E MIPOL 203322N 0382145E
M564	PASOV 243841N 0565037E *Note 7 (PASOV-UMAMI) PUXIL 244117N 0563145E VAXAS 244308N 0561807E NALNU 244737N 0560925E UMAMI 245113.7N 0560223.3E
M565	ALRAP 133945N 0361344E *Note 7 (ALRAP-LUGAV) EGTOAT 1445115325N 03539134256E Requested by Sudan GIDARX 1527342126N 03516423107E ELONO 163635N 0343934E IMTPARX 1706092005N 03423314026E DARIBREV 1931594449N 03302523656E ENABUSISID 220000N 0322927E LUGAV 224205N 0313722E
M568	NUBAR 220000N 0313824E UMIDA 185115N 0311704E ASNON 150818N 0305312E KASAB 134346N 0304233E KINOV 093414N 0301149E DEKUM 043742N 0293936E
M572	NOLSU 251248.0N 0560737.8E *Note 7 (NOLSU-GOMTA) GOMTA 251115N 0563447E
M573	TEHERAN (TRN) 354149.10N 05117021.60E DAMOS 372619N 0474521E TABRIZ (TBZ) 380853.50N 04612473.95.70E
M574	NABIL 122200N 0600006E BOTEM 135413N 0551418E RIGAM 143932N 0530414E UKSAB 145200N 0521800E NODLI 150301N 0513549E PURUG 151204N 0510142E EGMIX 151811N 0503810E UKORA 152407N 0501547E TAVLI 153502N 0493430E RALMO 153824N 0492155E NABUP 155417N 0482143E MUTOK 161005N 0472228E LABRA 161813N 0465113E OVABI 162442N 0462642E RAGNI 163454N 0454815E ELONA 165753N 0442124E NOBSU 171554N 0431315E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
M600	RANBI 251908N 0544500E
	KISAG 251834N 0541408E
	TUMAK 255031N 0531108E
	*Note 7 (TUMAK- KUMBO)
	VEDOM 260109N 0524456E
	ORLUP 260651N 0523216E
	VELAK 261307N 0521821E
	LABOP 261907N 0520429E
	ALTOM 262230N 0515639E
	BOPOV 262430N 0515043E
	ALMOK 262832N 0513840E
	GITBO 263527N 0511750E
	VEDOS 264106N 05100445E
	MOGAS 264800N 0503909E
	RAKAK 265221N 0502618E
	RAMSI 270249N 0500714E
	ORNAK 272854N 0493248E
	SOLEM 275229N 0491136E
	KUMBO 281705N 0485526E
M628	DAFINAH (DFN) 231658N 0414310E
	*Note 7 (UMRAN - DFN)
	DIPEX 231656N 0424758E
	NALBA 231639N 0433419E
	DAXUR 231537N 0445436E
	UMRAN 231508N 0452023E
	*Note 7 (UMRAN - MIGMA)
	DEBAS 231059N 0462728E
	AMBAG 230529N 0474611E
	DEGNO 225945N 0485954E
	MIGMA 225035N 0512749E
	BOSAK 225021N 0514213E
	KATIT 224928N 0522923E
	PEKEM 224648N 0535942E
	RIGIL 230146N 0551430E
	LUDID 230227N 0551800E
	GOGMI 230215N 0553159E
	*Note 7 (TULBU-LUDID)
	LABSA 230153N 0555505
	EGVAN 230127N 0561907
	KUNGO 230034N 0565850E
	TULBU 230005N 0571827
	IZKI (IZK) 2253198.60N 0574542.73
	TOLDA 224008N 0583624E
	*Note 7 (PARAR-TODLA)
	LOXOP 223722N 0594548E
	LOSIM 223513N 0603238E
	IVOMA 223408N 0605430E
	PARAR 222630N 0630700E
M634	ANGAL 161404N 0600004E
	TOKPU 145122N 0571103E
	BOTEM 135413N 0551418E
	KEDAV 125553N 0531509E
	VEDET 120134N 0512420E
	(IMTIS 112506N 0502858E)
M651	NADKI 171418N 0464706E

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	OVABI 162442N 0462642E
	MEGPA 160017N 0461653E
	PASAD 153634N 0460713E
	LONIS 151910N 0460016E
	PEBIX 144447N 0454637E
	LADLI 132724N 0451604E
	ADEN (KRA) 124952.20N 0450125E
	KORAB 121109N 0445028E
	OKTOB 114730N 0444348E
	(IMVEB 112638N 0443753E)
M677	SESRU 290900N 0485450E
	*Note 7 (SESRA- TUKSI)
	RETEL 285236N 0491048E
	RABAP 283625N 0492722E
	PASAK 282500N 0494847E
	IVIVI 273734N 0502437E
	DEBGU 272648N 0503252E
	VEDOR 270855N 0504630E
	TOSDA 2700045N 0505629E
	TORBO 265223N 0511024E
	SEVNI 264401N 0513815E
	SOGAN 263915N 0515408E
	MURUB 262455N 0523751E
	UKNEP 262127N 0524818E
	DEGSO 261054N 0531946E
	OBNET 260032N 0534514E
	LUDAM 255508N 0535859E
	ITBUL 254910N 0541227E
	DIXAM 254151N 0543557E
	VUTEB 253644.6N 0545149.4E
	LOVEM 252645.4N 0551440.4E
	KURTU 252211N 0554625E
	MISEG 252134N 0555205E
	TUKSI 252006N 0560525E
	IVURO 251940N 0560915E
	KUSEN 251828.0N 0562340.0E
	LALDO 251806N 0563600E
M681	TARBO 244351N 0574637E
	*Note 7/8 (TARBO-DAMUM)
	DAMUM 243236N 0591307E
M686	LUXOR (LXR) 254458N 0324607E
	*Note 7 (JDW- LXR)
	MEMPO 252518N 0335457E
	OTEMO 250341N 0350810E
	GIBAL 243713N 0363443E
	ALPOV 232037N 0374252E
	BOMOX 222949N 0382704E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
M688	(OTKEP 375133N 0423936E)
	*Note 7 (OTKEP- SIDAD)
	RATVO 371426N 0435604E
	KEDIM 364617N 0440909E
	SOBIL 343000N 0451008E
	VAXEN 331800N 0451500E
	SISIN 325006N 0454113E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ULDUR 305023N 0472958E
	SIDAD 295231N 0482944E
M690	ZELAF 325656N 0375959E
	ORNAL 324755N0375153E
	KODER 323300N 0373800E
	DESLI 314900N_0365901E
	ELOXI 313401N 0364534E
	KULDI 311847N 0363214E
	MUNRA 304944N 0360835E
	LONOL 300801N 0353500E
	SESMO 293458N 0351159E
	ULINA 292451N 0345818E
	NUWEIBAA (NWB) 290156N 0344016E
M691	LADNA 262749N 0502245E
	*Note 7 (ALPOT- LADNA)
	KING FAHD (KFA) 262951N 0494643E
	DASVA 264551N 0492301E
	SILBA 270554N 0485301E
	ALPOT 271841N 0480511E
	KEDAT 272149N 0475901E
	EMENI 273234N 0473848E
	ITIXI 275031N 0470435E
M701	LUMOM 371612N 0444924E
	PAVOD 370204N 0451834E
	ENEDA 355211N 0462718E
	NOLTO 351435N 0465623E
	KHORAM ABAD (KRD) 332603.1N 0481730.7E
	DAPEM 325126N 0484159E
	NAGRO 321015N 0491549E
	IMKEN 314407N 0493611E
	MESVI 311057N 0500006E
	BOTAS 295241N 0505515E
	IVERA 292303N 0511540E
	DEPSU 283409N 0515047E
	DURSI 271219N 0520144E
	KAVAM 265737N 0515818E
	MIDSJ 264142N 0515442E
M708	DAROR 270244N 0495815E-Requested by Bahrain
	*Note 7 (DAROR-DASUT)
	RAMSI 270249N 0500714E
	GASSI 270257N 0502229E
	VELOG 270215N 0503056E
	TOSDA 270005N 0505629E
	FORBO 265223N 0511024E
	SEVNI 264401N 0513815E
	SOGAN 263915N 0515408E
	MURUB 262455N 0523751E
	DASUT 261832N 0531108E
M710	DASIS 385435N 0441230E
	REXUS 385624N 0451332E
	DULAV 385700N 0453800E
M715	ASVIB 265724N 0631812E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	SARAVAN (SRN) 272454.1N 0621931.5E
	PEKES 285929N 0595221E
	SILKO 295558N 0584138E
	EGRES 304855N 0573144E
	PURBO 311346N 0565832E
	PARID 313041N 0563358E
	DANEM 322854N 0550717E
	MITET 325226N 0542850E
	PURKI 331140N 0535657E
	KAVEK 332249N 0533814E
	RERET 333336N 0532651E
	OXADU 350837N 0511226E
	IMLIM 351200N 0510400E
	ELIPO 354046N 0502117E
	ZANJAN (ZAJ) 364646.8N 0482111.9E
M717	LADLI 132724N 0451604E
	DASIT 144412N 0462931E
	GIBIT 154849 N 0473804E
	KANEM 173660N 0492655E
	SILPA 184953 N 0510158E
	SILPA 184953N 0510158E
	*Note 7 (SILPA-PUTSO)
	MEDMO 194837N 0521027E
	METNO 201418N 0524050E
	DAXUT 203706N 0530802E
	SEMSI 204455N 0531724E
	DASAP 212047N 0540045E
	DEBIN 214716N 0543309E
	DARER 221152N 0550332E
	MIDGU 222706N 0552230E
	ITKUN 223731N 0553934E
	KATAK 224811N 0555708E
	EGVAN 230127N 0561907E
	GENIR 231111N 0563630E
	PUTSO 232037N 0565322E
M718	ULDUS 380000N 0510100E
	LABKA 364142N 0504342E
	GOPKA 361256N 0503724E
	DAVMI 355657N 0503401E
	SAVEH (SAV) 350106.8 0502216.9E
M719	MESPO 244817N 0595040E
	NAGES 262452N 0594514E
M720	DITAR 265903N 0250000E
	DANAD 285106N 0280609E
	TAKRI 292503N 0290432E
	FAYOUM (FYM) 292351N 0302335E
	CAIRO (CVO) 300532N 0312318E
M722	NARMI 261802N 0501939E Requested by Bahrain
	*Note 7 (NARMI-TOSNA)
	TOSTA 262746N 0504913E
	SOLOB 262241N 0513132E
	VEDED 260558N 0514628E
	ORSIS 252801N 0521636E
	ENANO 252348N 0522559E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	TOSNA 251612N 0524116E
M762	REXOD 211230N 0613830E *Note 7 (REXOD - VAXAS) SUR (SUR) 223247.9N 0592929.70E DELISO 225606N 0585233E ITURA 232351N 0580720E ALMOG 233524N0574940E VELOD 234611N 0573435E GEXAN 241257N 0565649E TAPRA 242607N 0563803E VAXAS 244308N 0561807E RUDAT 244605.1N 0561714.1E MIVEK 245240N 0561516E
M855	RASDA 330600N 0305700E MIVOR 322922N 0300603E GOMVA 320010N 0292615E NABSI 314353N 0290419E MERSA MATRUH (MMA) 311911N 0271320E SIDI BARANI (BRN) 313432N 0260020E LOSUL 314100N 250800E
M860	(SIIRT (SRT) 375438.40N 0415255.10E) *Note 7 (GADSI - SIIRT) EFFEZ 373518N 0423919E NINVA 372100N 0431300E ROXOP 364445N 0433322E VUSEB 361637N 0434800E TOMSI 354858N 0440229E OTALO 351700N 0441900E NAMDI 343027N 0444133E SEPTU 331300N 0444400E RESAK 323305N 0451552E KODAV 314500N 0460400E GADSI 303358N 0471116E
M861	ELEXI 3442371.105N 04110549.0E DIER-ZZOR (DRZ) 351831N 0401114E TABQA 354704N 0383432E ALEPPO (ALE) 361047N 0371234E NISAP 3647401N 0363805E (MILBA 365705N 0362846E)
M863	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E GIBAP 212218N 03809310E TOMRU 204411N 0361950E DARIBREV 1931594449N 03302523656E Requested by Sudan SOMAK 190301N 0314717E RAGSI 185526N 0312747E UMIDA 185115N 0311704E TAVNA 174808N 0283938E SOGIN 171145N 0271200E ASKOL 154854N 0240005E KITOB 1521436N 0225848E (IPONO 150624 N 0222436E)
M872	(LINGI 343043N 0243244E)

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	*Note 7 (REXUM-LINGI)
	METRU 340000N 0250900E
	ITEXO 325832N 0265834E
	NABSI 314353N 0290419E
	SOBAX 313508N 0291835E
	ORNAS 311838N 0291845E
	REXUM 301822N 0291917E
	FAYOUM (FYM) 292351N 0302335E
	LUBOS 284201N 0311306E
	SEMRU 280200N 0320306E
	BOPOB 272253N 0332316E
	HURGHADA (HGD) 271040N 0334747E
	*Note 7 (HGD- KIA)
	ALMOD 270123N 0341349E
	SILKA 263400N 0352900E
	WEJH (WEJ) 261046N 0362917E
	KULKI 254814N 0371445E
	TULOK 251001N 0383037E
	BOVET 245742N 0385436E
	EGVED 244857N 0391129E
	MADINAH (PMA) 243251N 0394219E
	MEDRO 242730N 0403649E
	GOKSA 242442N 0410403E
	BIR DARB (BDB) 241951N 0414928E
	AL DAWADMI (DAW) 242656N 0440709E
	TASBA 243059N 0443028E
	KAVUR 244246N 0454036E
	KING KHALID (KIA) 245310N 0464534E
	AKRAM 255036N 0475133E
	*Note 8 (OB) to MIDSJ
	ALMAL 261553N 0482108E
	DAVRI 264936N 0505732E Requested by Bahrain
	MIDSJ 264142N 0515442E
M877	VUSET 235540N 0590812E
	ITILA 2340155N 0584817E
	KUSRA 232426N 0582611E
M999	(ZARZAITINE (IMN) 280359.60N 0093939.30E)
	BUHRA 272234N 0124717E
	SEBHA (SEB) 265944N 0142735E
	HORUJ 270906N 0161442E
	KEPOS 272230N 0182810E
	MASIT 272816N 0194016E
	ARRIG 272930N 0200112E
	KARUB 273524N 0211524E
	SODOR 273747N 0220159E
	SARIR (GS) 273900N 0223000E
	DITAR 265903N 0250000E
	NAKDO 260554N 0282101E
	DAMPO 254707N 0292708E
	IMLAX 252924N 0302707E
	EL KHARGA (KHG) 252654N 0303527E
	KUNAK 252745N 0304112E
	EMENA 253749N 0315147E
	LUXOR (LXR) 254458N 0324607E
	ELELI 251854N 0332934E
	SEDVA 235813N 0354006E
	DASPA 230121N 0370841E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DEDLI 224232N 0373719E
	*Note 7 (DEDLI- JDW)
	MUVOL 221749N 0381452E
	JEDDAH/KING ABDULAZIZ (JDW) 214244N 0390723E
	*Note 7 (LABNI-JDW)
	BOSUT 204705N 0393158E
	LOVIL 201553N 0394537E
	DAVUV 194408N 0395924E
	ABKAR 190511N 0401612E
	LABNI 165620N 0410921E
	DANAK 160800N 0412900E
	APDOS 153955N 0413947E
	(PURAD 145500N 0415354E)
N39	ULDUS 380000N 0510100E
	ULEXI 374344N 0510631E
	NOSHahr (NSR) 363946.1N 0512751.4E
	ELEDI 350136N 0520356E
N72	BATEV 381005N 0501419E
	UMERO 375524N 0501514E
	GOLNU 355711N 0502052E
	ELIPO 354046N 0502117E
	SESBI 353154N 0502130E
	PEDAR 350826N 0502206E
	SAVEH (SAV) 350106.8N 0502216.9E
	UKITA 330657N 0500041E
	IMKEN 314407N 0493611E
	BANDAR MAHSHAHR (MAH) 303322.8N 0490858.0E
	UKNAR 295538N 0490450E
	TULAX 293853N 0490301E
N300	DOHA/HAMAD (DOH) 251459.66N 0513634.80E
	*Note 7 & 8 (DOH-LALDO)
	ELOBI 250753N 0521722E
	NAMLA 250532N 0523318E
	MIBRU 250321N 0524540E
	RUGIS 245916N 0530340E
	KAXOB 245423N 0532450E
	GIDOB 244445.3N 0535952.6E
	ORBOL 245134N 0542348E
	LORID 245552.5N 0543904.1E
	VEKOV 245750N 0544925E
	OBREV 250200N 0551135E
	LAGTA 250602N 0553315E
	RUKOR 250823N 0554603E
	NOLSU 251248.0N 0560737.8E
	SUTVO 251531N 0562153E
	LALDO 251806N 0563600E
N302	SIDAD 295231N 0482944E
	*Note 7 (SIDAD-ALVIX)
	ALVAX 292030N 0482422E
N303	(KASOL 283147N 0531533E)
	PARIM 123142N 0432712E
	ORNIS 141615N 0423657E
	KIPAM 150030N 0421526E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	RIBOK 154700N 0415230E
	LABNI 165620.3N 0410921.4E
N307	MELDO 320201N 0310406E
	LAKTO 323800N 0320500E
N310	BALMA 342856N 0350302E
	CHEKA (CAK) 341801.81N 0354159.64E
	*Note 7 (CAK- LATEB)
	LATEB 340154N 0362403.60E
	LOTAX 335952N 0363231E
	BASEM 333337.6N 0373907.1E
N311	NUBAR 220000N 0313824E
	TOVIL 175557N 0304439E
	DATIM 152833N 0301323E
	JEBRA 125520N 0291349E
	SIGNO 094716N 0275031E
	ASKON 061745N 0262537E
N312	ASVIB 265724N 0631812E
	GENEV 264247N 0603757E
	NOVSU 263407N 0573849E
	MOBET 264406N 0560908E
	GHESHM ISLAND (KHM) 264547.1N 0555427.6E
	SERDU 264715N 0545757E
	ROSUM 264741N 0543637E
	LAVAN ISLAND (LVA) 264843.4N 0532121.1E
	MIDSI 264142N 0515442E
N314	ATMUL 220000N 0290530E
	UMIDA 185115N 0311704E
	KUVTI 163152N 0325025E
	TIKAT 122418N 0353812E
N315	ASPUX 174404N 0600006E
	KUTVI 184306N 0582642E
	*Note: 7 (KUTVI-SITOL)
	MOBAB N201032 E0564415
	ORSIT N202306 E0562915
	VELIK 203322N 0561656E
	IVENI 205158N 0555430E
	SITOL 211604N 0552514E
	LOTOS 220000N 0503912E
	RAPMA 232256N 0482028E
	RESAL 240649N 0470427E
	KING KHALED (KIA) 245310N 0464534E
N316	HALAIFA (HLF) 262603N 0391609E
	NETOL 270748N 0363226E
	PASAM 273045N 0345542E
	*Note: 7 (PASAM-HDG)
	HURGHADA (HDG) 271040N 0334747E
N317	MENSA 245750N 0563249E
	NOLSU 251248.0N 0560737.8E
	REXEV 251502.3N 0560136.7E
	NADNI 251915.2N 0555658.9E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
N318	MOUAB 314758N 0353559E
	QUEEN ALIA (QAA) 314423.41N 0360926.59E
	ALNOR 313955N 0362507E
	KINUR 313626N 0363714E
	ELOXI 313359N 0364536E
	GENEX 312935N 370052E
	GURIAT (GRY) 312445N 0371712E
	*Note: 7 (GRY-ORKAS)
	ORKAS 304725N 0384617 E
	NEVOL 302446N 0393841E
	GIBAM 300018N 0401632E
	VELAL 294602N 0403821E
	SITOD 292143N 0412313E
	TOLDI 290329N 0415621E
	TAMRO 283838N 0424047E
	NOTLI 281200N 0433714E
	LOXOM 275648N 0440832E
	MOGON 273847N 0444554E
	EMARO 273342N 0451330E
	DEBOL 272116N 0461843E
	*Note: 7 (DEBOL-REXOD)
	MAANI 270812N 0473152E
	*Note 8 (OB, OO)
	GESOR 270322N 0475751E
	NADEN 265250N 0484448E
	DASVA 264551N 0492301E
	OTERA 264110N 0493841E
	NAGTO 263717N 0495137E
	RABKA 263531N 0495728E
	SIBGA 263416N 0500134E
	LADNA 262749N 0502245E
	ELOSO 262409N 0503551E
	GOLKO 262149N 0504404E
	ASTAD 261812N 0505646E
	LUBET 261441N 0510347E
	TOTIS 261119N 0511027E
	RASDI 260425N 0512407E
	VELAM 255426N 0514347E
	VUTAN 255016N 0515218E
	RESAR 253707N 0522328E
	ALSEM 252703N 0524322E
	OVONA 252443N 0524739E
	PUTIB 251900N 0525755E
	BOXOT 251039N 0531817E
	KAPUM 245815N 0533450E
	BOSEV 245013.3N 0540448.8E
	MOGIM 244053N 0542820E
	IMLIP 243648N 0543549E
	ELEPO 243211N 0544410E
	SIXIV 242009N 0550439E
	KANIP 241040N 0552042
	LABRI 240344N 0553842E
	EGROK 235253N 0560126E
	LAKLU 232235N 0570401E
	GEVED 230105N 0575111E
	TOLDA 224008N 0583624E
	REXOD 211230N 0613830E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
N319	DERBO 292542N 0611701E ZAHEDAN (ZDN) 292912.3N 0605405.7E KUVAV 313426N 0585747E IMPAT 322451N 0580856E ROXEK 331123N 0572138E TABAS (TBS) 334021.2N 0565330.9E RABER 343656N 0555902E ITELO 353534N 0550052E ODKAT 354650N 0544146E DASHT-E-NAZ (DNZ) 363853.6N 0531120.1E DASEL 371113N 0522020E RIGAN 373543N 0514052E ULDUS 380000N 0510100E (NASIL 390100N 0495100E)
N320	KISAL 101811N 0232526E GINKA 124701N 0250831E BOXIG 155958N 0272606E TAVNA 174808N 0283938E LAMAB 182601N 0290548E NUBAR 220000N 0313824E
N321	TIKAT 122418N 0353812E BOPID 163948N 0335142E BILAL 184044N 0330227E NUBAR 220000N 0313824E
N324	ALNUG 213009N 0500453E PURDA 210805N 0510329E METNO 201418N 0524050E MIPUB 200004N 0530607E GOBRO 193622N 0534741E ASTUN 180832N 0551040E
N430	TARBO 244351N 0574637E *Note: 7 (TARBO - ITLOB) ITLOB 244325N 0590701E
N438	LITAN 333456.28N 0343758.80E KALDE (KAD) 334826.70N 0352909.53E CHEKA (CAK) 341801.81N 0354159.64E KLEYATE (RA) 343510N 0360010E
N440	MOBON 274414N 0552513E *Note: 7 (GABKO-MOBON) BOSOS 264325N 0554311E RADEB 261140N 0554719E GABKO 260404N 0554755E
N558	DEKUM 043742N 0293936E LOROG 093551N 0295448E NABUS 110003N 0295910E DATIM 152833N 0301323E ASRAV 172442N 0301943E
N563	(KATBI 193133N 065002E) REXOD 211230N 0613830E *Note 8 (OB, OM) *Note 7 (REXOD- ALPOB)

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	EMURU 221357N 0585338E
	TULBU 230005N 0571827E
	MEKNA 233309N 0560815E
	KURTA 234205N 0554900E
	SODEX 234954N 0553202E
	ELUDA 235107N 0552905E
	NOBTO 235525N 0551840E
	SIGMO 240710N 0545837E
	VUXOD 242005N 0543625E
	UMIBU 242331N 0543027E
	KUGTO 243231N 0542224E
	BOSEV 245013.3N 0540448.8E
	ITKEV 250104N 0534526E
	KUSBA 251634N 0532847E
	TAGDU 252258N 0532153E
	IMGUX 252950N 0531428E
	ALPOB 254218N 0530055E
	TOTLA 263806N 0504301E
	RULEX 264529N 0501745E
	SILNO 264026N 0475745E
	GIBUS 255724N 0472829E
N565	KAMEL 322000N 036440E
	ZELAF 325700N 0380000E
N567	SOMAD 372645N 0543255E
	LOVEN 363926N 0553355E
	IBRAV 362041N 0555430E
	MUSEG 354656N 0562631E
	IMKUK 345602N 0571346E
	TASLU 342531N 0574131E
	BIRJAND (BJD) 325820.7N 0591200.5E
N568	AVONO 092606N 0335418E
	DEDVA 102746N 0333134E
	SUVRI 135436N 0321800E
	TOVIL 175557N 0304439E
	ATMUL 220000N 0290530E
N569	BONUM 221252N 0393805E
	RABTO 221608N 0400326E
	VEMEM 221554N 0400118E
	LOTOS 220000N 0503912E
	*Note: 7 (LOTOS-GOLNI)
	TOKRA 220925N 0553350E
	*Note: 7 (GISKA-TOKRA)
	SUTLI 220121N 0560404E
	TOPSO 215653N 0562043E
	MOGOK 215057N 0564236E
	KEBAS 214330N 0570948E
	GISKA 213503N 0574014E
	UMILA 211555N 0584738E
	GOLNI 210014N 0594130E
	LOTAV 203700N 0605700E
N570	ITURA 232351N 0580720E
	*Note 7 (ITURA-IVIVA)
	IVIVA 245945N 0574958E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	KATUS 251600N 0574700E
	GIGAB 253708N 0573231E
	NOVSU 263407N 0573849E
	BONIK 264444N 0562651E
	MOBET 264406N 0560908E
	GHESHM ISLAND (KHM) 264547.1N 0555427.6E
	SERDU 264715N 0545757E
	ROSUM 264741N 0543637E
	LAVAN ISLAND (LVA) 264843.4N 0532121.1E
	DURSI 271219N 0520144E
	KAVAM 265737N 0515818E
	MIDSJ 264142N 0515442E
N571	(DOGET 210703N 0660001E)
	PARAR 222630N 0630700E
	*Note 7 & 8 (PARAR-ALPOB)
	KIPOL 230410N 0612903E
	RAGMA 232301N 0603846E
	SODEB 234747N 0593023E
	VUSET 235540N 0590812E
	TOVDI 240733N 0584021E
	KIROP 243000N 0574700E
	ASNIB 243949N 0572105E
	MENSA 245750N 0563249E
	LUBAT 250223N 0561749E
	ENEGA 250556N 0560601E
	RUKOR 250823N 0554603E
	IVOXI 251239.6N 0552513.1E
	TUDIS 251009N 0550825E
	SENPA 251959.6N 0543210.5E
	RUDUK 252408N 0541650E
	ULIVA 252647N 0540611E
	SISOB 253150N 0534509E
	PURLI 253644N 0532436E
	ALPOB 254218N 0530055E Requested by Bahrain
	SOLOB 262241N 0513132E
	MEDMA 263412N 0505454E
	TOTLA 263806N 0504301E
	RULEX 264529N 0501745E
	SILNO 264026N 0475745E
	KUTEM 264359N 0473521E
	BOPAN (BPN) 270314N 0452642E
N572	ROTEL 264015N 0502149E Requested by Bahrain
	*Note 7 (ROTEL-DASUT)
	EGMOR 264211N 0502907E
	DAVRI 264936N 0505732E
	TORBO 265223N 0511024E
	SEVNI 264401N 0513815E
	SOGAN 263915N 0515408E
	MURUB 262455N 0523751E
	DASUT 261832N 0531108E
N574	ATMUL 220000N 0290530E
	ASRAV 172442N 0301943E
	KASAB 134346N 0304233E
	KISOV 100955N 0310359E
	JUBA (JUB) 045234N 0313559E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
N629	TARDI 243418N 0560915E
	*Note 7 (TARDI-TOTOX)
	NOSMI 241757N 0563002E
	BOTAM 240227N 0565320E
	ELIVA 235335N 0570634E
	MUSUK 234320N 0572148E
	IVAKU 232919N 0574103E
	GEPOT 231446N 0580053E
	GIDAN 230104N 0582232E
	LOXOP 223722N 0594548E
	TOTOX 215030N 0622230E
N636	MAGRI 385408N 0462300E
	ARDABIL (ARB) 381856.5N 0482605.1E
	UMERO 375524N 0501514E
	ULEXI 374344N 0510631E
	RIGAN 373543N 0514052E
	GORGAN (GGN) 365544.7N 0542233.3E
	SABZEVAR (SBZ) 361011.0N 0573414.9E
	LOXED 355854N 0580609E
	PAMTU 351006N 0610806E
N638	KING KHALED (KIA) 245310N 0464534E
	OVEKU 250955N 0445701E
	MADINAH (PMA) 243251N 0394219E
N685	DEBOL 272116N 0461843E
	*Note 7 (DEBOL-LAKLU)
	*Note 8 (TAGSO-TOSNA)
	MAANI 270812N 0473152E
	GESOR 270322N 0475751E
	NADEN 265250N 0484448E
	DASVA 264551N 0492301E
	DAMMAM/KING FAHD (KFA) 262951N 0494643E
	NARMI 261802N 0501939E
	BAHRAIN (BHR) 261530N 0503919E
	TULUB 260644N 0510041E
	DENVO 260452N 0510509E
	PATOM 255821N 0511836E
	EMISA 254658N 0514207E
	KAPAX 254218N 0515118E
	ORSIS 252801N 0521636E
	ENANO 252348N 0522559E
	TOSNA 251612N 0524116E
	UMEVU 250545N 0530653E
	KAPUM 245815N 0533450E
	GIDOB 244445.3N 0535952.6E
	*Note 8 (OO)
	SUVDU 243501N 0542410E
	RURAL 243045N 0543156E
	ODKUN 242608N 0544017E
	NAPMA 241250N 0550312E
	ORNEL 240311.7N 0551942.1E
	RETAS 235754N 0553423E
	KOBIM 233309N 0562701E
	PUTSO 232037N 0565322E
	LAKLU 232235N 0570401E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
N687	KING KHALID (KIA) 245310N 0464534E
	TAKTI 252153N 0474340E
	KINIB 254108N 0482317E
	MIBRA 255654N 0485053E
	DEMKA 261008N 0491310E
	SETBA 261346N 0491921E
	DAMMAM/KING FAHAD (KFA) 262951N 0494643E
	SIBGA 263416N 0500134E
	*Note 7 (SIBGA-TORBO)
	ROTEL 264015N 0502149E Requested by Bahrain
	EGMOR 264210.81N 0502906.73E
	DAVRI 264936.05N 0505731.88E
	TORBO 265222.68N 0511024.30E
N694	KING KHALD (KIA) 245310N 0464534E
	TORKI 261400N 0463103E
	SIBLI 265459N 0462334E
	AKODI 275012N 0461320E
	HAFR AL BATIN (HFR) 281949N 0460746E
N697	MENLI 294700N 0315206E
	SISIK 293600N 0324106E
	*Note 7 (NWB-SISIK)
	NUWEIBAA (NWB) 290156N 0344016E
	*Note 7 (NWB-KITOT above FL350)
	KITOT 290205N 0345050E
	NAGIP 284206N 0361133E
	RABUG 283622N 0363402E
	DAXEM 283224N 0364923E
	NABEK 283030N 0365643E
	SOBAS 275600N 0390453E
	REVAB 273424N 0405710E
	HAIL (HIL) 272530N 0414059E
	*Note 7 (NARMI-HIL)
	LOSEL 272135N 0422545E
	NALBU 271420N 0434206E
	PASIT 271011N 0442253E
	ALKIR 270758N 0444343E
	BOPAN (BPN) 270314N 0452643E
	ANTER 270212N 0453359E
	*Note 8 (BPN-TORBO)
	SIBLI 265459N 0462334E
	LUGAL 264603N 0472235E
	MEDGO 264433N 0475257E
	LABLI 264522N 0482100E
	TAYMA 264556N 0484212E
	DAMMAM/KING FAHD (KFA) 262951N 0494643E
	NARMI 261802N 0501939E
	BAHRAIN (BHR) 261530N 0503919E
	*Note 7 (BAH-TORBO)
	GOLKO 262149N 0504404E
	TOSTA 262746N 0504913E
	MEDMA 263421N 0505454E
	VEDOS 264106N 0510045E
	SODAK 264634N 0510530E
	TORBO 265223N 0511024E
N700	ULDUN 262429N 0560924E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	KAVEG 261608N 0552434E
	MENDI 254955N 0550522E
	DAPER 254522N 0545731E
	*Note 7 (DOH-DAPER)
	KUSBA 251633.60N 0532847.40E
	RORON 252052.80N 0530915.60E
	OVONA 252443.20N 0524739.60E Requested by Bahrain
	DOHA/HAMAD (DOH) 251459.66N 0513634.80E
N702	TUMAK 255031N 0531108E Requested by Bahrain
	*Note 7 (TUMAK-RAGAS)
	VEDOM 260109N 0524456E
	ORLUP 260654N 0523216E
	VELAK 261307N 0521821E
	LABOP 261907N 0520429E
	ALTOM 262230N 0515639E
	BOPOV 262430N 0515043E
	ALMOK 262832N 0513840E
	GITBO 263527N 0511750E
	VEDOS 264106N 0510045E
	MOGAS 264800N 0503909E
	TOLMO 265504N 0502927E
	EGLIT 270256N 0502006E
	TOKMA 270939N 0501159E
	ORSOL 272135N 0500208E
	ITNAS 274644N 0493957E
	GODRI 280257N 0494308E
N705	MISUK 290507N 0290621E
	*Note 7 (MISUK -TORBO)
	BOPIX 295154N 0282438E
	MUPSO 310034N 0272139E
	MERSA MATRUH (MMA) 311911N 0271320E
	SALUN 340000N 0242700E
N710	BOPIX 295154N 0282438E
	KIVIL 293845N 0284415E
	TAKRI 292503N 0290432E
N715	TONVO 250500N 0563200E
	*Note 7 (UMEVU - TONVO)
	LUBAT 250223N 0561749E
	IMPED 245824.5N 0560406.2E
	UKVAK 245147N 0553329E
	GEVIV 244118N 0545000E
	IMLIP 243648N 0543549E
	KUGTO 243231N 0542224E
	UKILI 243815.5N 0535636.4E
	ALNEV 244601N 0534122E
	KAXOB 245423N 0532450E
	UMEVU 250545N 0530653E
N717	DASUT 261832N 0531108E
	VEKEL 261929N 0535738E
	MIRIT 262013N 0545411E
	ORPEN 263119N 0552008E
	GHESHM ISLAND (KHM) 264547.1N 0555427.6E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
N764	NOBSU 171554N 0431315E
	LABDO 164842N 0442032E
	IMDEN 162101N 0452744E
	LOPAD 161651N 0453738E
	MEGPA 160017N 0461653E
	PAPOR 154322N 0465652E
	DEKMA 152226N 0474553E
	PAXUD 145436N 0485045E
	MUKALLA (RIN) 144015.30N 0492329.30E
	XABIL 142924N 0494809E
	NOTBO 142609N 0495530E
	ORBAT 140638N 0503924E
	GESIX 134440N 0512823E
	KAVAN 133250N 0515431E
	RAPDO 132317N 0521532E
	KEDAV 125553N 0531509E
	SOCOTRA (SCT) 123748.80N 0535428.70E
	SUHIL 120000N 0550000E
	(AVELI 112201N 0560800E)
N767	PARAR 222630N 0630700E
	*Note 7 (PARAR-ELIGO)
	VUSIN 225940N 0605510E
	ATBED 230352N 0603752E
	ELIGO 232458N 0590848E
N881	RASKI 230330N 0635200E
	SETSI 230412N 0614410E
	KIPOL 230410N 0612903E
	*Note 7 (TULBU-KIPOL)
	ATBED 230352N 0603752E
	AMBOS 230324N 0595405
	MUSRU 230256N 0592223E
	OBTIN 230216N 0585920E
	GIDAN 230104N 0582232E
	GEVED 230105N 0575111E
	TULBU 230005N 0571827E
N929	DASLO 254537N 0523029E Requested by Bahrain
	*Note 7 & 8 to (DASLO-GIBUS)
	NAGOG 255214N 0521615E
	BONAN 260201N 0515505E Requested by Bahrain
	VEDED 260558N 0514628E
	SOGAT 262029N 0511443E
	TOSTA 262746N 0504913E
	DANAG 264438N 0494856E
	NADNA 264245N 0485309E
	SILNO 264026N 0475745E
	ASKOK 262623N 0474809E
	MUSRI 261647.0N 0474137.0E
	GIBUS 255724.0N 0472829.0E
P146	RASHT (RST) 371934.8N 0493657.1E
	GODNA 382033N 0465457E
	MURID 382744N 0463525E
	SIBVU 384444N 0454657E
	REXUS 385624N 0451332E
	AGINA 391924N 0440512E
	(AGRI (ARI) 393844.90N 0430137.50E)

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
P300	KALDE (KAD) 334826.70N 0352909.53E LATEB 340154N 0362403.60E
P302	MIDSI 264142N 0515442E DASDO 285401N 285401N
P304	EMISO 231734N 0562307E DEMKI 224941N 0562308E NAMVA 223309N 0562223E TOPSO 215653N 0562043E KUROV 211627N 0561853E VELIK 203322N 0561656E
P307	SERSA 251945N 0553118E *Note 7 (SERSA-VAXIM) PAVAG 251546N 0554042E ITBON 251426N 0555257E KULBA 251326N 0560153E NOLSU 251248.0N 0560737.8E TONVO 250500N 0563200E PURNI 243804N 0574354E *Note 8 (OO) KUNUS 241927N 0583226E ALSAS 240054N 0591955E DERTO 235033N 0594746E VAXIM 231900N 0611100E SETSI 230412N 0614410E PARAR 222630N 0630700E
P309	AVONO 092606N 0335418E BOTOK 102859N 0334548E SODIL 105401N 0334204E ELULA 143253N 0330853E KUVTI 163152N 0325025E SOGAD 171404N 0324125E NUBAR 220000N 0313824E
P312	MUKALLA (RIN) 144015.30N 0492329.30E ULDIB 141148N 0485422E AMBOD 133357N 0481527E DATEG 123549N 0471627E TIMAD 115500N 0463500 (EGROV 112042N 0455900E)
P313	VATEN 153358N 0323312E KAREP 151838N 0313308E ASNON 150818N 0305312E DELAM 144001N 0290644E DEBOX 144424N 0281037E GAMAR 150042N 0240843E IPONO 150624N 0222436E
P315	NUBAR 220000N 0313824E SOMAK 190301N 0314717E MEROWE (MRW) 182448.81N 0314948.95E ITOMO 102133N 0322108E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	IMDUR 074114N 0323107E
P316	SALALLAH (SLL) 170259.35N 05406576.91E
	*Note 7 (OO)
	DAXAM 171612N 0544715E
	*Note 7 (DAXAM-MCT)
	KAPOP 174544N 0550930E
	GAGLA 180505N 0552410E
	NALTI 182012N 0553431E
	DEDSO 185811N 0560041E
	GIVNO 195011N 0563059E
	MOBAB 201032N 0564415E
	GISKA 213503N 0574014E
	RADAX 220809N 0580230E
	MUSCAT (MCT) 233528.04N 0581536.48E
P319	DAROR 270244N 0495815E
	*Note 7 (DAROR-DASUT)
	RAMSI 270249N 0500714E
	GASSI 270257N 0502229E
	VELOG 270215N 0503056E
	TOSDA 270005N 0505629E
	OBTAR 265934N 0510309E
P322	AVONO 092606N 0335418E
	SITIK 092556N 0310809E
	DEMTI 093203N 0264506E
	ALMAM 093345N 0244451E
	MONAN 093300N 0234000E
P323	(DONSA 143518N 0651136E)
	GIDAS 142004N0600000E
	TOKPU 145122N 0571103E
	DAPAB 151115N 0552354E
	NODMA 152600N 0533400E
	ENADO 153333N 0532015E
	DAVRA 155918N 0523209E
	TAKMI 160542N 0522012E
	AL GHAIHAH (GDA) 161117N 0520942E
	SIMKO 161821N 0515526E
	THAMD 171700N 0495500E
	KANEM 173700N 0492655E
	ALNES 181818N 0482811E
	KUTMA 182927N 0481202E
	GERUG 185530N 0473402E
	DAVLO 192343N 0465227E
	WADI AL DAWASIR (WDR) 203019N 0451219E
P425	DAHRAN (DHA) 261538N 0500824E Requested by Bahrain
	*Note 8 to ALSER
	BAHRAIN (BAH) 261551N 0503855E
	DAVOV 262255N 0504012E
	DATGO 262957N 0504130E
	TOTLA 263806N 0504301E
	MEMKO 264611N 0504427E
	BOXOG 265403N 0504553E
	ALSER 271100N 0504900E
P430	DOHA/HAMAD INTL (DOH) 251459.66N 05136354.80E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	(DOH) 251459N 0513635E
	*Note 7 & 8 (DOH-ALTOM) to MIDS
	BAYAN 252926N 0514849E
	*Note 7 to MIDS (BAYAN-ALTOM)
	KAPAX 254218N 0515118E
	VUTAN 255016N 0515218E
	ALVEN 255418N 0515315E
	BONAN 260201N 0515505E
	RAMKI 261138N 0515625E
	ALTOM 262230N 0515639E
P440	EMIXI 242105N 0520019E
	*Note 7 (ALGUX-EMIXI)
	ELIGA 242121N 0530148E
	ASRAT 242114N 0535944E
	ALGUX 242247N 0541209E
P513	BUBAS 245938N 0570003E
	GERAR 240600N 0573616E
	MIXAM 234139N 0575523E
	MUSCAT (MCT) 233528.04N 0581536.48E
P517	WAFRA (KFR) 283715N 0475729E
	DEKOB 283135N 0475106E
	*Note 7 (DEKOB-EMARO)
	GOVAL 281211N 0472908E
	DUSBO 280616N 0465254E
	KAPAG 280355N 0463845E
	NONLU 275921N 0461137E
	KING SAUD AIR BASE (KMC) 275250N 0453321E
	EMARO 273342N 0451330E
P550	ALVEN 255418N 0515315E Requested by Bahrain
	BONAN 260201N 0515505E
	*Note 7 (ALVEN-SYZ)
	MODOG 261012N 0515935E
	LADOP 261907N 0520429E
	KUMLA 262609N 0520822E
	RAGAS 263537N 0521337E
	KAPIP 264322N 0521403E
	PEGET 270434N 0521515E
	MIXEM 271520N 0521556E
	LAGSA 283306N 0522056E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
	REXEB 295208N 0520923E
	YASOUJ (YSJ) 304136.0N 0513324.1E
	RASLA 331202N 0493409E
	RIGOX 350618N 0475636E
	TUGEL 361220N 0470444E
	LAKLI 373730N 0455519E
	VUVAG 382529N 0452926E
	BORES 382829N 0452137E
	DASIS 385435N 0441230E
P552	DATEG 123549N 0471627E
	SEPRO 132824N 0475035E
	ULAXI 141524N 0482317E
	RASBA 144124N 0484128E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	BOSAX 144740N 0484553E
	PAXUD 145436N 0485045E
	DEMNA 151652N 0490626E
	RALMO 153824N 0492155E
	GINBO 160349N 0494017E
	KEBER 170444N 0502029E
	ITELI 171310N 0502605E
	IMPOS 183137N 0511848E
P555	OBVOM 241503N 0515552E
	LONUT 241520N 0530149E
	IMKUD 241513N 0535956E
	RAPNO 241452N 0541559E
	ATUDO 241708.0N 0543432.0E
P556	ASKON 061745N 0262537E
	PEDOS 094018N 0290715E
	SISOR 124543N 0313859E
	ELULA 143253N 0330853E
	IMLAS 173413N 0354541E
	BOGUM 200636N 0380300E
P557	NUBAR 220000N 0313806E
	*Note 7 (NABSI-NUBAR)
	ALKED 222152N 0313052E
	ORLEX 225732N 0311859E
	DESDO 251932N 0303034E
	VUTAB 252648N 0302802E
	IMLAX 252924N 0302707E
	MEVDA 254818N 0302029E
	DAVIX 262034N 0300904E
	TUDSI 264114N 0300128E
	MISUK 290507N 0290621E
	LOTOB 293510N 0290601E
	OBRAN 302957N 0290522E
	GOMGO 311152N 0290446E
	NABSI 314353N 0290419E
P559	RASLI 315424N 0383648E
	TURAI (TRF) 314136N 0384408E
	*Note 7 (TRF-VUTEB)
	KAVID 303552N 0401147E
	GADLI 302312N 0403821E
	DELNI 300448N 0411627E
	TOKLU 294213N 0420220E
	LUDEP 290948N 0430646E
	RASMO 285713N 0433119E
	LOTOK 280834N 0450402E
	KING SAUD AIR BASE (KMC) 275250N 0453321E
	BOTEP 274420N 0461425E
	RADGI 272640N 0473708E
	ALPOT 271841N 0480511E
	*Note 8 (ULOVO-NAPLO)
	SILBA 270554N 0485301E
	KURKA 270449N 0491636E
	EGREX 270433N 0492158E
	DAROR 270244N 0495815E
	RAMSI 270249N 0500714E
	GASSI 270257N 0502229E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	KOBOK 265839N 0503349E
	DEBEN 265254N 0504856E
	DAVRI 264936N 0505732E
	SODAK 264634N 0510530E
	DANOB 263946N 0512640E
	BOTOB 263350N 0514505E
	ROSAN 263129N 0515220E
	KUMLA 262609N 0520822E
	ASPAK 262115N 0522257E
	UKUBU 261428N 0524039E
	TOMSO 260611N 0530214E
	NALPO 255602N 0532945E
	SOKAK 255131N 0534251E
	KIVUS 254522N 0540032E
	PUSOT 253919N 0542011E
	AMBOV 253439N 0543512E
	VUTEB 253644.6N 0545149.4E
P560	PORT SUDAN (PSD) 311743N 0321416E
	BOGUM 200736N 0380360E
	AL BAHA (BHA) 2017833N 04137845E
	KITAP 224928N 0522923E
P561	BENINA (BNA) 320728N 0201513E
	KATAB 292501N 0290506E
P562	DEESA 294509N 0364102E
	ENABI 290739N 0385650E
	TAMRO 283938N 0424147E
	LOTOK 280857N 0450512E
P563	HAIL (HIL) 272630N 0414159E
	PASAM 273145N 0345642E
	HURGHADA (HGD) 271140N 0334847E
P565	KAFIA 084400N 0233100E
	LOPON 100606N 0240338E
	GINKA 124701N 0250831E
	HAMID 140400N 0254023E
	EGSUM 185726N 0274545E
	ATMUL 220000N 0290530E
P566	VATEN 153358N 0323312E
	KAREP 151838N 0313308E
	ASNON 150818N 0305312E
	DELAM 144001N 0290644E
	ELFASHER (FSR) 133554.09N 0251810.66E
	ILBIB 123242N 0222700E
P567	KAMAR 323900N 0604400E
	BIRJAND (BJD) 325820.7N 0591200.5E
	PATEN 340825N 0572334E
	DAPIN 342034N 0570413
	ALROT 351116N 0554136E
	ITELO 353534N 0550052E
	ODKAT 354650N 0544146E
	DASHT-E-NAZ (DNZ) 363853.6N 0531120.1E
	DASEL 371113N 0522020E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	RIGAN 373543N 0514052E
	ULDUS 380000N 0510100E
	(NETON 394542N 0481142E)
P568	EPLAS 040000N 0341148E
	KUNDI 083920N 0313819E
	PEBOR 095738N 0305437E
	RAMKO 102439N 0303926E
	JEBRA 125520N 0291349E
	DEBOX 144424N 0281037E
	BOXIG 155958N 0272606E
	ELUXO 182038N 0260126E ELOXO 183827N 0255031E
	EMAMU 191646N 0252654E
	ORNAT 200000N 0250000E
P570	(TEGOR 183503.30N 0623002.70E)
	KITAL 200300N 0601800E
	GOLNI 210014N 0594130E
	TAVKO 211519N 0593147E
	BONOM 213636N 0591800E
	EMURU 221357N 0585338E
	TOLDA 224008N 0583624E
	GIDAN 230104N 0582232E
	ITURA 232351N 0580720E
	MIXAM 234139N 0575523E
P572	KISAL 101811N 0232526E
	GAILY 123030N 0270639E
	VATEN 153358N 0323312E
P574	(BOLIS 203333N 0650002)
	TOTOX 215030N 0622230E
	LOSIM 223513N 0603238E
	KAXEM 225103N 0595243E
	MUSRU 230256N 0592223E
	PAROK 231030N 0590245E
	*Note 7 (PAROK-SERSA)
	KUSRA 231726N 0582611E
	MIXAM 234139N 0575523E
	DAPOK 235956N 0572959E
	EMATA 242309N 0565721E
	SOLUD 243223N 0564421E
	PUXIL 244117N 0563145E
	GISMO 244743N 0562236E
	MIVEK 245240N 0561516E
	IMPED 245824.5N 0560406.2E
	NORGA 250352N 0555415E
	RUKOR 250823N 0554603E
	SERSA 251945N 0553118E
	TOVIV 253302N 0551942E
	KUMUN 254000N 0551512E
	PAPAR 264000N 0542700E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
	ASNIT 303854N 0520948E
	OBTUX 312223N 0515242E
	LOXAK 314454N 0514344E
	EGPAT 323330N 0512409E
	IMRAG 325142N 0511643E
	PEKAM 332904N 0510118E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	EGVEL 344258N 0503005E
	SAVEH (SAV) 350106.8N 0502216.9E
	SOGOL 350829N 0503128E
	RUDESHUR (RUS) 352643.7N 0505419.3E
	TEHRAN (TRN) 354149.1N 0511701.6E
	NAGMO 360214N 0512055E
	DANEH 362001N 0512408E
	NOSHAHR (NSR) 363946.1N 0512751.4E
	ULEXI 374344N 0510631E
	ULDUS 380000N 0510100E
	(IBRUT 413524N 0510354E)
P634	LALDO 251806N 0563600E
	*Note 7
	ATBOR 251007N 0551947E
P693	AL AHSA (HSA) 2516445N 0492903E
	LADBO 242004N 0511411E
	*Note 8 to BUNDU
	BATHA (BAT) 241257N 0512707E
	DEMTA 241926N 0513533E
	BUNDU 250024N 0522924E
P699	TUKSI 252006N 0560525E
	*Note 7 (TUKSI-BAH)
	PAVAG 251546N 0554042E
	IVOXI 251239.6N 0552513.1E
	TUDIS 251009N 0550825E
	EGTAG 250856N 0545652E
	NABIX 251241.1N 0543147.3E
	MOBUL 251559N 0541841E
	VEGEK 251837N 0540803E
	RAGDO 252212N 0535106E
	OXARI 252535N 0533458E
	IMGUX 252950N 0531428E
	ORMID 253354N 0525434E
	*Note 8 (ORMID-KFA)
	DASLO 254537N 0523029E
	ALKAN 255214N 0521615E
	BONAN 260201N 0515505E
	VEDED 260558N 0514628E
	KUNDO 261631N 0512325E
	SOGAT 262029N 0511443E
	RIKET 261952N 0510954E
	ASTAD 261812N 0505646E
	BAHRAIN (BHR) 261530N 0503919E
	NARMI 261802N 0501939E
	KING FHAD (KFA) 262153N 0494910E
P700	ROTOX 283323N 0494809E Requested by Bahrain
	*Note 7 (DENVO-ROTOX)
	GEPUT 281307N 0493423E
	DAMUR 280137N 0492638E
	GIRSI 274126N 0493311E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ORDAN 271706N 0495442E
	RAMSI 270249N 0500714E
	LOTOR 264854N 0502200E
	EGMOR 264211N 0502907E
	DESBU 263240N 0503241E
	ELOSO 262409N 0503551E
	BAHRAIN (BHR) 261530N 0503919E
	TULUB 260644N 0510041E
	DENVO 260452N 0510509E
P708	LONOS 283027N 0491713E
	ORGEL 281312N 0494614E
	DATEN 273118N 0501832E
	REVAX 272026N 0502651E
	GETAL 270410N 0504040E
	DEBEN 265254N 0504856E
	RASDI 260425N 0512407E
	VELAM 255426N 0514347E
	VUTAN 255016N 0515218E
	RESAR 253707N 0522328E
	ALSEM 252703N 0524322E
	OVONA 252443N 0524739E
P715	KUVER 280925N 0500600E
	*Note 7 (MESVI-KUVER)
	ALNIN 283306N 0501036E
	KHARK ISLAND (KHG) 291550.0N 0501900.7E
	MESVI 311057N 0500006E
P718	PAXER 345612N 0551237E
	ITELO 353534N 0550052E
	SOMAD 372645N 0543255E
P751	(ARLOS 343731N 0225959.40E)
	AMIBO 3456.7N 2136.4E
	METRU 340000N 0250900E
	*Note 7 (KUNKI-METRU)
	MERSA MATRUH (MMA) 311911N 0271320E
	DASUM 310802N 0273234E
	TAKRI 292503N 0290432E
	KUNKI 290726N 0291949E
	ASYUT (AST) 270152N 0310157E
	LUXOR (LXR) 254458N 0324607E
	DANOG 251341N 0330905E
	UMINI 234900N 0341006E
	ALEBA 220000N 0352700E
	TOMRU 204411N 0361950E
	PORT SUDAN (PSD) 192404.12N 0371430.21E
	[ASMARA] *Note 1 151704N 0385403E
	TOKAR 180624N 0374812E
	DEKRA 123924N 0431544E
	PARIM 123142N 0432712E
	ARABO 123852N 0440401E
	DIRAK 124211N 0442113E
	ADEN (KRA) 124952.20N 0450125E
	RABOL 125856N 0454119E
	MIXAN 132222N 0472427E
	SEPRO 132824N 0475035E
	AMBOD 133357N 0481527E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	SOKEM 134235N 0485329E
	PAXED 135027N 0492759E
	XANLO 135653N 0495628E
	ORBAT 140638N 0503924E
	RIGAM 143932N 0530414E
	DAPAB 151115N 0552354E
	ANGAL 161404N 0600004E (MAMIG 161404N 0600004E)
P752	ALSIR 165804N 0471248E
	UKPAD 165415N 0471848.60E
	ALSOD 164203.60N 0473753.40E
	NADAK 161935.40N 0481259.40E
	DANIN 160543.80N 0483437.80E
	SAYUN (SYN) 155742.64N 0484710.18
P753	PADUR 172958N 0473825E
	TASBI 165853N 0481118E
	XALTA 163546.20N 0483545E
	GIBAX 162047N 0485137E
P891	MUSRI 261647N 0474137E
	*Note 7 (MUSRI-KUA)
	MEDGO 264433N 0475257E
	GESOR 270322N 0475751E
	KEDAT 272149N 0475901E
	IVOBA 274138N 0480219E
	KEBOK 274951N 0480341E
	KUNRU 283220N 0481050E
	KUWAIT (KUA) 291457N 0475717E
P899	MIXAM 234139N 0575523E
	*Note 7 (MIXAM-KUPSA)
	VELOD 234611N 0573435E
	PAXIM 240245N 0561631E
	ITRAX 241248N 0554749E
	VAVIM 241535.1N 0553622.9E
	ROVOS 241825.0N 0552143.0E
	SIXIV 242009N 0550439E
	UMIBU 242331N 0543027E
	MEKRI 243122.8N 0535500.0E
	*Note 8 (OB)
	KUMSI 245050N 0523619E
	MEKMA 245430N 0522506E
	KUPSA 250445N 0521151E
P975	(LEKRO 371638.80N 0405817.30)
	LESRI 370420N 0411348E
	SIDNA 363458N 0414159E
	TUBEN 351724N 0425434E
	MUTAG 343003N 0433834E
	*Note 7 (MUTAG-LONOS)
	SOGUM 341212N 0435454E
	PUTSI 333200N 0443700E
	SINKA 332137N 0444753E
	NOLDO 324932N 0452129E
	KATUT 323737N 0453439E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	DENKI 322228N 0455122E
	ILMAP 351724N 0460921E
	ULDUR 305023N 0472958E
	SIDAD 295231N 0482944E
	EGVAL 292448N 0484545E
	SESRU 290900N 0485450E
	DANAL 285128N 0490450E
	IMDOX 283455N 0491438E
	LONOS 283027N 0491713E Requested by Bahrain
	ORGEL 281312N 0494614E
	DATEN 273118N 0501832E
	REVAX 272026N 0502651E
	GETAL 270409N 0504039E
	LOSI 270118N 0504208E
	BOXOG 265403N 0504553E
	NABOS 264354N 0505145E
	FOTIS 261119N 0511026E
R2	ATMUL 220000N 0290527E
	TULOP 252209N 0262226E
	DITAR 265903N 0250000E
	ARADA 304636N 0213348E
	BENGAZI BENINA (BNA) 320728N 0201513E
R205	ANARAK (ANK) 333215N 0534347E
	BIRJAND (BJD) 325821N 0591200E
R219	KUKLA 341438.34N 0344446.8E
	KALDE (KAD) 334826.70N 0352909.53E
R401	(EKBEL 112256N 0550000E)
	SUHIL 120000N 0550000E
	BOTEM 135413N 0551418E
	DAPAB 151115N 0552354E
	KIVEL 165306N 0553633E
	ERDAX 175903N 0554458E
	DEDSO 185811N 0560041E
	HAIMA (HAI) 195813.3N 05616540.82E
	VELIK 203322N 0561656E
	*Note 7 (VELIK-GABKO)
	ALNUN 211625N 0561041E
	SUTLI 220121N 0560404E
	DATBU 222243N 0560054E
	KATAK 224811N 0555708E
	LABSA 230153N 0555505E
	DOLFI 233253N 0555024E
	KURTA 234205N 0554900E
	MUSAP 241754N 0555245E
	PEDOG 242225.4N 0555333.7E
	GIDIS 243600.0N 0555600.0E
	ANVIX 244655.0N 0555616.0E
	NORGA 250352N 0555415E
	ITBON 251426N 0555257E
	MISEG 252134N 0555205E
	ITLAP 254925N 0555010E
	ASNEK 255630.7N 0554904.7E
	GABKO 260404N 0554755E
R402	LAKLU 232235N 0570401E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	KUNGO 230034N 0565850E
	NALKI 224928N 0565614E
	*Note 7 (NALKI-HAI)
	MOGOK 215057N 0564236E
	TUBSA 204029N 0562626E
	HAIMA (HAI) 195813.31N 05616510.82E
R462	(BIVIN 250350N 0614744E)
	METBI 245556N 0612816E
	DENDA 244230N 0605451E
	EGTAL 243458N 0603724E
	ASLOM 242113N 0600552E
	MIXOL 240523N 0592959E
	ALSAS 240054N 0591955E
	VUSET 235540N 0590812E
	*Note 7 (VUSET-MIXAM)
	MIXAM 234139N 0575523E
R611	KHARTOUM (KTM) 153357.93N 0323312.16E
	EMITA 142130N 0334444E
	TIKAT 122418N 0353812E
R650	ASRAB 254726N 0330619E
	KUSAT 264748N 0333617E
	HURGHADA (HGD) 271040N 0334747E
	IMLUX 273131N 0340323E
	SHARM EL SHEIKH (SHM) 275953N 0342448E
	DELNA 283040N 0343212E
	NUWEIBAA (NWB) 290156N 0344016E
	NALSO 293210N 0345242E
R652	ULINA 292451N 0345818E
	METSA 292707N 0345903E
	BAKIR 294053N 0350708E
	QATIM 295600N 0351600E
	LOXUS 301300.90N 0352600E
	LOSIL 304851.20N 0354741.31E
	QATRANEH (QTR) 311454.41N 0360334.31E
	EGLOT 311656.94N 0363214.16E
	KULDI 311847.07N 0363214.16E
	KIPAS 312324N 0370641E
	GURIAT (GRY) 312445N 371712E
	TURAIF (TRF) 314136N 0384408E
	OVANO 314801N 0390951E
	*Note 7 (OVANO- GIBUX)
	DAXAN 320512N 0393719E
	KASIR 323954N 0403112E
	GIBUX 330500N 0411100E
	RAPLU 332300N 0414530E
	GEPAP 334906N 0422851E
	MUTAG 343003N 0433834E
	DAVAS 351724N 0451235E
R654	MAGRI 385408N 0462300E
	DARUN 383339N 0464235E
	GODNA 382033N 0465457E
	BUDED 375313N 0472032E
	DAMOS 372619N 0474521E

ATM SG/8-REPORT
APPENDIX 4D

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
	ZANJAN (ZAJ) 364646.8N 0482111.9E
	TULGU 362836N 0484235E
	SAVEH (SAV) 350106.8N 0502216.9E
	EGVEL 344258N 0503005E
	PEKAM 332904N 0510118E
	ESFAHAN (ISN) 334449.1N 0514940.8E
	LADAL 322226N 0525543E
	TOVTA 320528N 0534421E
	YAZD (YZD) 315351.6N 0541657.7E
	BOMUN 313648N 0544555E
	UKVEV 310557N 0553718E
	ALMOB 303434N 0562824E
	KERMAN (KER) 301658.1N 0565632.3E
	ALKUL 295152N 0571535E
	PEDUK 285920N 0575447E
	NABOX 281630N 0582601E
	LADPA 265331N 0592514E
	DUGLI 264014N 0593431E
	NAGES 262451N 0594514E
	EGPER 255210N 0600737E
	CHAH BAHAR (CBH) 252641.9N 0602451.7E
	EGPIC 250811N 0603730E
	DENDA 244224N 0605451E
R655	(KOBER 344437N 0340624E)
	BALMA 342856.30N 0350302.30E
	CHEKA (CAK) 341801.81N 0354159.64E
	CEDAR 341713.20N 0360004.30E
	LEBOR 341556N 0363514E
	KARIATAIN (KTN) 341248N 0371551E
	FIRAS 335218N 0375512E Requested by Syria
	TANF (TAN) 332900N 0383920E
R659	TEHRAN (TRN) 354149.1N 0511701.6E
	*Note 7 (ISN-TRN)
	BOXAM 343749N 0515147E
	VAVIN 341709N 0520247E
	DAPOG 333744N 0522331E
	*Note 3 (DAPOG-SYZ)
	ESFAHAN (ISN) 324449.1N 0514940.8E
	GIDEN 320039N 0520026E
	GESIP 314556N 0520359E
	KAVOT 304111N 0521922E
	SHIRAZ (SYZ) 293224.6N 0523519.6E
	LAGSA 283306N 0522056E
	KATAG 282346N 0521841E
	*Note 7 (KATAG- EMISA)
	DURSI 271219N 0520144E
	KAVAM 265737N 0515818E
	MIDSJ 264142N 0515442E
	*Note 8 (MIDSJ-DOH)
	SOGAN 263915N 0515408E
	ROSAN 263129N 0515220E
	BOPOV 262430N 0515043E
	RABLA 261506N 0514834E
	VEDED 260558N 0514628E
	VELAM 255426N 0514347E
	EMISA 254658N 0514207E
	DOHA/HAMAD (DOH) 251459.66N 0513634.80E

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LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
R660	(ERZURUM (ERZ) 395724N 0411225.70E)
	DASIS 385435N 0441230E
	BORES 382829N 0452137E
	VUVAG 382529N 0452926E
	TABRIZ (TBZ) 380853.5N 0461246.6E
	RAKED 375621N 0470712E
	BUDED 375313N 0472032E
	RALGO 372840N 0490112E
	RASHT (RST) 371934.8N 0493657.1E
	DEDLA 365620N 0500044E
	NABAX 360955N 0504816E
	TEHRAN (TRN) 354149N 0511702E
R661	DULAV 385700N 0453800E
	RABDI 384804N 0454431E
	SIBVU 384444N 0454657E
	TABRIZ (TBZ) 380853.5N 0461246.6E
	RUDAD 374045N 0465741E
	ZANJAN (ZAJ) 364646.8N 0482111.9E
	SUTBU 363324N 0484732
	MIVAK 355915N 0495324E
	RUDESHUR (RUS) 352643.7N 0505419.3E
	IMAM KHOMAINI (IKA) 352434.8N 0511042.5E
	VARAMIN (VR) 352033.6N 0513813.8E
	DEHNAMAK (DHN) 351515N 0524312E
R674	SABEL 185158N 0520339E
	LOTEL 180926N 0514103E
	PASUL 180341N 0513803E
	GOGRI 170752N 0510857E
	OBTAS 164633N 0505756E
	RARBA 161021N 0503920E
	UKORA 152407N 0501547E
	NAKAD 150056N 0500402E
	DANAN 144010N 0495334E
	XABIL 142924N 0494809E
	EMABI 141627N 0494139E
	PAXED 135027N 0492759E
	DEMGO 120258N 0483040E
R775	DEDLI 224232N 0373719E
	DASPA 230121N 0370841E
	SEDVA 235813N 0354006E
	ELELI 251854N 0332934E
	LUXOR (LXR) 254458N 0324607E
R777	DANAK 160800N 0412900E
	LAKNA 160000N 0420000E
	GOBLO 154050N 0432550E
	IMKAR 153511N 0435039E
	SANAA (SAA) 152959.60N 0441310.60E
	PAVEN 144602N 0441112E
	EGNOL 140745N 0440929E
	TAIZ (TAZ) 134150N 0440819E
	ARABO 123852N 0440401E
	TORBA 121036N 0440206E

LOWER/UPPER AIRSPACE	
Designator	Significant Points
1	2
R784	KUSEN 251828.0N 0562340.0E
	*Note 7 (ORSAR-KUSEN)
	EMOPI 252620.0N 0560900.0E
	ALSIL 252911.1N 0554639.4E
	TOVIV 253302N 0551942E
	ALRAR 254058.2N 0550149.4E
	GONVI 254239.8N 0545630.5E
	TATLA 254753N 0544008E
	EMOTA 255254N 0542414E
	GIBIB 255507N 0541712E
	ORSAR 260430N 0535730E
	LEVNA 261535N 0533857E
	EGMIT 263340N 0530825E
	*Note 8 (OM)
	PEGET 270434N 0521515E
	DURSI 271219N 0520144E
	IMDAT 274100N 0511100E
	ALNIN 283306N 0501036E
	NANPI 290457N 0493157E
	*Note 7 (SIDAD-NANPI)
	DESLU 292800N 0490150E
	SIDAD 295231N 0482944E
R785	TURAI (TRF) 314146N 0384408.10
	RASLI 315424N 0383648E
	KAREM 325110.40N 0380324.38E
	ZELAF 325700N 0380000E
	ABBAS 332610N 0374320E
	BASEM 333352N 0373938E
	KARIATAIN (KTN) 341248N 0371551E
	BRAVO 344118N 0363500E
	BANIAS (BAN) 351362N 0355729E
	DELTA 351228N 0354916E
	NIKAS 351136N 0354300E
R794	ULDUS 380000N 0510100E
	ULEXI 374344N 0510631E
	NOSHAHR (NSR) 363946.1N 0512751.4E
	DEHNAMAK (DHN) 3515145N 0524312E
R799	IMPOS 1831367N 0511848 E
	PASUL 180341N 0513803E
	TONRO 165850N 0522235E
	ASMAK 162327N 0524634E
	ENADO 153333N 0532015E

MID REGION ROUTE CHALLENGES

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
1.	A18 is from KDR to IMN (HLLL/DAAA) It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	Not requested by Libya to add in ANP
2.	A21 is established from TAN to KTN which entirely located in Damascus FIR		- Change the ATS route designator (non-regional)	ATM SG, Syria	MID AIM SG	Requested from Syria to change designator to become as non-regional
3.	A403, this route is divided in two parts inside Libya: - GRT to BRACK is available - BRACK to SEB interrupted - SEB to TUMMO (FIR boundary) with designator A403F is available and extended in FTTT. It's not in Regional ATS route table		- Requested to add ANP - Establishment of the route segment between BRACK and SEB	ATM SG, Libya	MID AIM SG	Not requested by Libya to add in ANP
4.	A411, request delectation of LOSUL to BRN It's not in Regional ATS route table		- Requested to delete ANP	ATM SG, Egypt	MID AIM SG	Requested by Egypt (Mr. Tayseer)
5.	A418 was from PAPAR to KUMUN deleted			ATM SG, Iran, UAE	MID AIM SG	
6.	A422 was from PARSU to KARAD deleted			ATM SG, Iran, Azerbaijan	MID AIM SG	
7.	A424 was from LOVEK to LOTAN deleted			ATM SG, KSA, Iraq	MID AIM SG	
8.	B15 is from BALMA (FIR boundary) to KRD It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Lebanon	MID AIM SG	No request was received from Lebanon

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
9.	B21 is from INDOT (FIR Boundary) to MB, then it's continued from DAYFA to ORNAT (FIR boundary) as B21F It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
10.	B403 is established from BOMIX (FIR boundary) to RIGAM		- Requested to add ANP - Change the ATS route designator	ATM SG, Yemen	MID AIM SG	No request was received from Yemen
11.	B412 from HLF to JDW			ATM SG, KSA	MID AIM SG	This segment already renamed
12.	B413 from ZIZAN to AVIMO			ATM SG, Somalia	MID AIM SG	This segment already renamed
13.	B413 is established from PSD to LADEN (FIR boundary)		- Requested to add ANP	ATM SG, Sudan	MID AIM SG	No request was received from Sudan
14.	B416 from ORSAR to DESDI was renamed		- Requested to delete ANP	ATM SG, UAE	MID AIM SG	This segment already renamed
15.	B441 is from OTRUZ (FIR boundary) to NABOX The segment from OTRUZ to MARAD was deleted			ATM SG, Iran, Turkmenistan, ICAO EUR/NAT	MID AIM SG	This segment already removed
16.	B451 was from DEBER to ASB deleted			ATM SG, Turkmenistan ICAO EUR/NAT	MID AIM SG	This segment already removed
17.	B538 is established from ALE to KTN which entirely located in Damascus FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Syria	MID AIM SG	Requested by Syria to change designator to non-regional

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
18.	G2 is from ELIKA to KAD It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Lebanon	MID AIM SG	No request was received from Lebanon
19.	G183 was from KAROL to TBA entirely deleted			ATM SG, Egypt	MID AIM SG	No request was received, but this route was deleted ENR 3.1 receive from Tayseer 20211207 showed this route not deleted
20.	G202 was from DAM to KAD entirely deleted The segment between ELIKA to KAD was renamed			ATM SG, Syria, Lebanon	MID AIM SG	
21.	G655F is from SEB (SEBHA) to GARIN (FIR boundary) and extended in FTTT FIR with designator UG655 On the other side, with designator G655 from SEB to FARES (FIR boundary) and extended through DTTC and DAAA It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
22.	G659 is established from MTG to SARIR (GS) which entirely located in Tripoli FIR It's not in Regional ATS route table.		- Change the ATS route designator (non-regional)	ATM SG, Libya	MID AIM SG	Request Libya to change designator as non-regional
23.	G660 is from WLD to SRT (SIRTE) entirely located inside Tripoli FIR. There is another route with the same designator in the ATS route table from JDW in OEJD and extended through HSSS, FTTT, DNKK, DRRR		- The segment inside Tripoli FIR should be renamed.	ATM SG, Libya	MID AIM SG	Request Libya to change designator as non-regional

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
	without any conjunction with the above route segment					
24.	G661 is from MIS (MISRATA) to HON entirely located inside Tripoli FIR It is not in Regional ATS route table.		- Change the ATS route designator (non-regional)	ATM SG, Libya	MID AIM SG	Request Libya to change designator as non-regional
25.	G662 is from NAGDA to HON entirely located inside Tripoli FIR This designator also repeated in ATS route table from BUSRA (OJAC) to KIA (OEJD)		- Change the ATS route designator (non-regional) in Tripoli FIR	ATM SG, Libya	MID AIM SG	Request Libya to change designator as non-regional
26.	G663F is from SEB (SEBHA) to GS (SARIR) entirely located inside Tripoli FIR. There is another route with the same designator without "F" in the ATS route table from UMENA in OEJD and extended to MSD (OIX) without any conjunction with the above route segment		- The segment inside Tripoli FIR should be renamed.	ATM SG, Libya	MID AIM SG	Request Libya to change designator as non-regional
27.	G665 segment between AAR to ABD is not available			ATM SG, Iraq	MID AIM SG	
28.	G665 is established from HON to DHR entirely located inside of Tripoli FIR		- Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
29.	G667, segment between ABD and ALSAM was removed in Baghdad FIR			ATM SG, Iraq	MID AIM SG	
30.	G670 from LALDA to GYD removed			ATM SG, Azerbaijan	MID AIM SG	
31.	G674 is established from BPN to PMA, which entirely located in Jeddah FIR.		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Saudi Arabia	MID AIM SG	

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No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
32.	G739 is from GAD to TAZIT entirely located inside Tripoli FIR		- Change the ATS route designator (non-regional)	ATM SG, Libya	MID AIM SG	
33.	G775 was from ORPAB to ASB renamed			ATM SG, Turkmenistan	MID AIM SG	
34.	G781 was from BONAM to VAN renamed			ATM SG, Turkey	MID AIM SG	
35.	G792 was from GIRUN to BODKA renamed			ATM SG, Turkmenistan	MID AIM SG	
36.	G795 was from BSR to RAF deleted			ATM SG, Iraq	MID AIM SG	
37.	G799 is established from PMA to ELONU which entirely located in Jeddah FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Saudi Arabia	MID AIM SG	
38.	G855 is established from GAD (GHADAMES) to IZD (MIZDA) which entirely located in Tripoli FIR		- Change the ATS route designator (non-regional)	ATM SG, Libya	MID AIM SG	Request Libya to change designator as non-regional
39.	G858 is established from SEB to DEKIL (FIR boundary) and extended inside of FTTT FIR It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
40.	H732 is established from LADNA (FIR boundary) to EMUSA		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
41.	H741 is established from ASVIR (FIR boundary) to KFA		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
42.	J735 is established from NARMI (FIR boundary) to TAYMA		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
43.	J749 is established from ROTEL (FIR boundary) to MIBRA		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
44.	J852 is established from SILKA (FIR boundary) to GETOT		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
45.	J874 is established from IMRAD (FIR boundary) to MUSRI		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
46.	L12 is established from TONBA (FIR boundary) to LOTIN (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
47.	L31 is established from MIS to LOTIN (FIR boundary)		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
48.	L124 was from VAN to BONAM			ATM SG, Turkey	MID AIM SG	
49.	L126 was from PUSTO to ILM		- Requested to delete ANP	ATM SG, Iraq, Iran	MID AIM SG	This route has been renamed
50.	L223 was from TARDI to LAKLU		- Requested to delete ANP	ATM SG, Oman	MID AIM SG	This route has been renamed
51.	L306 is established from LAKLU to TOKRA		- Requested to delete ANP	ATM SG, Oman	MID AIM SG	This route was removed
52.	L308 is established from DAROR to EGPIC		- Requested to delete ANP	ATM SG, Bahrain, UAE, Oman, Pakistan	MID AIM SG	This route was renamed

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No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
53.	L310 was from BOXAK to LALDO		- Requested to delete ANP	ATM SG, UAE, Oman	MID AIM SG	This route has been renamed to N300
54.	L417 is established from VUSEB to MUTAG which entirely located in Baghdad FIR MUTAG-NADOX was deleted		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Iraq	MID AIM SG	
55.	L438 was from LONOS to ASTAD		- Requested to delete ANP	ATM SG, Bahrain	MID AIM SG	This route has been deleted and replaced by another route
56.	L440 was from KANIP to RETAS		- Requested to delete ANP	ATM SG, UAE	MID AIM SG	This route has been deleted and replaced by another route
57.	L443 was from RABAP to GASSI		- Requested to delete ANP	ATM SG, Bahrain	MID AIM SG	This route has been deleted and replaced by another route
58.	L444 is established from KIPOL to TOLDA which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
59.	L513 Waypoints MALLA, ADRAA, RDIMA, SWIDA		Such 5LNCs do not exist in ICARD and apparently are invented points. They shall not be used in official ICAO documentation as never reserved for Syria. Additionally, without being officially allocated these	ATM SG, Syria	AIM SG	

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
			5LNCs are already published by Syria and are seen in JeppView. ICAO provisions are valid for all States			
60.	L552 is established from NABUN to RUKOR which entirely located inside UAE FIR		- Change the ATS route designator (non-regional)	ATM SG, UAE		UAE requested to add ANP (ATM SG/7)
61.	L553 is established from AXOTI to KURAM		- Requested to add ANP	ATM SG, Sudan	MID AIM SG	No request was received from Sudan
62.	L562 is established from ALRAR to SERSA which entirely located inside of UAE		- Change the ATS route designator (non-regional)	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
63.	L563 is established from MAHDI to IMDUR which entirely located inside of Sudan FIR		- Change the ATS route designator (non-regional)	ATM SG, Sudan	MID AIM SG	
64.	L565 is from BOSEV to UKUVO which entirely located inside of UAE		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
65.	L566 is established from DATEG to ASMAK which entirely located in Sanaa FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Yemen	MID AIM SG	Yemen requested to keep this route as a part of ANP
66.	L568 is from KIPOK to IMPED which entirely located inside of UAE		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
67.	L572 is established from KML to TAN entirely located inside of Syria		- Requested to add ANP - Change the ATS route designator	ATM SG, Syria	MID AIM SG	This route can be extended to LESRI

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
68.	L573 was established from DFN to WEJ		- Requested to delete ANP	ATM SG, Saudi Arabia	MID AIM SG	This route has been deleted
69.	L602, this has the following segments: - GEPAP-ELEXI (Baghdad/Damascus FIR boundary) has been suspended in Baghdad FIR - ELEXI to GAZ (Ankara FIR) was deleted			ATM SG, Syria, Iraq	MID AIM SG	
70.	L604, NARMI-TOSNA renamed			ATM SG, Bahrain	MID AIM SG	
71.	L695 is established from PAROK to ITURA which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
72.	L715 is established from GIBUX to LOVEK which entirely located in Baghdad FIR		- Change the ATS route designator (non-regional)	ATM SG, Iraq	MID AIM SG	
73.	L718 is established from ALPET to INB (Two FIRs)		- Requested to add ANP	ATM SG, Iraq	MID AIM SG	No request was received from Iraq
74.	L764 was from MCT to PAXIM		- Requested to delete ANP	ATM SG, Oman	MID AIM SG	This route has been deleted & replaced
75.	M1 is from BNA to RASNO (FIR boundary) and extended It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
76.	M7 is from BONAR (FIR boundary) to TONBA (FIR boundary) It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
77.	M203 is established from PUSTO to ILMAP which entirely located in Baghdad FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Iraq	MID AIM SG	
78.	M214 is established from SEB to GARIN (FIR boundary) and extended inside FTTT It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
79.	M215 is established from TONBA (FIR boundary) to LUMED (FIR boundary) and extended in both side FTTT and LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
80.	M302 is from REVAV to GERUL which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
81.	M303 is established from MCT to KIPOL which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
82.	M305 was from BRN to ATMUL (FIR boundary) deleted		- Requested to delete ANP	ATM SG, Egypt	MID AIM SG	This route has been deleted and replaced by another route
83.	M309 is established from KIA to VEMEM which entirely located in Jeddah FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Saudi Arabia	MID AIM SG	
84.	M316 is established from KATUS to GOKSO which entirely located in Tehran FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Iran	MID AIM SG	

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
85.	M320, this route was already in Kuwait and KSA, but the segment KFA-ASVIR was renamed to H741		- Change the ATS route designator	ATM SG, Saudi Arabia		Request from Saudi Arabia to rename H741 to M320
86.	M322 is from ITBUL to AMBOV which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
87.	M552 is from KAPUM to ALNEV which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
88.	M558 is from UKNAV to KUGTO which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
89.	M560 is from ORNEL to ELUDA which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
90.	M569 is from VUTEB to OBREV which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
91.	M573 is established from TRN to TBZ which entirely located in Tehran FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Iran	MID AIM SG	Request Iran to change designator as non-

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
92.	M600 was from RANBI to KISAG removed		- Requested to delete ANP	ATM SG, UAE	MID AIM SG	This route segment has been renamed
93.	M600 repeated for route from IMN (DAAA) to SARKI (FIR boundary) and extended inside of LMMM FIR.		- Change the ATS route designator	ATM SG, Libya	MID AIM SG	Also, no request received from Libya to add in ANP
94.	M620 is established from KFR to BONAR (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
95.	M621 is established from BNA to OLMAX (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
96.	M622 is established from BNA to INDOT (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
97.	M681 is established from DAMUM to TARBO which entirely located in Muscat FIR It's not in Regional ATS route table		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
98.	M703 is established from GADSI to PASIP (FIR boundary) It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Iraq	MID AIM SG	No request was received from Iraq
99.	M726 is established from MTG to SARKI (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
100.	M727 is established from DEKIL (FIR boundary) to ABRAM (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
101.	M731 is established from FARES (FIR boundary) to DEKIL (FIR boundary) and extended in both side DTTC and FTTT It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
102.	M732 is established from DATIR (FIR boundary) to ELIMO (FIR boundary) and extended inside of LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
103.	M739 is established from VARIG (FIR boundary) to MIS		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
104.	M740 is established from SEB to SARKI (FIR boundary) and extended inside of LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
105.	M861 was from ELEXI to DRZ removed		- Requested to delete ANP	ATM SG, Syria	MID AIM SG	This route segment has been renamed
106.	M872 From KIA to MIDSJ renamed		- Requested to delete ANP	ATM SG, KSA, Bahrain		This route segment has been renamed
107.	M877 is established from VUSET to KUSRA which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
108.	M979 is established from LAB to INDOT (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
109.	M980 is established from LOSUL (FIR boundary) to BONAR (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
110.	N68 is established from MB to OLMAX (FIR boundary) It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
111.	N163 is established from ABRAM (FIR boundary) to GRT		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
112.	N303 From RIBOK to LABNI renamed		- Requested to delete ANP	ATM SG, KSA		This route segment has been renamed
113.	N310 From LATEB to BASEM renamed (Syria) The segment BALMA to CAK renamed too (Lebanon)		- Requested to delete ANP	ATM SG, Syria, Lebanon		This route segment has been renamed
114.	N313 is from MITIX to PAVAG which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
115.	N315 From SITOL to KIA removed		- Requested to delete ANP	ATM SG, KSA		The segment between SITOL to LOTOS removed and LOTOS to KIS was renamed to T533

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
116.	N316 from KATUS to GOKSO inside Tehran FIR This RD also duplicated with route from HGD (Cairo FIR) to HLF (Jeddah FIR)		- Requested to change RD	ATM SG, AIM SG, Iran		Should coordinate with Iran for new non-regional RD
117.	N324 From GOBRO to ASTUN removed		- Requested to delete ANP	ATM SG, Oman		This route segment has been deleted in Muscat
118.	N430 is established from ITLOB to TARBO which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
119.	N563 ALPOB-GIBUS renamed		- Requested to delete ANP	ATM SG, Bahrain, KSA		This route segment has been renamed
120.	N566 is from EGTAG to RORON which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
121.	N569 TOKRA-BONUM renamed		- Requested to delete ANP	ATM SG, KSA		This route segment has been renamed
122.	N571 ALPOB-BPN renamed		- Requested to delete ANP	ATM SG, Bahrain, KSA		This route segment has been renamed
123.	N638 was from KIA to PMA		- Requested to delete ANP	ATM SG, Saudi Arabia	MID AIM SG	This route already deleted and new route was published
124.	N694 was from KIA to HFR		- Requested to delete ANP	ATM SG, Saudi Arabia	MID AIM SG	This route already deleted and new

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
						route was published
125.	N929 was from DASLO to GIBUS		- Requested to delete ANP	ATM SG, Bahrain, Saudi Arabia	MID AIM SG	This route already deleted and new route was published
126.	P32 is established from SEB to EKLIS (FIR boundary) and extended inside of LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
127.	P126 is established from GARIN (FIR boundary) to LUMED (FIR boundary) and extended inside LMMM It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
128.	P128 is established from LOSUL (FIR boundary) to TANLI (FIR boundary) and extended inside DTTC It's not in Regional ATS route table		- Requested to add ANP	ATM SG, Libya	MID AIM SG	No request was received from Libya
129.	P304 is established from EMISO to VELIK which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
130.	P308 is from ASPED to ORKOB which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
131.	P311 is from IVOXI to NABUN which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
132.	P316 is established from SLL to MCT which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
133.	P317 is from RURAL to LORID which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
134.	P321 is from TOVIV to NOLSU which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
135.	P324 is established from GNA to DELAM which entirely located in Sudan FIR It's not in Regional ATS route table		- Change the ATS route designator (non-regional)	ATM SG, Sudan	MID AIM SG	
136.	P425 was from DHA to ALSER FIR boundary		- Requested to delete ANP	ATM SG, Bahrain, Saudi Arabia	MID AIM SG	This route was deleted
137.	P430 is established from DOH to ALTOM which entirely located in Bahrain FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Bahrain, Qatar	MID AIM SG	
138.	P513 is established from BUBAS to MCT which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
139.	P517 is established from DEKOB to EMARO which entirely located in Jeddah FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Saudi Arabia	MID AIM SG	
140.	P552 is established from DATEG to IMPOS which entirely located in Sanaa FIR		- Change the ATS route designator (non-regional)	ATM SG, Yemen	MID AIM SG	

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
			- deletion from ANP Regional ATS route table			
141.	P553 is from DAXIB to IMGUX which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	- Request UAE to change designator as non-regional - UAE requested to add ANP (ATM SG/7)
142.	P560 was from PSD to BHA then KITAP		- Requested to delete ANP	ATM SG, Saudi Arabia, Sudan	MID AIM SG	This route already deleted
143.	P561 was from BNA to KATAB		- Requested to delete ANP	ATM SG, Egypt	MID AIM SG	This route already deleted
144.	P562 was from DEESA FIR boundary to LOTOK entirely renamed as non-regional ATS route Y415		- Requested to delete ANP	ATM SG, Saudi Arabia	MID AIM SG	This route already deleted and renamed
145.	P563 was from HIL to HGD		- Requested to delete ANP	ATM SG, Egypt, Saudi Arabia	MID AIM SG	This route already deleted
146.	P574 was from PAPAR to KUMUN FIR boundary deleted			ATM SG, Iran, UAE	MID AIM SG	
147.	P634 was from LALDO to ATBOR		- Requested to delete ANP	ATM SG, Oman, UAE	MID AIM SG	This route was already deleted
148.	P699 was from NARMI to KFA		- Requested to delete ANP	ATM SG, KSA	MID AIM SG	This route was already renamed
149.	P751, this route divided in two parts: - BRN to TOKAR (FIR boundary) - DEKRA (FIR boundary) ANGAL (FIR boundary)		Change the ATS route designator	ATM SG, Eritrea, Ethiopia	MID AIM SG	Request from ICAO ESAF to ask Eritrea & Ethiopia to change

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
	The deleted segment is named as A451/UA451 in Asmara FIR					route designator to P751
150.	P752 is continued in Jeddah FIR with Non-regional ATS route designator Q624		- Change the ATS route designator Q624 to P752	Saudi Arabia	MID AIM SG	- Request form Saudi Arabia to rename Q624 to P752.
151.	P753 is continued in Jeddah FIR with Non-regional ATS route designator Q615		- Change the ATS route designator Q615 to P753	Saudi Arabia	MID AIM SG	- Request form Saudi Arabia to rename Q615 (ASKET-PADUR) to P753.
152.	P975 was from LESRI to TOTIS The segment LESRI-MUTAG is removed The segment LONOS-TOTIS was renamed Y604		- Requested to delete ANP	ATM SG, Syria, Iraq, Bahrain	MID AIM SG	This route was already removed & renamed
153.	Q21 is established from DUDRI (FIR boundary) to MEDMO		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
154.	Q143 is established from ULADA (FIR boundary) to MEDGO		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
155.	Q212 is established from NARMI (FIR boundary) to KIA		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
156.	Q332 is established from PEKEM (FIR boundary) to MEPP0		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
157.	Q510 is established from PASAM (FIR boundary) to GEPAG		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
158.	Q615 is established from PADUR (FIR boundary) to ASKET		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
159.	Q620 is established from PARAR (FIR boundary) to AMBOS		- Requested to add ANP - Change the ATS route designator	ATM SG, Oman	MID AIM SG	No request was received from Oman
160.	Q624 is established from ALSIR (FIR boundary) to PATOG		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
161.	Q666 is from EGPOG to GIDOB which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	UAE requested to add ANP (ATM SG/7)
162.	Q733 is established from ORNAT (FIR boundary) to KUVTI		- Requested to add ANP - Change the ATS route designator	ATM SG, Sudan	MID AIM SG	- No request was received from Sudan
163.	Q978 is established from ITRAX (FIR boundary) to MCT		- Requested to add ANP - Change the ATS route designator	ATM SG, Oman	MID AIM SG	- No request was received from Oman
164.	R23 is established from HIL to TRF which entirely located in Jeddah FIR		- Change the ATS route designator (non-regional)	ATM SG, Saudi Arabia	MID AIM SG	Requested by KSA to add ANP
165.	R205 was from ANK to BJD entirely deleted			ATM SG, Iran	MID AIM SG	
166.	R402 is established from HAI to LAKLU which entirely located in Muscat FIR		- Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table	ATM SG, Oman	MID AIM SG	
167.	R778 is from CVO to LAG (Five FIRs)		- Requested to add ANP	ATM SG, Egypt, Libya	MID AIM SG	- No requested by Egypt to add in ANP

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
						<p>- No request was received from Libya</p> <p>No request was received during ATM SG/7</p>
168.	R799 is established from ENADO to IMPOS which entirely located in Sanaa FIR		<ul style="list-style-type: none"> - Change the ATS route designator (non-regional) - deletion from ANP Regional ATS route table 	ATM SG, Yemen	MID AIM SG	Yemen requested to keep this route as a part of ANP
169.	R845 is from GRT to GASRI (FIR boundary) and extended in DTTC FIR as UR845 It's not in Regional ATS route table		<ul style="list-style-type: none"> - Requested to add ANP 	ATM SG, Libya	MID AIM SG	No request was received from Libya
170.	T100 is established from GOBRO (FIR boundary) to KUTNA		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
171.	T136 is established from ULADA (FIR boundary) to EMUSA		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
172.	T142 is established from DARTI (FIR boundary) to LADBO		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
173.	T238 is established from KABLA (FIR boundary) to JUB		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Sudan	MID AIM SG	No request was received from Sudan
174.	T295 is established from NAWRS to ABRAM (FIR boundary)		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Libya	MID AIM SG	No request was received from Libya

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
175.	T297 is established from ABU to VARIG (FIR boundary) and extended inside LMMM		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
176.	T299 is established from ZAW to VARIG (FIR boundary) and extended inside LMMM		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
177.	T424 is established from RAKMU (FIR boundary) to RASNO (FIR boundary)		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
178.	T513 is established from RASKA (FIR boundary) to JDW		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
179.	T565 is established from RAKMU (FIR boundary) to VALKI (FIR boundary)		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
180.	T702 is established from TIMAD (FIR boundary) to NODMA		- Requested to add ANP - Change the ATS route designator	ATM SG, Yemen	MID AIM SG	No request was received from Yemen
181.	T707 is established from DEMGO (FIR boundary) to KAPET (FIR boundary)		- Requested to add ANP - Change the ATS route designator	ATM SG, Yemen	MID AIM SG	No request was received from Yemen
182.	T800 is from DOH to ULDUN (Two FIRs)		- Requested to add ANP - Change the ATS route designator	ATM SG, Bahrain, Iran, Qatar,	MID AIM SG	—Requested by Qatar —Requested by Iran to add in ANP —Requested by Bahrain to add in ANP

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
						<ul style="list-style-type: none"> - UAE is not agreeing to establish as a permanent during ATM SG/7 - Qatar will prepare PfA for MIDANPIRG/19
183.	T891 is from ORKOB to NOLSU which entirely located in UAE FIR It's not in Regional ATS route table		- Change the ATS route designator	ATM SG, UAE	MID AIM SG	- UAE requested to add ANP (ATM SG/7)
184.	T934 is established from ROTOX (FIR boundary) to PATOM		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Bahrain, Qatar	MID AIM SG	<ul style="list-style-type: none"> - Request was received from Bahrain to consider as contingency - Qatar requested during ATM SG/7
185.	V13 is established from PASAM (FIR boundary) to AAR		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
186.	V300 is from BNA to TANLI (FIR boundary)		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Libya	MID AIM SG	No request was received from Libya
187.	V790 is established from PSD to FEREB (FIR boundary) and extended inside HHAA		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Sudan	MID AIM SG	No request was received from Sudan
188.	V975 is established from ULIKA (FIR boundary) to KIA		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
189.	W9 have two segments as below:		<ul style="list-style-type: none"> - Requested to add ANP - Change the ATS route designator 	ATM SG, Libya	MID AIM SG	Should inform Libya in this

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
	- BNA to SEB (operational) - TAZIT to TWARG (FIR boundary) with designator 9WF. The segment between SEB to TAZIT is not available.					regard to change designator as non-regional
190.	W147 is established from SIR (FIR boundary) to PRG		- Requested to add ANP - Change the ATS route designator	ATM SG, Iran	MID AIM SG	No request was received from Iran
191.	W148 is established from PAMTU (FIR boundary) to KER		- Requested to add ANP - Change the ATS route designator	ATM SG, Iran	MID AIM SG	No request was received from Iran
192.	W852 is established from LOTIN (FIR boundary) to NAWRS		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
193.	W857 is established from SARKI (FIR boundary) to KFR		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
194.	W861 is established from IMN (inside DAAA FIR) to NASER		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
195.	W863 is established from LUMED (FIR boundary) to MTG		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
196.	Y415 is established from DEESA (FIR boundary) to LOTOK		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
197.	Y511 is established from TOKRA (FIR boundary) to PMA		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia
198.	Y517 is established from KATOD (FIR boundary) to WDR		- Requested to add ANP - Change the ATS route designator	ATM SG, Saudi Arabia	MID AIM SG	No request was received from Saudi Arabia

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
199.	Y613 is established from EPLAS (FIR boundary) to OBD		- Requested to add ANP - Change the ATS route designator	ATM SG, Sudan	MID AIM SG	No request was received from Sudan
200.	Y751 is established from LOSUL (FIR boundary) to RASNO (FIR boundary)		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
201.	Z178 is established from RASNO (FIR boundary) to DITAR (FIR boundary)		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
202.	Z270 is established from OLMAX (FIR boundary) to RAMLI		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
203.	Z333 is established from ELIMO (FIR boundary) to RZAAM		- Requested to add ANP - Change the ATS route designator	ATM SG, Libya	MID AIM SG	No request was received from Libya
204.	Z350 Same designator is used for another route inside Libya from RASNO (FIR boundary) to MIS		- Requested to add ANP - Change the ATS route designator for both ATS route	ATM SG, Libya	MID AIM SG	- No request was received from Libya
205.	Z855 is from SODEX (FIR Boundary) to TULBU		- Requested to add ANP - Change the ATS route designator	ATM SG, Oman	MID AIM SG	No request was received from Oman
206.	Z980 is from TIKAT (FIR Boundary) to EMITA		- Requested to add ANP - Change the ATS route designator	ATM SG, Sudan	MID AIM SG	No request was received from Sudan
207.	Column Explanation Designator of ATS route and Type (Conventional, RNAV5 or RNAV1 etc.)		Explanation is incorrect and shall be limited to only “Designator of ATS route”. In accordance with Annex 11 the letter of the RD defines if the route is conventional or area navigation. Furthermore, RD letters are not defining if area	ATM SG		

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
			navigation route is RNAV 1, RNAV 5, etc.			
208.	Tables LOWER/UPPER AIRSPACE		Shall be deleted as there is no such term and segregation defined by ICAO. It will be more reasonable and logic, in accordance with Doc 10066 PANS-AIM, table to be split into two tables describing separately the conventional navigation routes and area navigation routes, respectively.	ATM SG		
209.	Significant points		All geographical coordinates shall be in DD:MM: SS in accordance with requirements of Doc 10066 PANS-AIM. Expression by seconds and tenths or hundreds of seconds is not for en-route purposes and such expression shall not complicate ATS routes definition. Examples: HODEIDAH (HDH) 144622.1N 0425911.1E ELOBEID (OBD) 130640.53N 0301335.25E IMPED 245824.5N 0560406.2E RORON 252052.80N 0530915.60E	ATM SG	AIM SG	
210.	Jordan QAA1 instead of QAA AMN01 instead of AMN		Use of points on ATS routes not in accordance with Annex 11	ATM SG	AIM SG	

No.	ATS route and Challenge Description	Target date	Action	Champion and relevant FIR(s)	Supported by	Status / remarks
	QTR01 instead of QTR					
211.	Syria Non-compliant SIDs/STARs such as NOVEMBER, KILO, LIMA, GOLF, DELTA, etc. ...		Procedures for Aleppo (OSAP) are based on non-ICAO provisions, where SIDs/STARs designation is contrary to Annex 11. Officially are used ICAO phonetic alphabet letters and official publication	ATM SG	AIM SG	

ACTION PLAN FOR IMPLEMENTATION OF ATFM IN THE MID REGION

Key Activities	Action		Target date	Deliverable	Champion	Supported by	Status / RMK
	No.	Description					
<u>Key Activity 1</u> Agreement on the ATFM Regional Framework	1.1	Recommending the best Scenario for a regional ATFM framework	20 Mar 2019	Recommendation	ATFM TF/2 meeting		Completed
	1.2	Presentation to the ACAO ANC/40	21 Mar 2019	Support	ACAO		Completed
	1.3	Preparing a Working Paper to MIDANPIRG/17	30 Mar 2019	WP	Secretariat	Chairman	Completed
	1.4	Agreement on the regional ATFM framework by MIDANPIRG	18 Apr 2019	MIDANPIRG Conclusion	MIDANPIRG/17	Secretariat	Completed
	1.5	Presentation to the ACAO Executive Council	28-29 Apr 2019	For support	ACAO		Completed
	1.6	Notifying States about MIDANPIRG/17 Conclusion and that the development of ATFM CONOPS started	30 Apr 2019	State Letter	ICAO	Chairman	Completed
<u>Key Activity 2</u> Development of CONOPS	2.1	Review of the CONOPS V0.1 during ATFM TF/3	12 Jan 2020	ATFM CONOPS draft V0.1	ATFM TF/3		Completed
	2.2	Further review V0.1 and develop V0.2 for presentation to the ATFM TF/4	20 Feb 2020	ATFM CONOPS draft V0.2	ATFM Core Team		Completed
	2.3	Review V0.2 by the ATFM TF/4	20 Sep 2020	ATFM CONOPS draft V0.2			Completed
	2.4	Presentation to ACAO ANC	28 Sep 2020	For Info and Support	ACAO		Completed
	2.5	Development of the CONOPS draft V0.3	20 Oct 2020	Chairperson and Secretariat			Completed
	2.6	Circulate the MID ATFM CONOPS draft V0.3 to ATFM TF members	20 Oct 2020	email to TF members for final comments	Secretariat	ACAO	Completed
	2.7	Feedback form Task Force members on the MID ATFM CONOPS draft V 0.3	31 Oct 2020	Feedback/comments	Task Force members		Completed
	2.8	Presentation of MID ATFM CONOPS draft V0.3 to ATM SG/6 for review	9 Nov 2020	Consolidated version of ATFM CONOPS V0.3	Chairman and Secretariat	ATFM Core Team	Completed
	2.9	Endorsement of the MID ATFM CONOPS V1.0 by MIDANPIRG/18	Feb 2021	ATFM CONOPS V1.0	MIDANPIRG/18		Completed
	2.10	Circulation of the MID ATFM CONOPS V1.0 to States	Mar 2021	ICAO Doc 014: MID Region ATFM CONOPS v1.0	posted under ICAO Website		Completed
	2.11	Presentation to ACAO Executive Council	29 – 30 June 2021	For Info and Support	ACAO		On-going

Key Activities	Action		Target date	Deliverable	Champion	Supported by	Status / RMK
	No.	Description					
<u>Key Activity 3</u> Development of ATFM Regional Framework and Common Operating Procedures	3.1	Development of ATFM Regional Framework and Common Operating Procedures initial draft V0.1 to be presented to the ATM SG/6	15 Nov 2020	ATFM Regional Framework and Common Operating Procedures initial draft V0.1	Chairperson and Secretariat		Completed
	3.2	Circulation of the ATFM Regional Framework and Common Operating Procedures initial draft V0.1 to ATFM TF members	15 Nov 2020	email to ATFM TF members for comments	Secretariat		Completed
	3.3	Feedback form Task Force members on ATFM Regional Framework and Common Operating Procedures initial draft V0.1	15 Dec 2020	Feedback/comments * consolidate the inputs (after receiving feedback)			Completed
		Development of: - ATFM Regional Framework draft V0.2, - ATFM Common Operating Procedures draft V0.2.	15 Nov 2021	- ATFM Regional Framework draft V0.2, - ATFM Common Operating Procedures draft V0.2.	ATFM Core Team	Volunteers (States/ ANSPs/ ORGs)	Completed
	3.4	Presentation to ACAO ANC	Q2 2022	For Info and Support	ACAO		
	3.5	Circulation of the: - ATFM Regional Framework draft V0.3, - ATFM Common Operating Procedures draft V0.3. to ATFM TF members.		email to ATFM TF members	ICAO	ACAO	Completed
	3.6	Feedback on V0.3.		Feedback/comments	ATFM TF members		Completed
	3.7	Consolidation of: - ATFM Regional Framework draft V0.4, - ATFM Common Operating Procedures draft V0.4. for presentation to ATM SG/7 meeting.	Nov 2021	Consolidated version of Draft ATFM Regional Framework and draft Common Operating Procedures	Chairman and Secretariat	Chairman ATFM Core Team	Completed
	3.8	Presentation to ACAO Executive Council.	TBD	For Info and Support	ACAO		
	3.9	Endorsement of MID ATFM Regional	Feb 2022	ATFM Regional	MIDANPIRG/19		

Key Activities	Action		Target date	Deliverable	Champion	Supported by	Status / RMK
	No.	Description					
		Framework and Common Operating Procedures V1.0 by MIDANPIRG/19		Framework and Common Operating Procedures V1.0			Completed
	3.10	Circulation of the endorsed versions of CONOPS, Regional Framework and Common Operating Procedures and posting on the ICAO MID Website.	Q1 2022	State Letter	ICAO	ACAO	Completed
	3.11	Presentation to ACAO Executive Council	May 2022	For Info and Support	ACAO		
<u>Key Activity 4</u> Implementation of ATFM in the MID Region	4.1	Development of MID ATM Operational Data Exchange process	9 Nov 2020	MID ATM Operational Data exchange	Chairperson and Secretariat		Completed
	4.2	Presenting to the MIDANPIRG/18 for endorsement	Feb 2021	MIDANPIRG Conclusion 18/XX			Completed
	4.3	Establishment of the webpage under ICAO secure portal, including the ATM and Airspace user data	Feb 2021	Group name			Completed
	4.4	State nominated FPs briefings	June 2021				Completed
	4.5	Teleconferences between concerned stakeholders to exchange ATM related info	2022	Teleconferences to exchange info	ICAO MID	States - IATA	On going under the FWC 2022
	4.6	Implementation of the MID ATFM Regional Framework and Common Operating Procedures	Cont.	Implementation roadmap	States		
	4.7	Implementation of ATFM framework at national level	Cont.	National ATFM framework	States		
<u>Key Activity 5</u> Post Implementation Review of the MID ATFM	5.1	Post implementation review	Each 3 months	Post Implementation review	ATFM Core Team		
	5.2	Improvement of the ATFM Regional Framework and Common Operating Procedures	TBD 2022	Proposal for improved ATFM Regional Framework and Common Operating Procedures	ATFM TF	ATFM Core Team	

Key Activities	Action		Target date	Deliverable	Champion	Supported by	Status / RMK
	No.	Description					
Regional Framework	5.3	Review and continuous improvement of the ATFM Implementation in the MID Region with consideration of establishment of centralized ATFM system for the MID Region	TBD	Continuous improvement	ATFM TF	ATFM Core Team	
Key Activity 6 Training and raising awareness related to ATFM	6.1	Development of National ATFM Implementation Plan and Training Programme Template for qualifying ATFM Specialist	TBD 2021	Training Programme Template for ATFM Specialist	ATFM TF / ATFM Core Team		
	6.2	Development of working arrangement for the ATFM Visits to States that would include ATFM Workshop and/or training courses	TBD 2021	working arrangement for the ATFM Visits	ATFM TF / ATFM Core Team		
	6.3	Organizing an ATFM Workshop with the planned A-CDM Workshop	21-23 Oct 2019	A-CDM/ATFM Workshop	ICAO/ACAO	ATFM TF	Completed
	6.4	Organizing ATFM Workshop/Training/wibnars Awaerness Courses: - Capacity calculation and declaration - ATFM Publications issues - Flight Planning systems capabilities	Q1 2023	ATFM Training Awaerness/Courses	ICAO/ACAO/IATA	TBD	
	6.5	Conduct ATFM Support visits to States	2022 2023	ATFM Support visits	ATFM support Team	TBD	
	6.6	Conduct familiarization visits/webinars of ICAO ATM/CDM CADENA, Singapore, India, EUROCONTROL, FAA, etc.	On going	ATFM Familiarization Visits	ACAO ICAO		

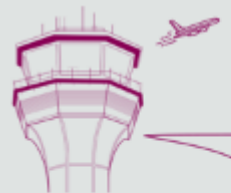


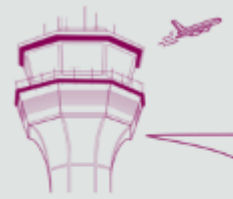
Table of Contents:

- Facts and Forecasts statistics
- History of MID FWC 2022 TF
- Progress and current status
- Activities tracker and summary
- Next steps



FWC2022 TF

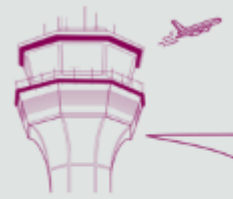
FIFA World Cup 2022 Task Force



FIFA World Cup 2022

Facts and Forecasts statistics

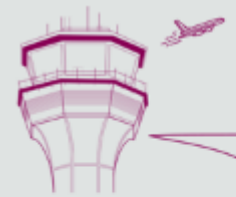




FIFA World Cup 2022: Facts and Forecasts statistics

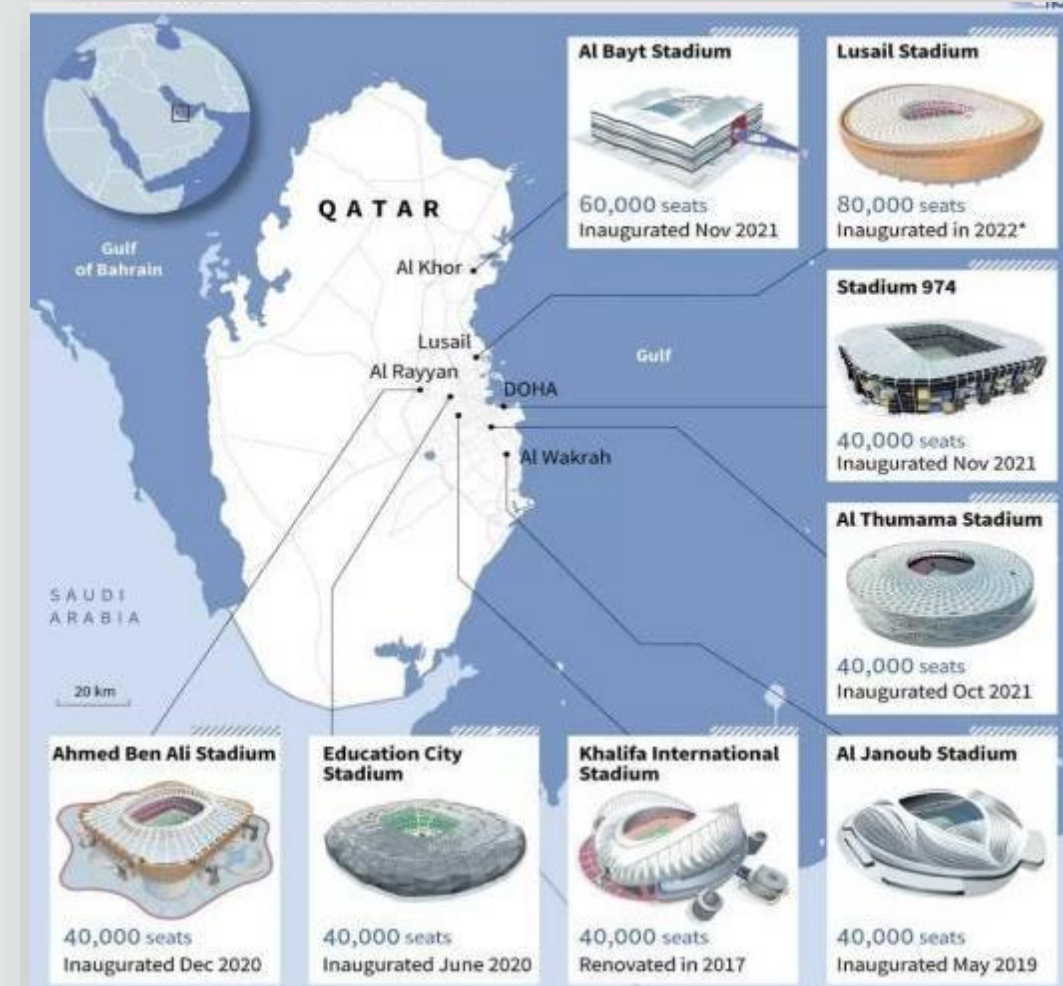
- The first time that the tournament is hosted in the Middle East Region.
- The tournament will take place during the period of 20 November – 18 December 2022.
- 1.8 Million Visitors are expected to the tournament including fans, event workforce and FIFA constituent groups.
- 500,000+ visitors will arrive to Qatar on the busiest days.

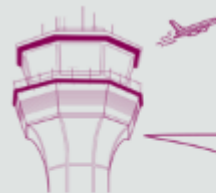




FIFA World Cup 2022: Facts and Forecasts statistics

- Eight (8) stadiums with capacities ranging from 40,000 to 80,000 spectators.
- 64 games of 32 teams are played in small geographical area with only 55KM between most distant stadiums.

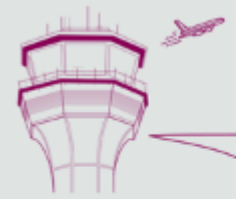




Forecasted Air Traffic movements

- Number of Air Traffic Movements are expected to be around 1000 movement per day on average; and
- a maximum of 1600 movements on peak days.

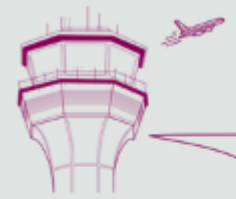




FIFA World Cup 2022

History of MID FWC 2022 TF

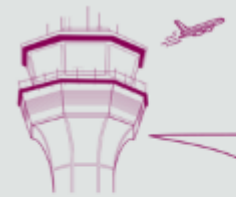




FIFA World Cup Task Force history

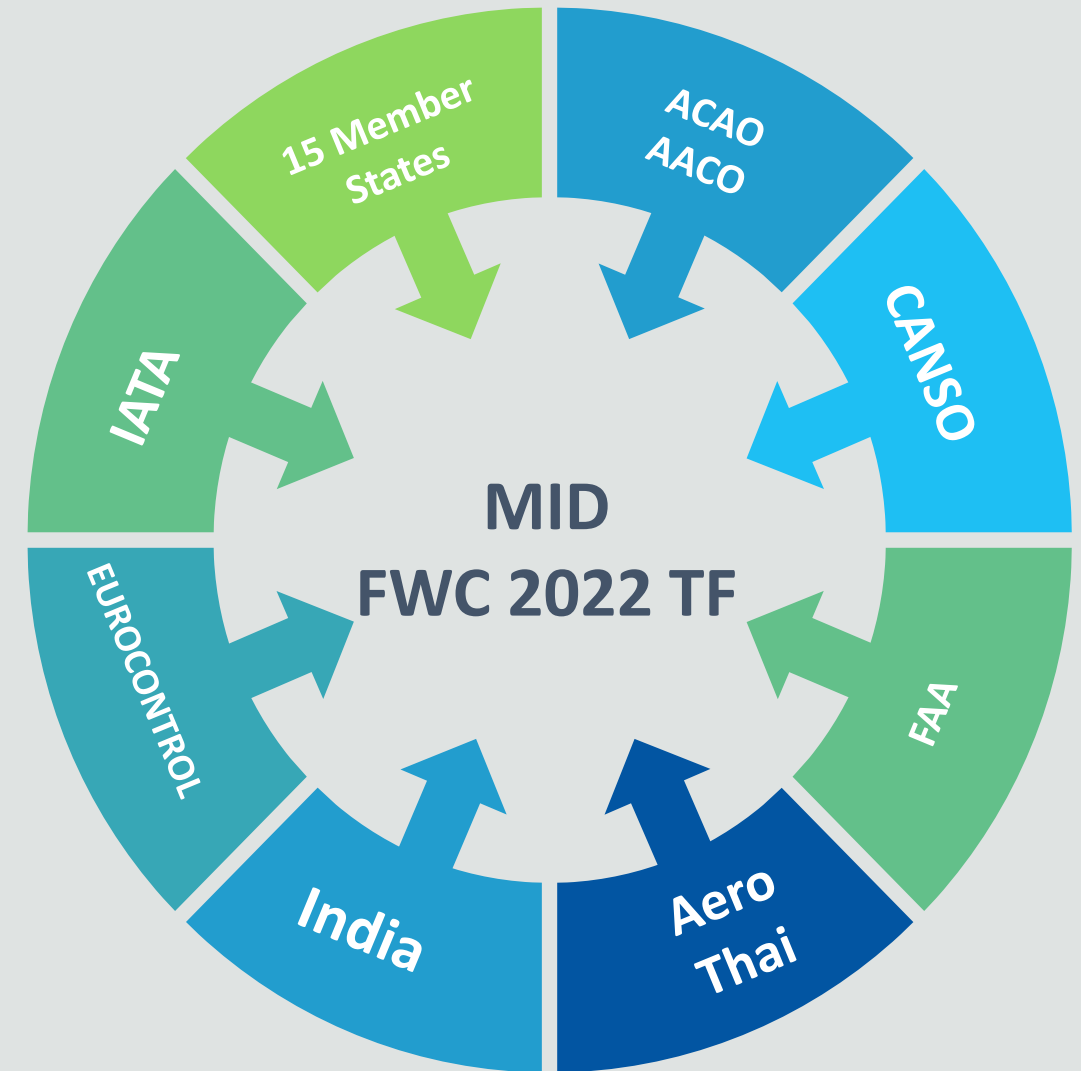
MIDANPIRG/16 (Kuwait, 13-16 February 2017) established FIFA World Cup Task Force in order to monitor the progress of the support to the FWC implementation within Qatar and within the MID Region and to accommodate the FWC related traffic demand in a cooperative and collaborative manner.

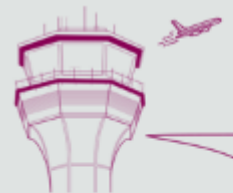




FIFA World Cup Task Force History (continue)

- Collaborative Action plan was developed on regional level to reach a sufficient coordination between the Air Navigation Service Providers (ANSPs), airspace users and regulators
- The coordination at local, regional and inter-regional levels to accommodate safely and efficiently the expected significant increase of traffic
- To reach a defragmented approach from an operational perspective to achieve (gate-to-gate, city pairs, and an oriented track system) which leads to more than optimum efficiency of the operations of air traffic movements



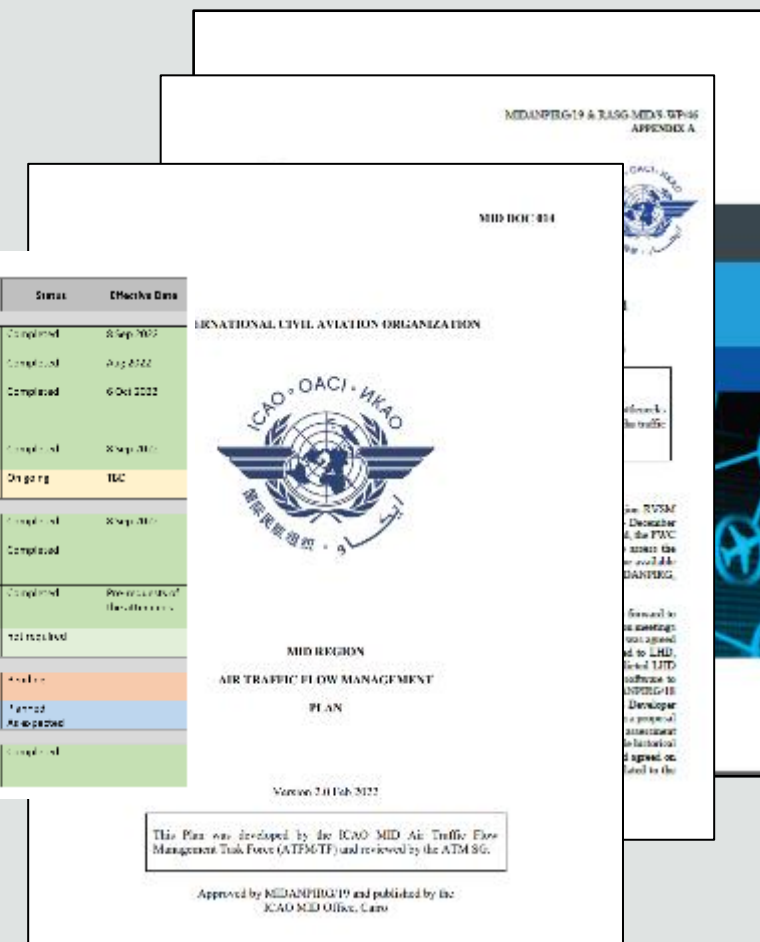


FIFA World Cup Task Force History (continue)

- The FWC2022 event will require introduction of airspace enhancements and implementation of ATFM regulation measures
- Enhancement projects were initiated by the results of the MID RVSM Airspace Assessment developed by the MIDRMA
- MIDANPIRG/19 (Riyadh, 2022) agreed to the checklist to harmonize the implementation in the Region

FWC 2022 Operational Plan and Road Map, Checklist

Key Activity	Reference/Sub-activities	Discussion / Support	Target Effective Date	Status	Effective Date
2 Airspace management:					
2.1 Temporary 5000 TMA	5000 TMA	Agreed	End of 2022	Completed	8 Sep 2022
2.2 5000 TMA implementation	5000 TMA	Agreed	End of 2022	Completed	Aug 2022
2.3 5000 TMA implementation	5000 TMA	Agreed	End of 2022	Completed	6 Oct 2022
2.4 5000 TMA	5000 TMA	Agreed	End of 2022	Completed	8 Sep 2022
2.5 5000 TMA	5000 TMA	Agreed	End of 2022	Ongoing	TBC
3 ATFM implementation:					
3.1 ATFM implementation	ATFM	Agreed	Apr 2022	Completed	8 Sep 2022
3.2 ATFM implementation	ATFM	Agreed	Apr 2022	Completed	8 Sep 2022
3.3 ATFM implementation	ATFM	Agreed	Apr 2022	Completed	8 Sep 2022
3.4 ATFM implementation	ATFM	Agreed	Apr 2022	Completed	8 Sep 2022
4 Coordination and conference call:					
4.1 Coordination and conference call	Coordination and conference call	Agreed	Apr 2022	Completed	8 Sep 2022
4.2 Coordination and conference call	Coordination and conference call	Agreed	Apr 2022	Completed	8 Sep 2022
4.3 Coordination and conference call	Coordination and conference call	Agreed	Apr 2022	Completed	8 Sep 2022
5 Temporary Airspace Management:					
5.1 Temporary Airspace Management	Temporary Airspace Management	Agreed	Apr 2022	Completed	8 Sep 2022



MIDANPIRG/19 & TASS MIDAS WP46
APPENDIX A

MID DOC 001

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO - OACI - WAO

MID REGION
AIR TRAFFIC FLOW MANAGEMENT
PLAN

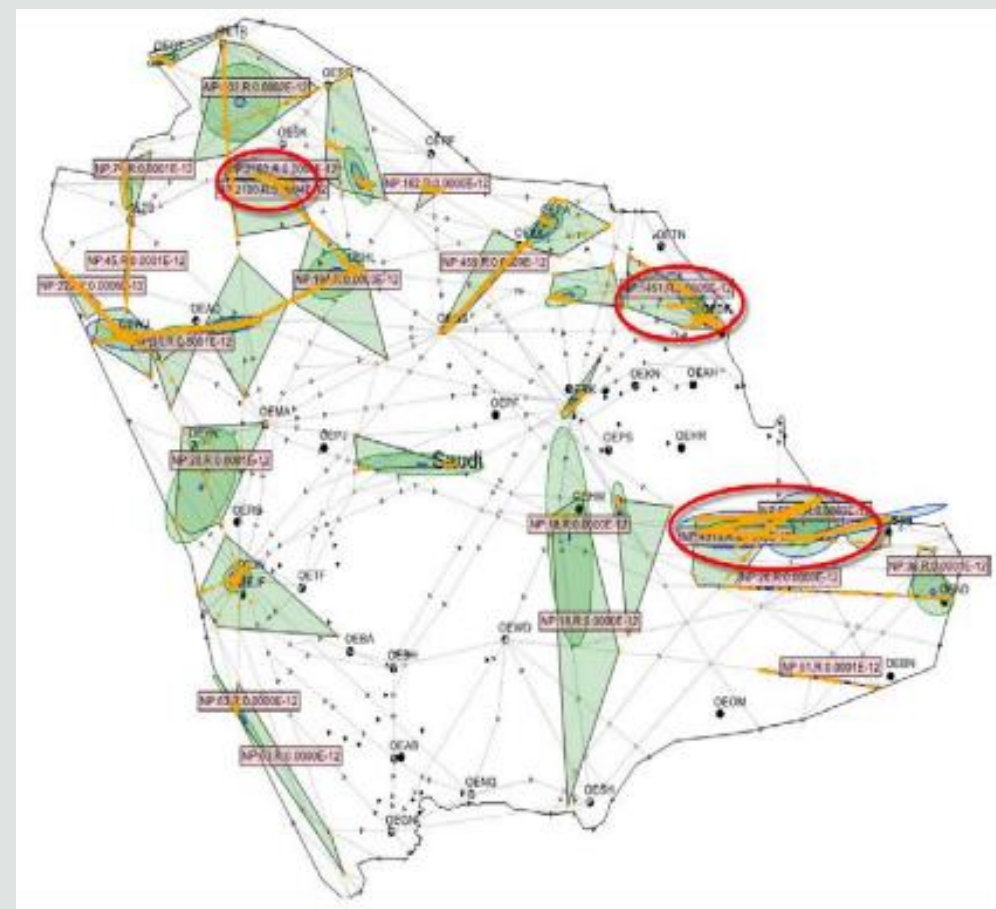
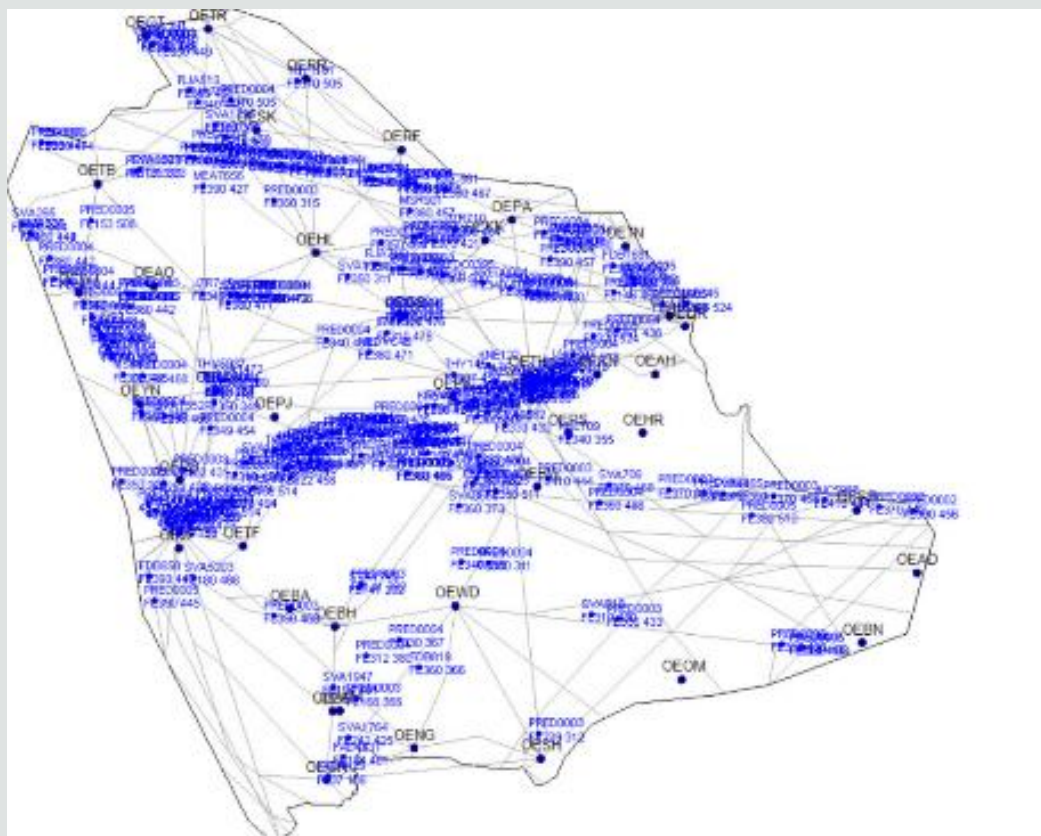
Version 2.0 Feb 2022

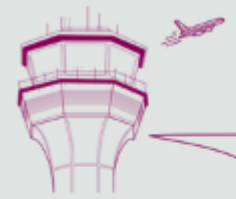
This Plan was developed by the ICAO MID Air Traffic Flow Management Task Force (ATFMTF) and reviewed by the ATM SG.

Approved by MIDANPIRG/19 and published by the ICAO MID Office, Cairo

FIFA World Cup Task Force History (continue)

- Example of the assessment results:

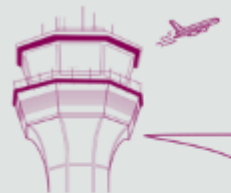




FIFA World Cup 2022

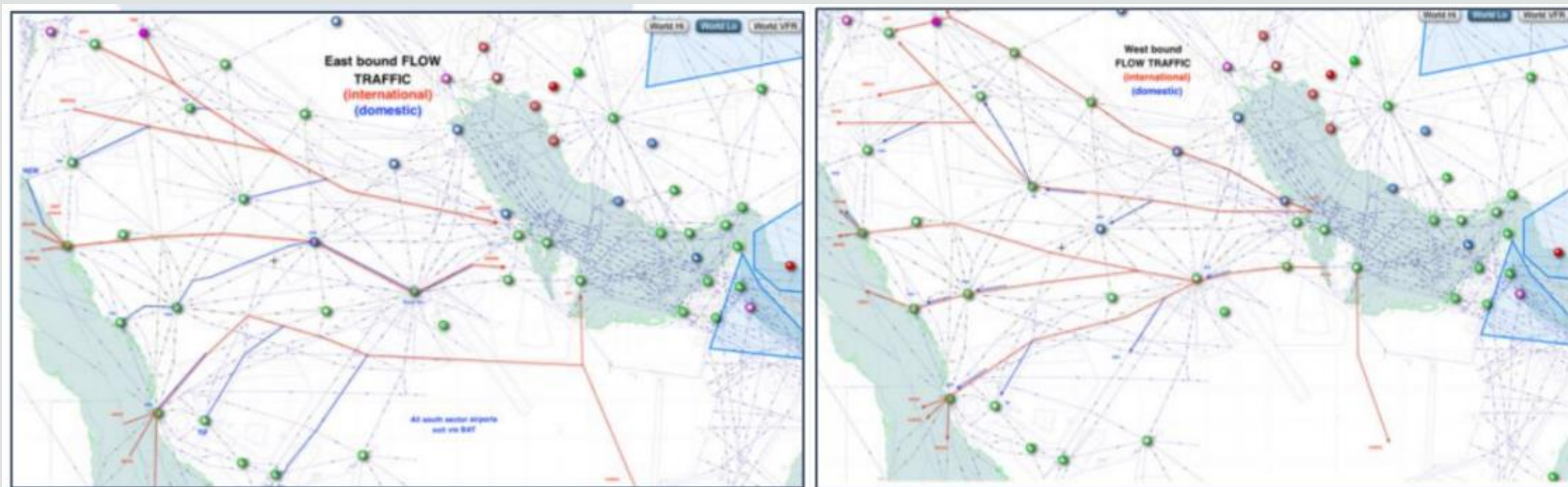
Progress and current status:
Airspace enhancements projects

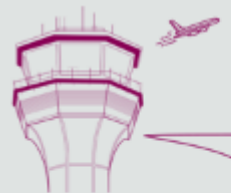




FIFA World Cup Task Force: Airspace enhancements projects within the Region

- Example of the assessment results:





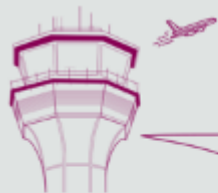
FIFA World Cup Task Force (continue)

- Example of the assessment results:

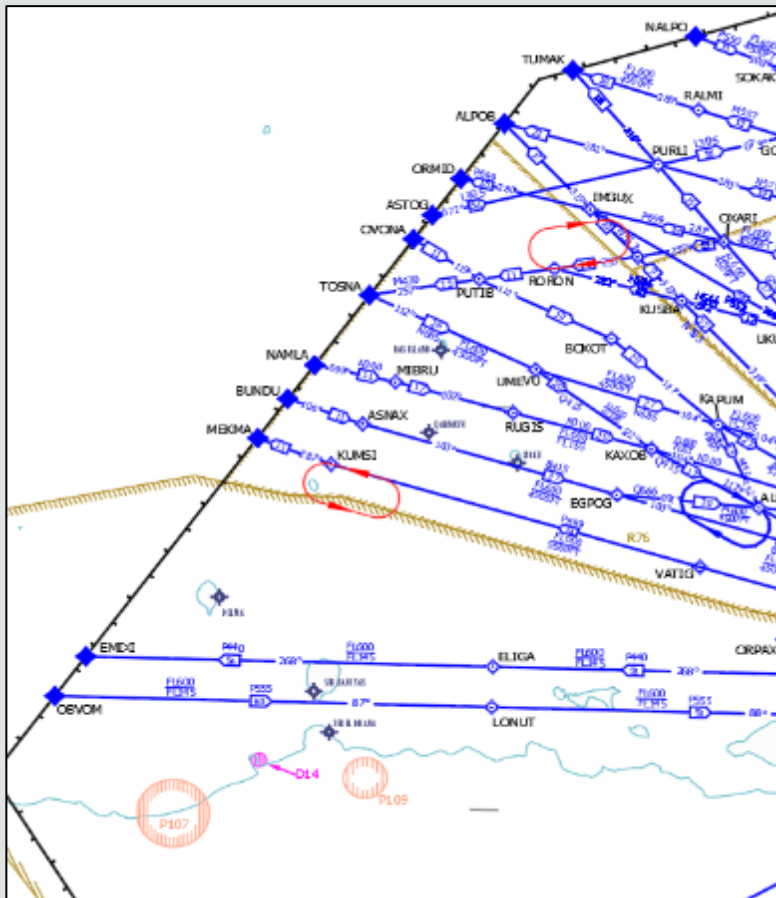
Conditional ATS Routes

OER41: 0400 to 1000 and from 1430 to 1730 and 24/7 over BAT
M430, Z511, L681, N697, T142, M440, Y432, and N316

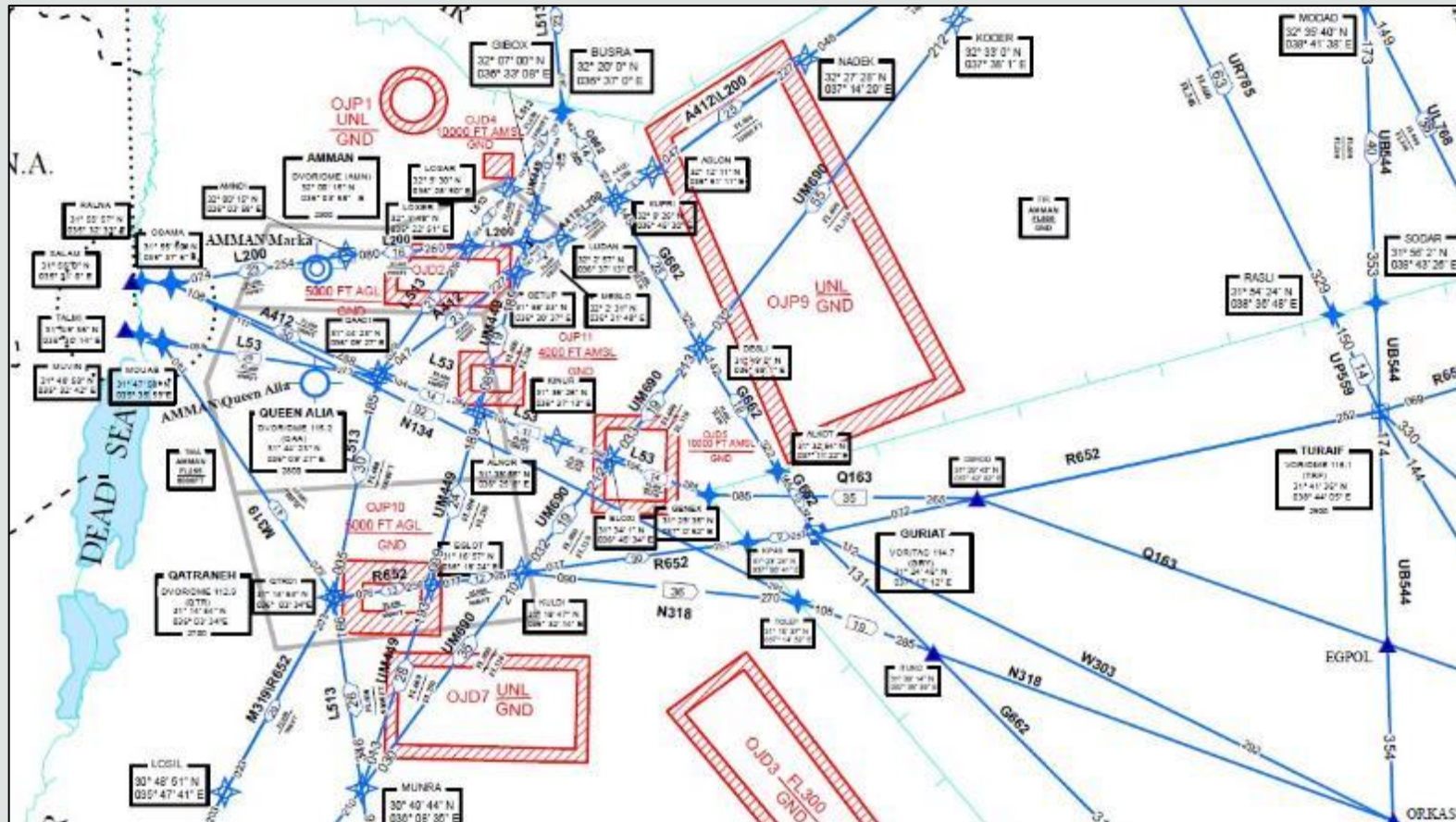
Items	Z511/L681	M430	T142	N316	N697	M440	Total
Saving Milage (nm)	19	23	38	24	17	27	148
Saving Fuel (kg)	228	276	456	288	204	324	1776
CO ₂ Emission Reduction (kg)	718	869	1436	907	642	1023	5595

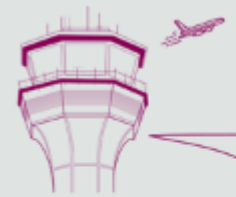


Emirates FIR



Amman FIR

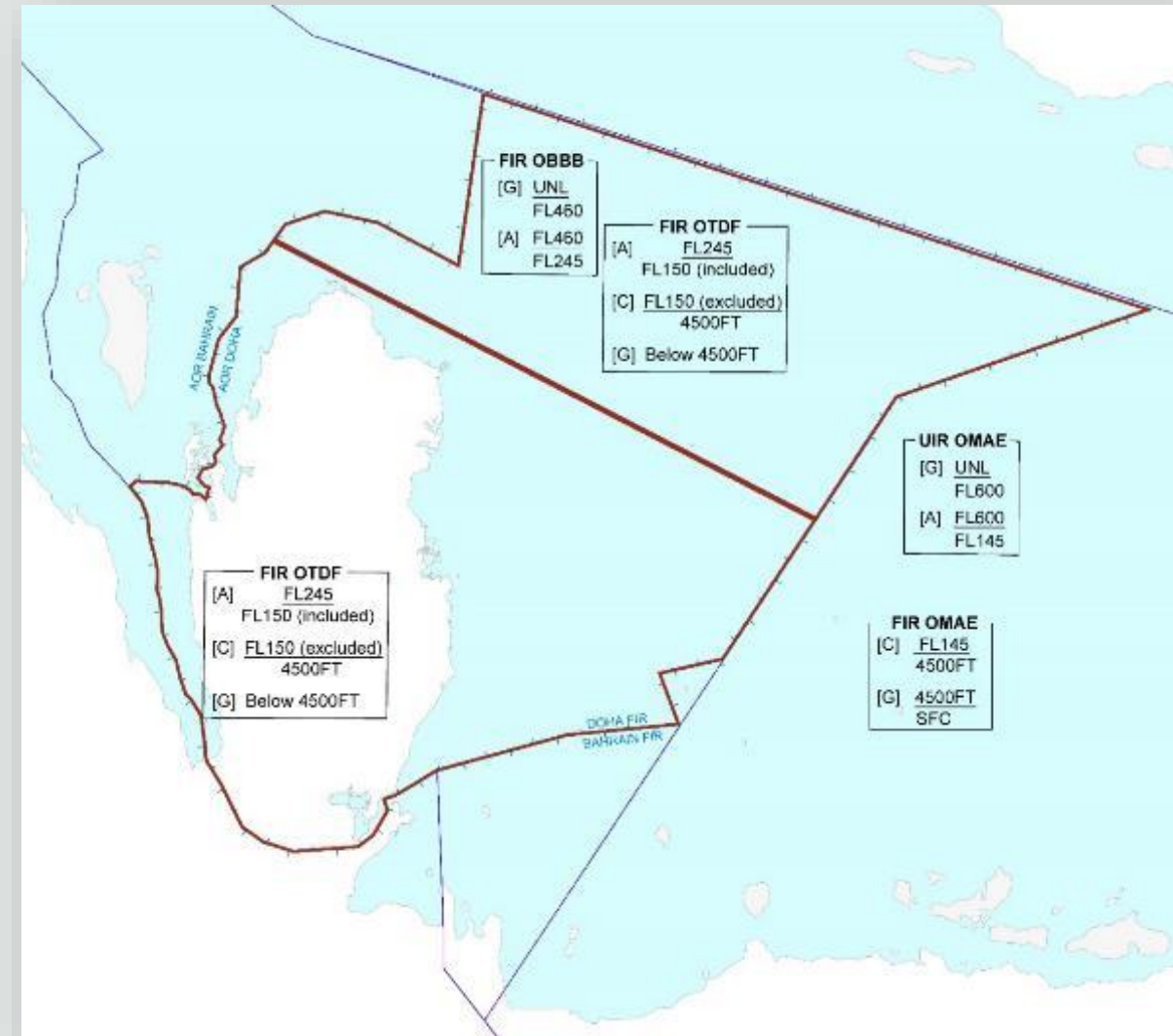


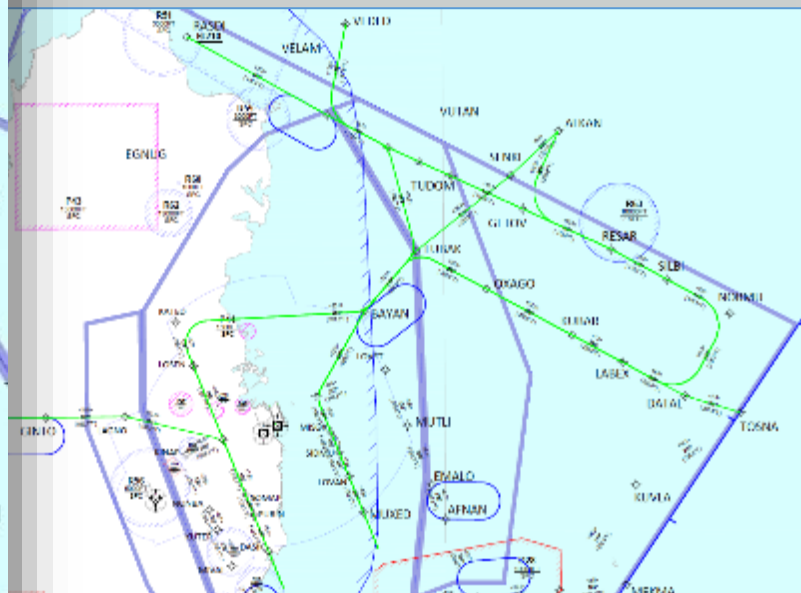
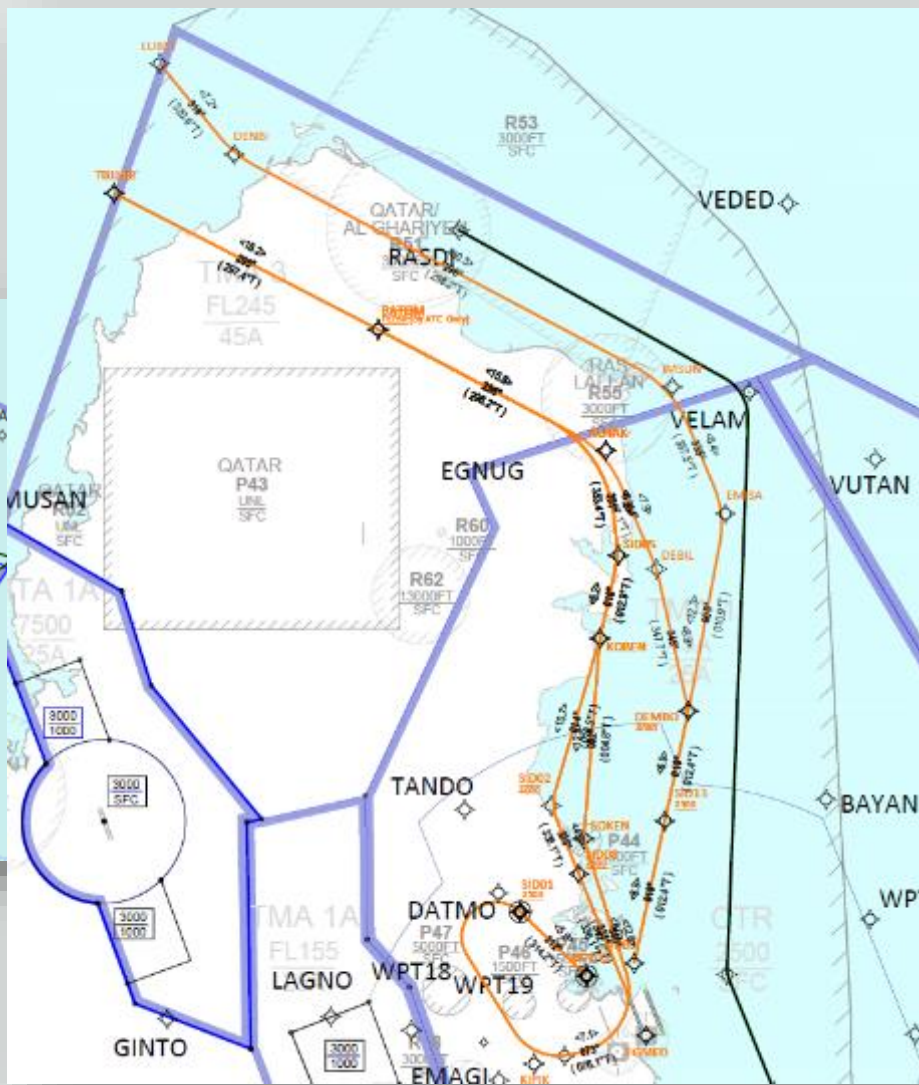
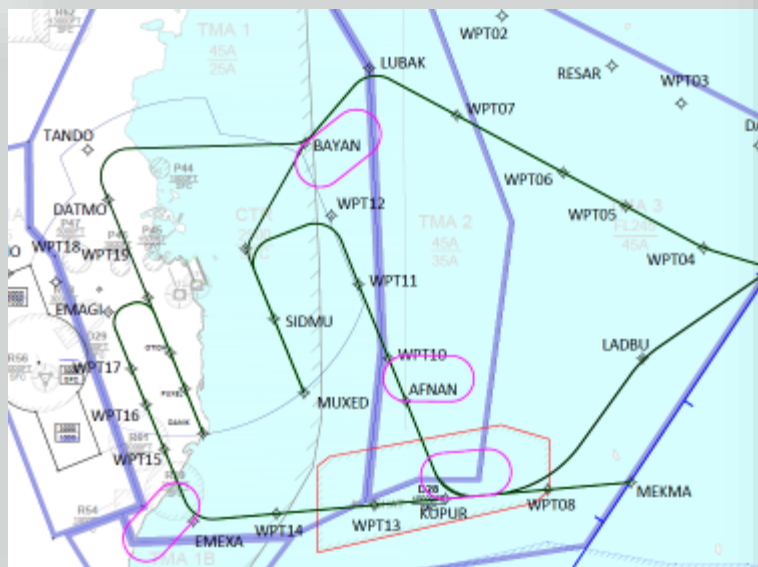
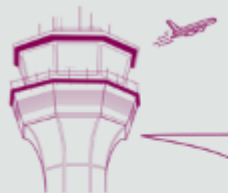


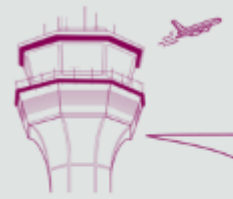
FIFA World Cup Task Force: Airspace enhancements projects within Qatar

Since Sept 8th Qatari airspace Structure was amended to accommodate increased traffic flows:

- Entry/exits points remain the same
- LoA levels remain the same
- Use of lateral holding techniques (trombones) to manage traffic flows
- Redesign of STARs to feed each runway at both OTHH and OTBD
- STAR commencing at entry point and options for each runway
- Peak-period SIDs to manage exceptional outbound flow



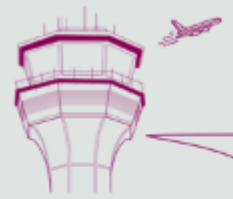




FIFA World Cup 2022

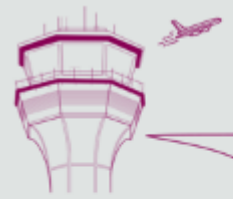
Progress and current status:
ATFM implementation





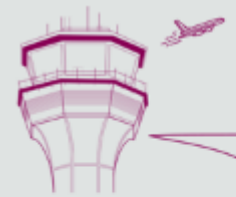
Doha ATFM unit: Operations

- commenced on the effective date of AIRAC cycle of 8 September 2022, in conjunction with new Airspace Enhancements.
- ATFM conference calls are conducted Daily at 0800 UTC.
- Daily ADP sent at 1000 UTC through the online tool and email.
- Increases planning ability as more airlines are uploading Schedules.



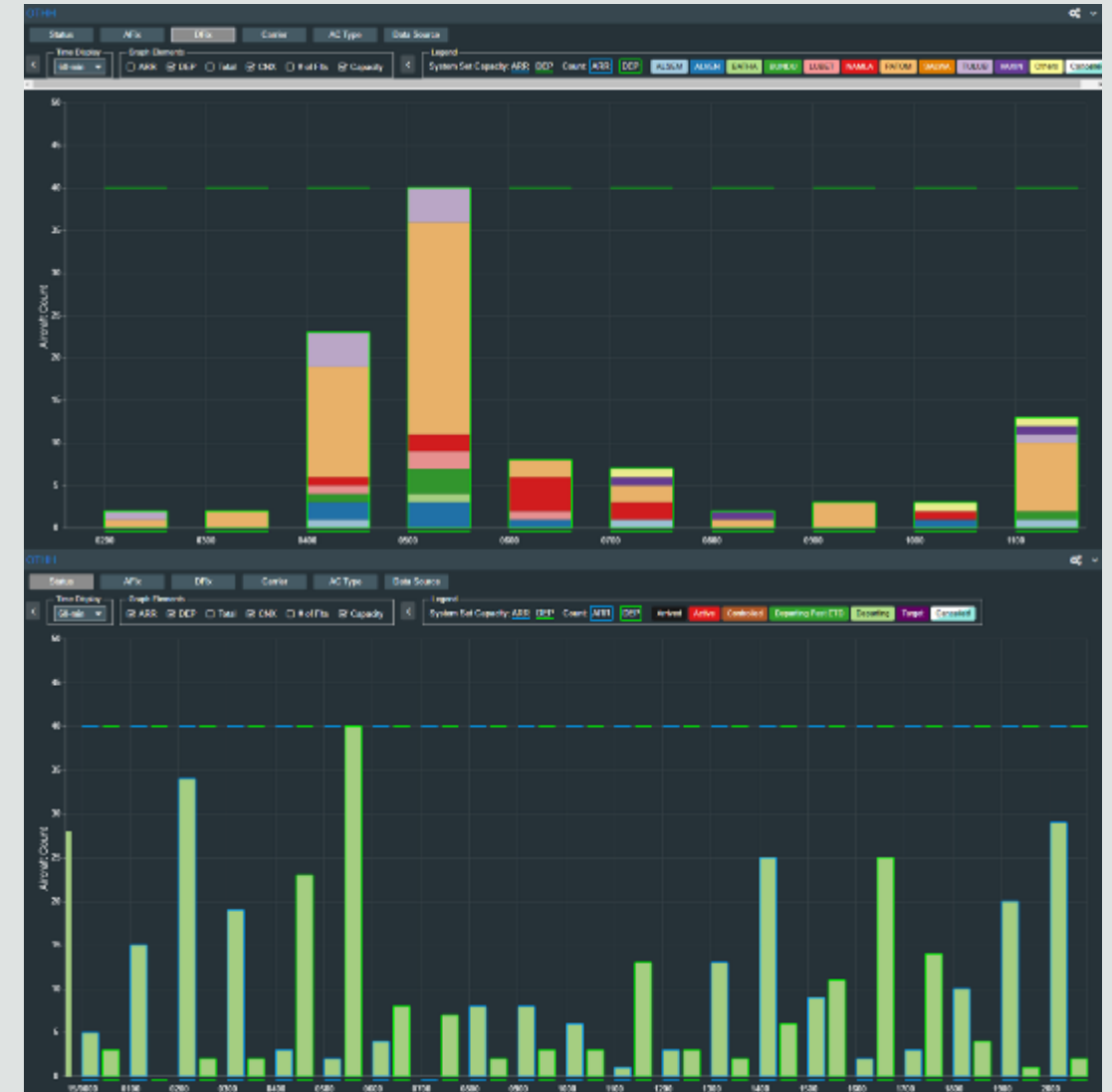
FWC 2022 ATFM Training

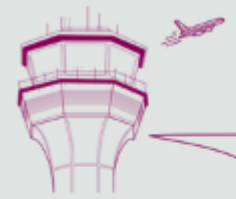
- ICAO MID facilitated arrangements for the training on regional level.
 - 70 participant from 10 States received the training during March 2022, on the principles of ATFM and on using Qatar ATFM Web portal.
- In addition, and in coordination with IATA, separate training was delivered
 - 250+ participants from 36 airlines based in 28 States, with focus on MID Region operators, planning to operate to/from OTHH and OTBD. Representing a diverse of mix operations models: Legacy, Charter, Cargo and General/Business aviation.



FWC 2022 Concept

The FWC 2022 Concept was based on the MID Region ATFM Plan which was endorsed by the MIDANPIRG. Aiming to provide operational information required for planning for the significant traffic rush towards OTxx. To enable resource planning for 5 days in advance. Airline schedules are uploaded for a rolling 6-day period.

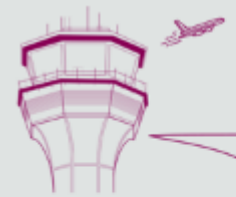




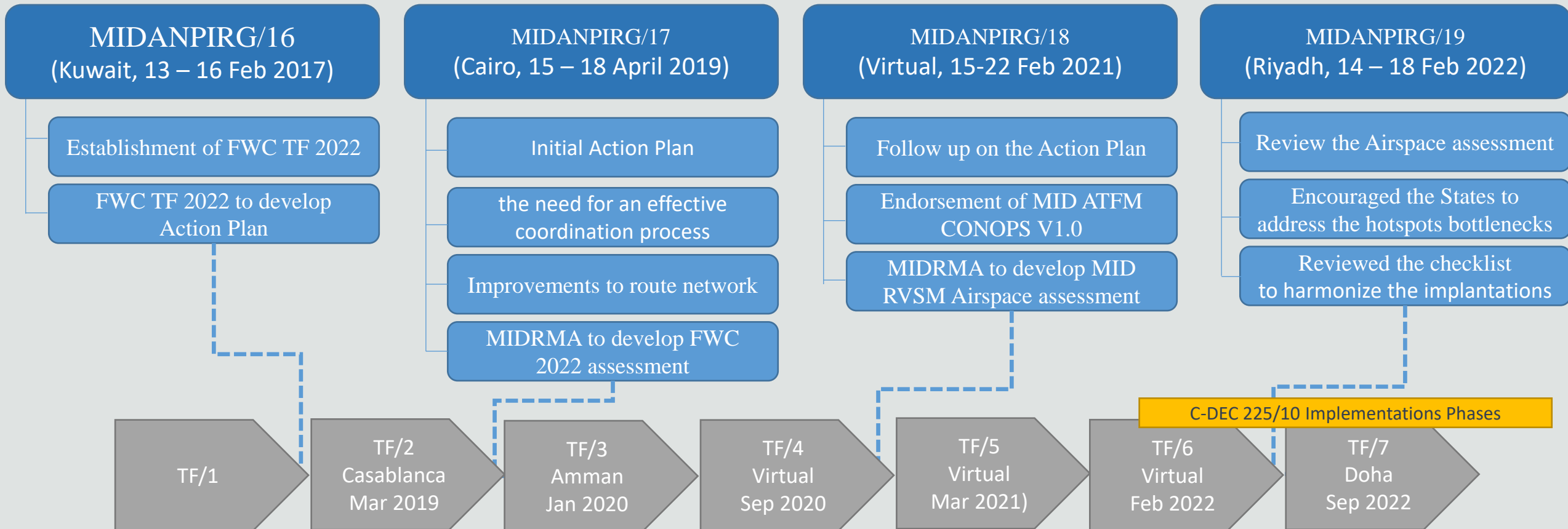
FIFA World Cup 2022

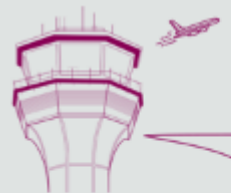
Activities summary and tracker



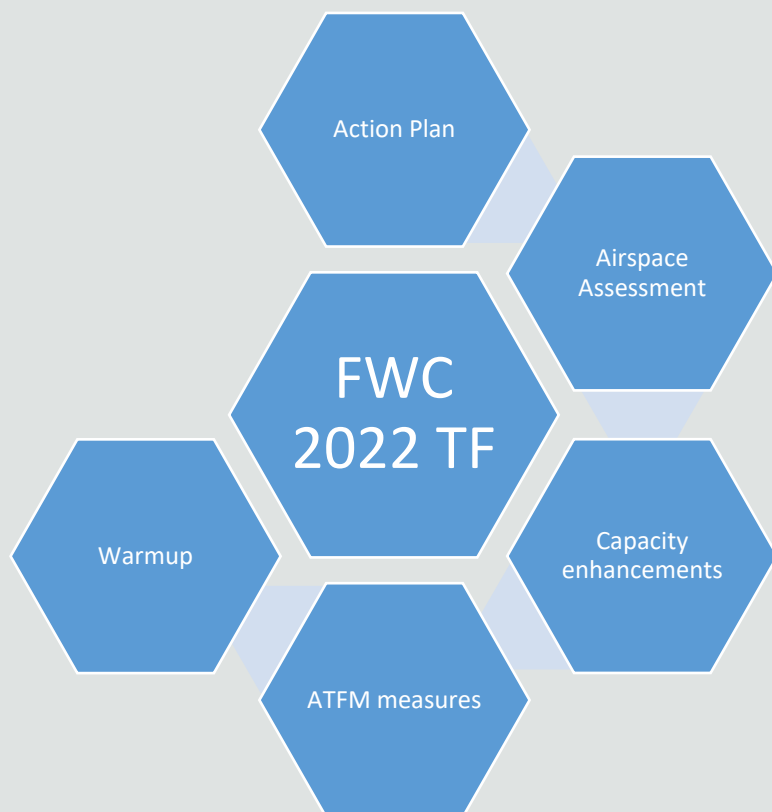


FWC 2022 activities summary and tracker





FWC 2022 activities summary and tracker

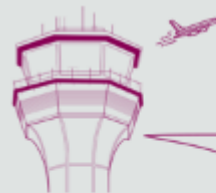


FWC TF	MIDANPIRG/16 2017 •Coordinating on regional level
Action Plan	Main activities, roadmap, data collection and analysis tasks •Timelines and task assignments
MIDRMA	MID RVSM Airspace Assessment •Identifying Hotspots, bottlenecks
IFPs and ENR	New SIDs STARS, Parallel Approaches within Doha TMA •Other Airspace Enhancement projects within the region Egypt, Jordan, Kuwait, Saudi Arabia,
GDP/CTOT Programme	Web-based Tool implemented by Qatar •Familiarization and training
Coordination	With States and ANSPs •IATA and Airspace users and other Stakeholders
Trial period	Dry run of the ATFM and coordination meetings •Daily coordination Meeting

ICAO MID FIFA World Cup TF meetings

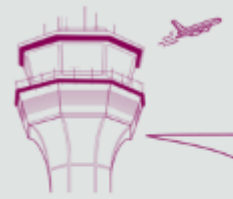
31 March 2022





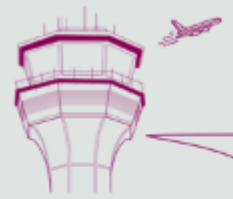
ICAO MID FIFA World Cup TF meetings March – September 2022





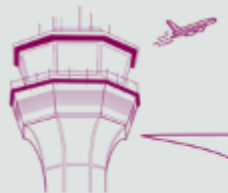
FWC 2022 TF Outcomes

- Collaboration between MID States will be the key factor to the successful management of Air Traffic during the event.
- Coordination with the Airspace users / Air Operators and ANSPs will continue to be essential.
- For these purposes, and after implementing all the enhancements projects presented in the slides above, and in the absence of a centralized management unit similar to the Eurocontrol Network Manager or FAA Command center; the TF agreed with the States/ANSPs and airspace users utilizing the tools available to exchange the plans and concerns.



Action by the meeting:

- The meeting is invited to:
 - a) note the progress made by the MID FWC 2022 Task Force; and
 - b) continue the support provided to the FWC 2022 Activities during the coming short period.



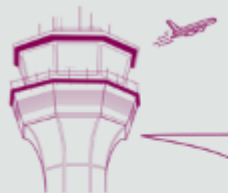
FWC2022 TF

FIFA World Cup 2022 Task Force

Thank You



ICAO MID



ATM SG/8

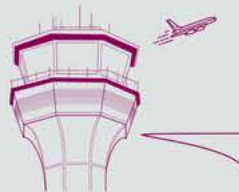
The MIDANPIRG Air Traffic Management Sub-Group, Eighth Meeting

Amman, Jordan 7 - 10 November 2022



THANK YOU





BAHRAIN FWC2022 PREPARATION

1. Distribution of workload

- Flexible sectorization in anticipation of increased workload and contingency.

2. Temporary amendment to traffic flow for OBXX departures arriving OTHH/OTBD

- Undergoing Safety Assessment as part of Change Management Procedures.

3. Temporary amendment to traffic flow for OTBD departures requesting FL400+

- Undergoing Safety Assessment as part of Change Management Procedures.

4. FLOW transparency

- Will share escalating flow procedures with surrounding AORs once received from Doha.

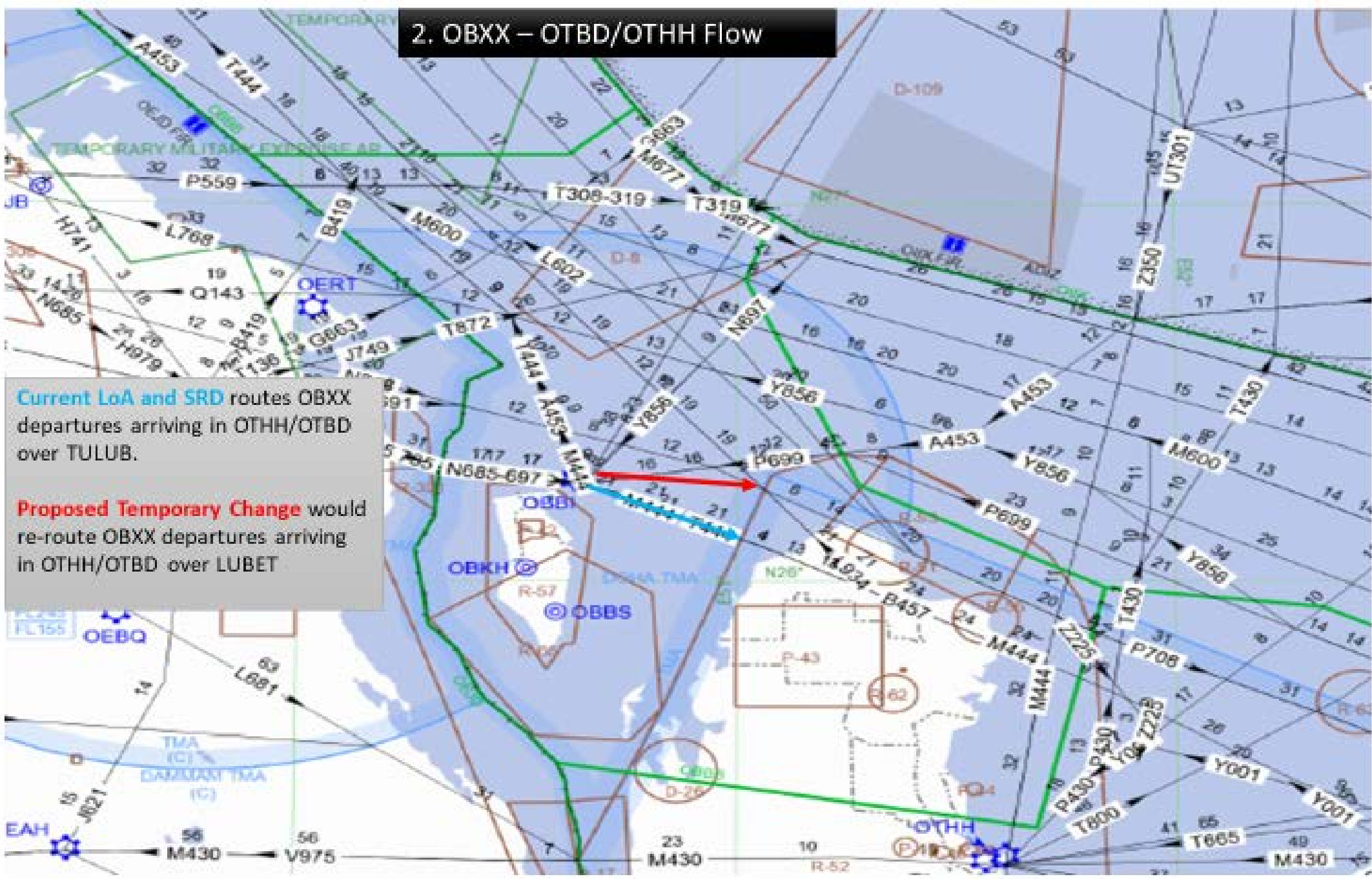
5. Contingency Preparation

- Temporary reduction in climbing/descending boundary traffic with KSA in order to allow for possible contingency measures.

2. OBXX – OTBD/OTHH Flow

Current LoA and SRD routes OBXX departures arriving in OTHH/OTBD over TULUB.

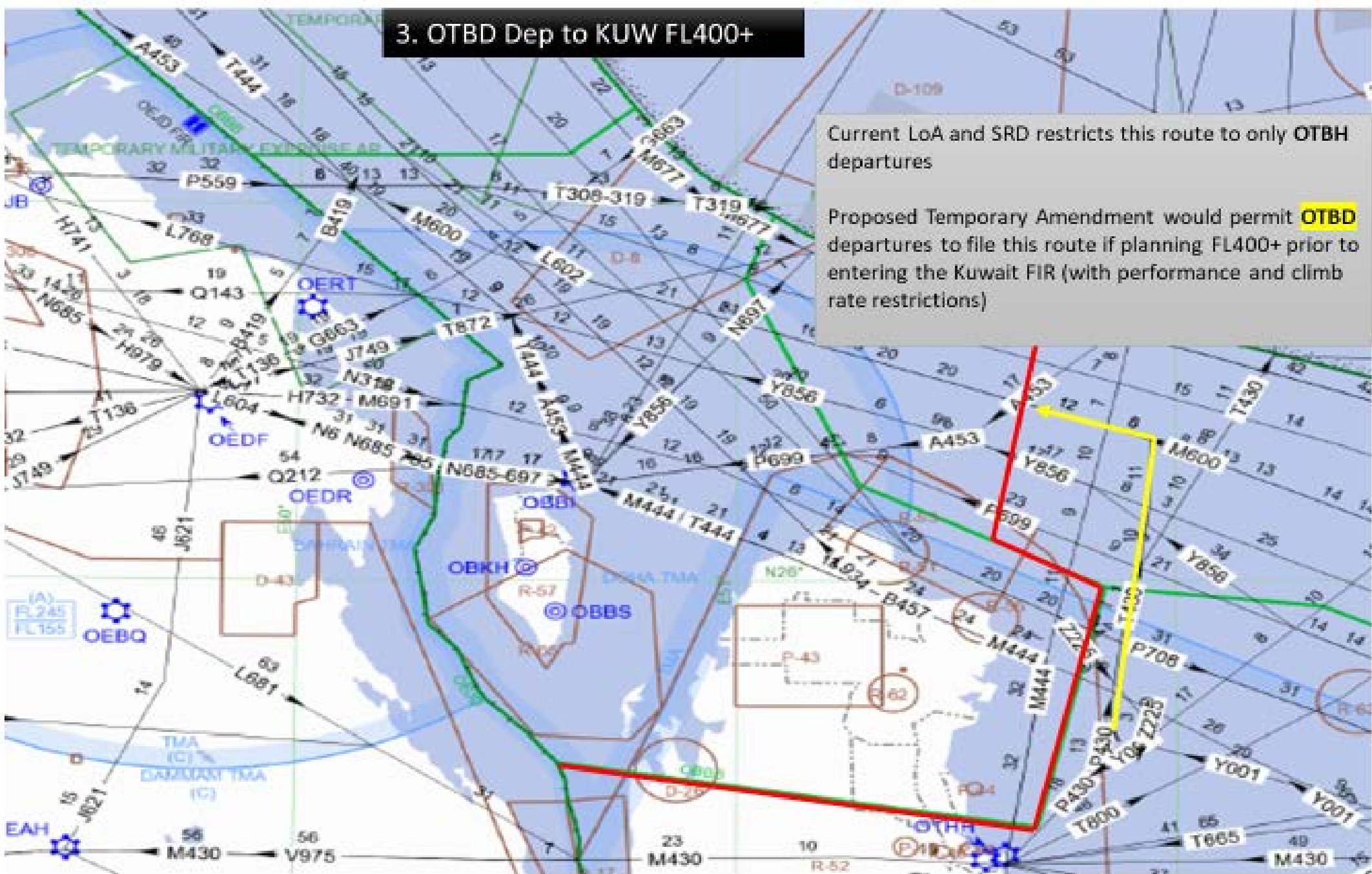
Proposed Temporary Change would re-route OBXX departures arriving in OTHH/OTBD over LUBET



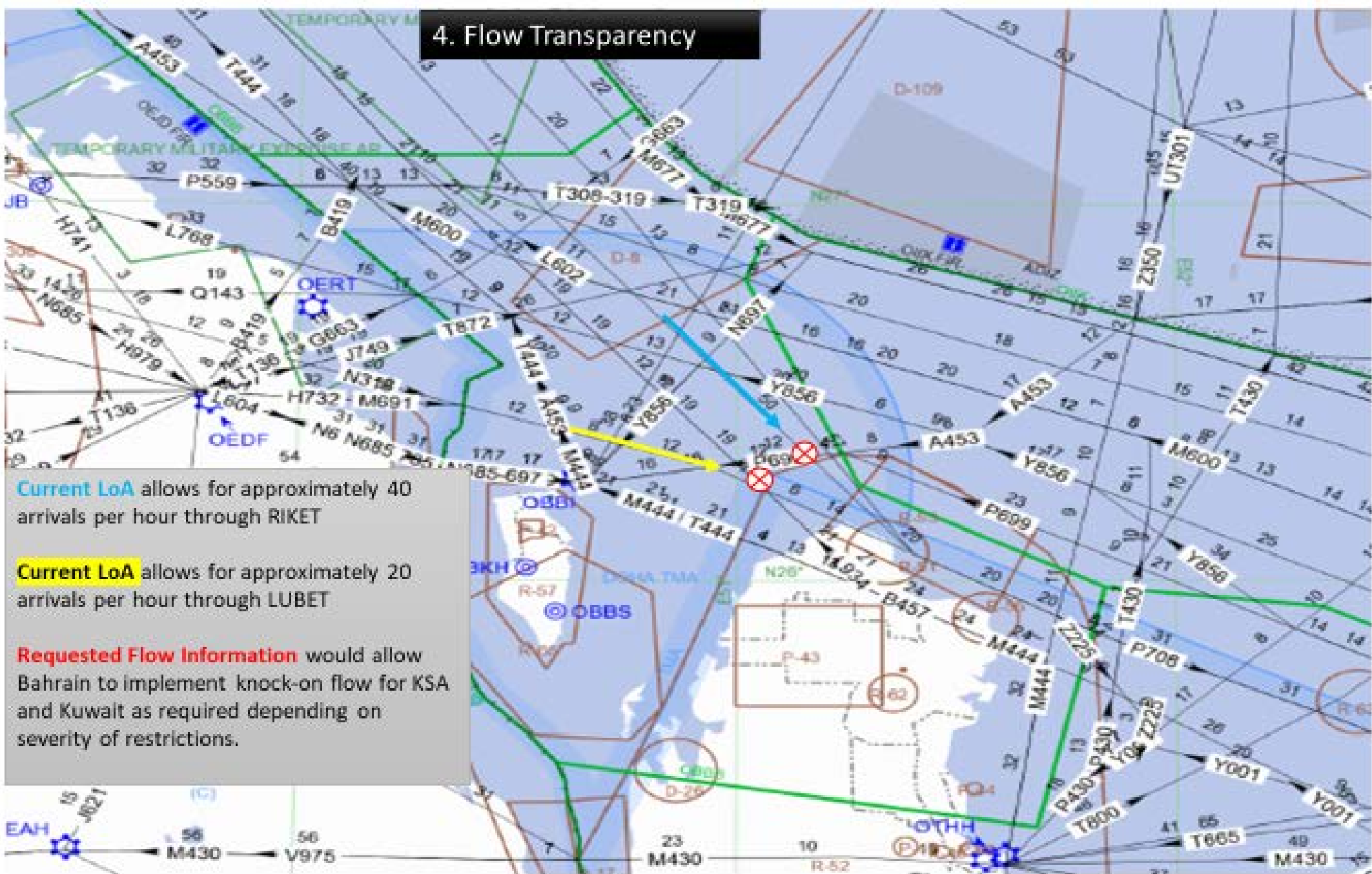
3. OTBD Dep to KUW FL400+

Current LoA and SRD restricts this route to only OTBH departures

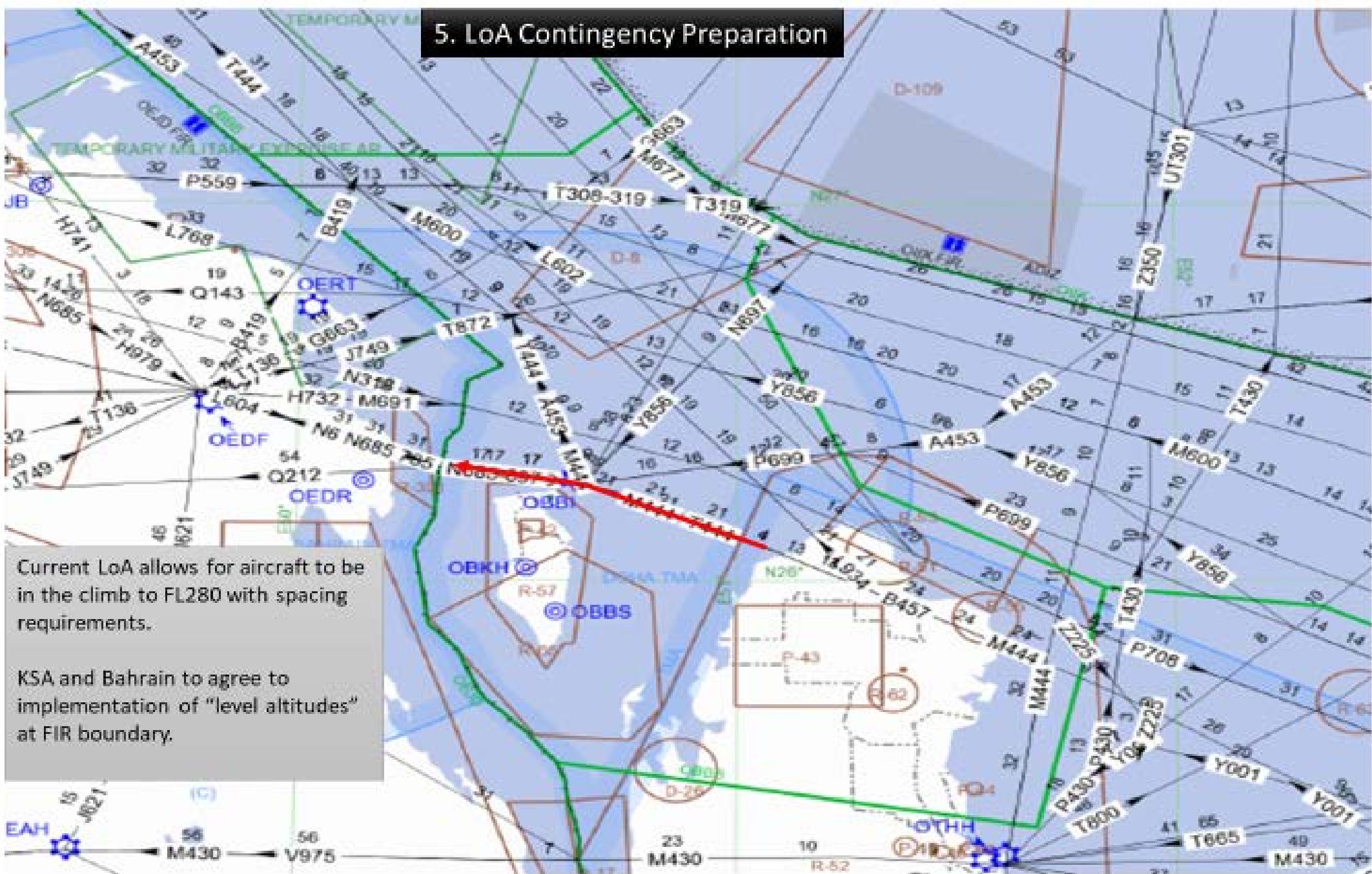
Proposed Temporary Amendment would permit **OTBD** departures to file this route if planning FL400+ prior to entering the Kuwait FIR (with performance and climb rate restrictions)



4. Flow Transparency

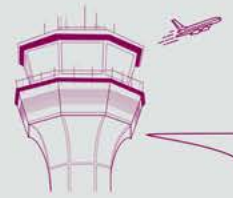


5. LoA Contingency Preparation



Current LoA allows for aircraft to be in the climb to FL280 with spacing requirements.

KSA and Bahrain to agree to implementation of "level altitudes" at FIR boundary.

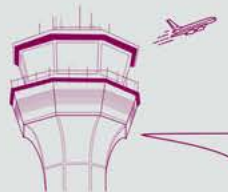


SUMMARY

- Increase Workload Adaptability / Flexibility.
- Doha TMA Service Provision.
- Efficiency / Tactical Deconfliction.
- Regional Mitigation of Flow and Contingency Measures.
- Near Border Contingency Preparation.



ICAO MID



ATM SG/8

The MIDANPIRG Air Traffic Management Sub-Group, Eighth Meeting

Amman, Jordan 7 - 10 November 2022



THANK YOU



Planning and Implementation issues related to ATM/SAR

1. DISCUSSION

1.1 Preliminary Results of the MID RVSM SMR 2022 (First Draft Version):

1.1.1 Implementation of RVSM should be based on a safety assessment, demonstrating that all RVSM safety objectives set out in the MID RVSM Safety Policy in accordance with ICAO Doc 9574 (2nd Edition) continue to be met in operational services within the Middle East RVSM airspace.

1.1.2 The results calculated for the MID RVSM SMR 2022 presents evidence that according to the data and methods used that only safety Objectives 1 & 3 have been met while the MID RVSM airspace failed to meet Safety Objective No. 2 due to an isolated event resulted to high operational error period which led the overall risk value to reach above the ICAO TLS.

Objective 1 The risk of collision in MID RVSM airspace due solely to technical height-keeping performance meets the ICAO target level of safety (TLS) of 2.5×10^{-9} fatal accidents per flight hour.

The value computed for technical height risk is estimated 1.564×10^{-10} this meets RVSM Safety Objective 1.

Objective 2 The overall risk of collision due to all causes which includes the technical risk and all risk due to operational errors and in-flight contingencies in the MID RVSM airspace meets the ICAO overall TLS of 5×10^{-9} fatal accidents per flight hour.

The value computed for the overall risk is estimated 1.724×10^{-7} this is above the ICAO overall TLS.

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.

Middle East RVSM Airspace Estimated Annual Flying Hours = (2,161,356) Average Aircraft Speed = 441.36 kts			
Risk Type	Risk Estimation	ICAO TLS	Remarks
Technical Risk	1.564×10^{-10}	2.5×10^{-9}	Below ICAO TLS
Overall Risk	1.724×10^{-7}	5×10^{-9}	Above ICAO TLS

Conclusions:

- (i) The estimated risk of collision associated with aircraft height- keeping performance is 1.564×10^{-10} and meets the ICAO TLS of 2.5×10^{-9} fatal accidents per flight hour (RVSM Safety Objective1).
- (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 1.724×10^{-7} this value is above the ICAO overall TLS of 5×10^{-9} fatal accidents per flight hour (RVSM Safety Objective 2).
- (iii) Although safety objective No 2 was not met for SMR 2022 due to an isolated event by none-RVSM approved aircraft which resulted long operational error period , based on currently-available information (Except for Tripoli, Kuwait and Beirut FIRs), there is no evidence available to MIDRMA that the continued operations of RVSM adversely affects the overall vertical risk of collision other than the violation of Non-RVSM approved aircraft to the MID RVSM airspace which is under continuous monitoring and review by MIDRMA.

1.1.3 Considerations on the Safety Objectives for MID RVSM SMRs

When considering the three safety objectives for RVSM, the following considerations should be borne in mind:

1. The assessment of risk against the TLS, both for technical and overall risk estimates, relies on height keeping performance data to assess the risk in the vertical plane and studies of traffic density to calculate the risk in the horizontal plane. There are numbers of assumptions that must be verified to satisfy the reliability of the risk assessment, the verification of these assumptions deals primarily with monitoring of aircraft performance issues.
2. The Aircraft performance is assessed by individual airframe and by monitoring group. A monitoring group consists of aircraft that are nominally of the same type with identical performance characteristics that are made technically RVSM compliant using a common compliance method. Monitoring group analysis is necessary to verify that the Minimum Aviation System Performance Standards (MASPS) for that group is valid. Aircraft that are made RVSM compliant on an individual basis are termed non-group.
3. RVSM Safety Objective 2, dealing with overall risk, takes into account the technical risk together with the risk from all other causes. In practice, this relates to the human influence and assessment of this parameter relies on adequate reporting of Large Height Deviation (LHD) Reports, and the correct interpretation of events for input to the CRM.
4. RVSM Safety Objective 3 requires the RMA to monitor long-term trends and to identify potential future safety issues, this compare the level of risk bearing incidents for the current reporting period. It also highlights if there are issues that should be carried forward as recommendations to be adopted for future reports.

1.1.4 Scope:

The geographic scope of the MID RVSM Safety Monitoring Report covers the MID RVSM airspace, which comprises the following FIRs/UIRs:

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

2 T-1: FIRs/UIRs of the Middle East RVSM Airspace

***Note: Kuwait, Beirut and Tripoli FIRs excluded from the RVSM safety analysis due to lack of data.**

1.1.5 The Data Sampling periods covered by SMR 2022 are as displayed in the below table

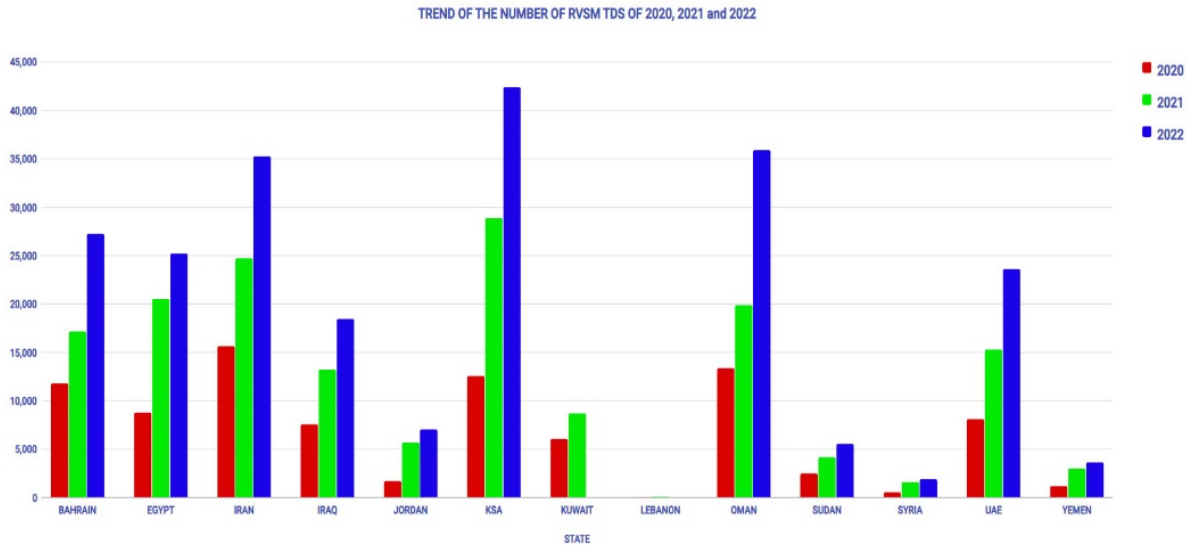
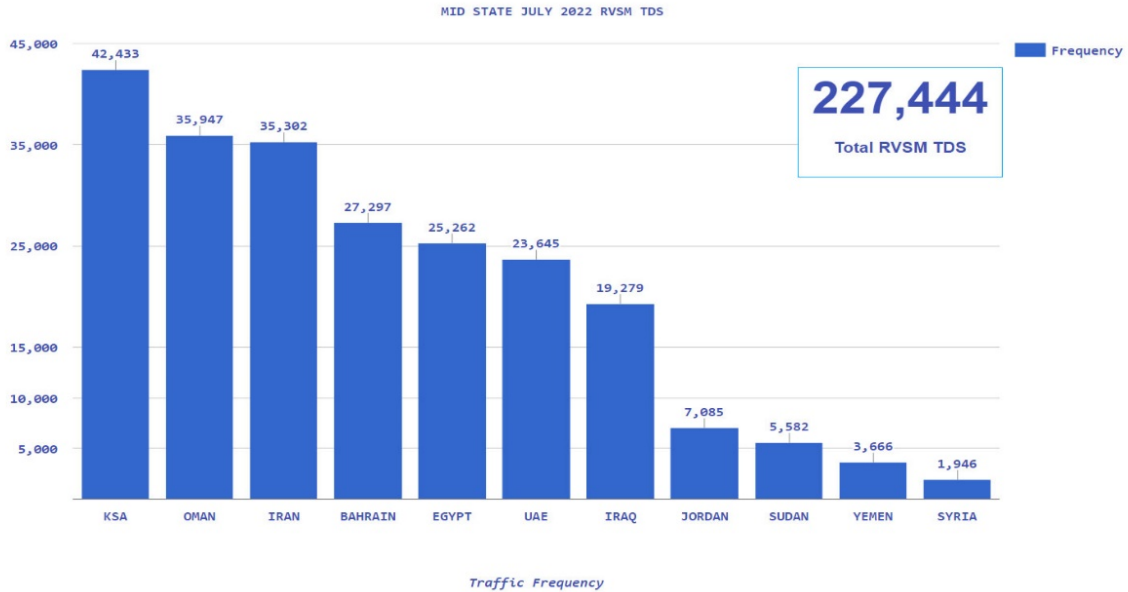
Report Elements	Time Period
Traffic Data Sample	01/06/2022 - 30/06/2022
Operational & Technical Errors	01/01/2022 - 31/10/2022

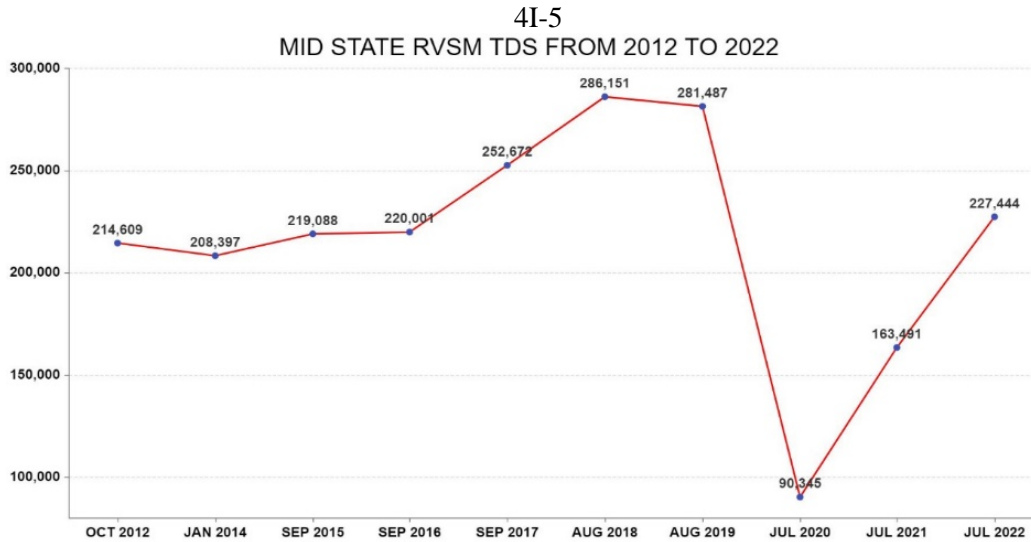
1.1.6 The descriptions of the traffic data collected from each MIDRMA Member State are depicted in table below:

MID States	No. of Flights	Received Dates	Status
Bahrain FIR	27297	01/08/2022	Accepted (Lots of mistakes)
Cairo FIR	25262	30/07/2022	Accepted
Amman FIR	7085	06/07/2022	Accepted
Muscat FIR	35947	27/07/2022	Accepted
Tehran FIR	35302	05/08/2022	Accepted
Khartoum FIR	5582	31/07/2022	Accepted (Corrected TDS)
Emirates FIR	23645	26/07/2022	Accepted
Damascus FIR	1946	22/07/2022	Accepted
Sana'a FIR	3666	28/07/2022	Accepted
Baghdad FIR	19279	05/07/2022	Accepted (Corrected TDS)
Kuwait FIR	-	13/08/2022	Rejected
Jeddah FIR	42433	28/07/2022	Accepted (Lots of mistakes)
Beirut FIR	-		No Data Submitted
Tripoli FIR	-		No Data Submitted
Total	227,444		

Table 1: Details of the MID States RVSM Traffic Data Sample (TDS) for July 2021.

1.1.7 The description of the traffic data processed for each MIDRMA member state by the MID Risk Analysis Software (MIDRAS) is depicted in the graph below, a total of **227,444** flights were processed for the 11 FIRs, these flights were evaluated and processed very carefully to ensure accurate results according to the data submitted.





#	Waypoints	FIRs	Frequency
1	TASMI	BAGHDAD/KUWAIT	8466
2	DAVUS	BAHRAIN/KUWAIT	6977
3	SIDAD	BAGHDAD/KUWAIT	6500
4	NINVA	BAGHDAD/ANKARA	6159
5	RATVO	BAGHDAD/ANKARA	5980
6	TUMAK	BAHRAIN/EMIRATES	5340
7	ULADA	BAHRAIN/JEDDAH	5005
8	RASKI	MUSCAT/MUMBAI	4761
9	ALPOB	BAHRAIN/EMIRATES	4631
10	ULINA	CAIRO/AMMAN	4465
11	GABKO	TEHRAN/EMIRATES	4156
12	SODEX	EMIRATES/MUSCAT	4147
13	BONAM	TEHRAN/ANKARA	3992
14	MENSA	EMIRATES/MUSCAT	3949
15	KITOT	CAIRO/JEDDAH	3801
16	PASOV	EMIRATES/MUSCAT	3619
17	DEESA	AMMAN/JEDDAH	3567
18	NALPO	BAHRAIN/EMIRATES	3514
19	LONOS	BAHRAIN/KUWAIT	3452
20	DAROR	BAHRAIN/JEDDAH	3341

Top 20 Busiest Points in the MID RVSM Airspace

1.1.8 It is truly unfortunate that, after many years of issuing the RVSM SMR for the region, the MIDRMA still faces many difficulties and challenges in receiving the TDS from some member states in the required format, the requirement to collect the TDS is repeated every year in the same format and with no changes, but the TDS received with many errors and, in some cases, completely corrupted and cannot be used for the safety analysis.

1.1.8.1 MIDRMA was forced to reject the TDS from Kuwait, which was corrupted with many errors and missing flights and could not be processed in the MIDRAS, while the TDS from Iraq and Sudan were temporarily rejected in order to correct all errors. The meeting may wish to note that no TDS was received from Lebanon despite several reminders being sent to the focal point to comply with the MIDANPIRG Conclusion 19/2 and the ICAO State Letter issued to submit the requested TDS.

1.1.8.2 Compiling the TDS and verifying its validity and suitability for use is a laborious task that necessitates a great deal of effort, time, and precision in order to produce reliable outcomes. As a result, the MIDRMA requires all Member States to double-check their data before sending it to avoid rejection and delaying work on the SMR

2.2 Large Height Deviation Reports (LHDs) 2022

2.2.1 The level of collision risk resulting from errors in ATC instructions ,emergency and operational procedures in the MID RVSM airspace needs to be assessed in addition to that resulting from technical height-keeping deviations, the primary source of reporting Large Height Deviation is the ATC units providing air traffic control services in the airspace where RVSM is applied, all MIDRMA Member States are required to submit Large Height Deviation Reports which occurred in their FIRs on a monthly basis (preferably as soon as they occur) even if none was reported during the month of reporting.

2.2.2 The vertical risk estimation due to atypical errors has been demonstrated to be the major contributor in the overall vertical-risk estimation for the ICAO MID RVSM airspace, The MIDRMA noticed good improvement from some member states used not to submit LHD reports equivalent to their high volume of traffic while some other members remain the same and can't see much improvement despite the continuous monthly reminders sent to all member states.

2.2.3 The estimation of total risk (Safety Objective 2) combines the results from Safety Objective 1 with the estimation of risk due to all other factors. This second component, often termed operational risk, is dependent on a large number of factors including, airspace configuration, traffic densities, ATC procedures, individual controller/pilot actions and specific sector operational characteristics. The operational risk is estimated by the evaluation of the magnitude and duration of events extracted from operational incident reports which transformed to Large Height Deviation reports.

2.2.3.1 Despite the fact that the MIDRMA Member States have submitted a small number of LHD reports to date, and that the SMR cycle is not yet completed (there are two months more left), there is a chance that the results presented for Safety Objective No.2 will worsen if more critical LHD reports are submitted.

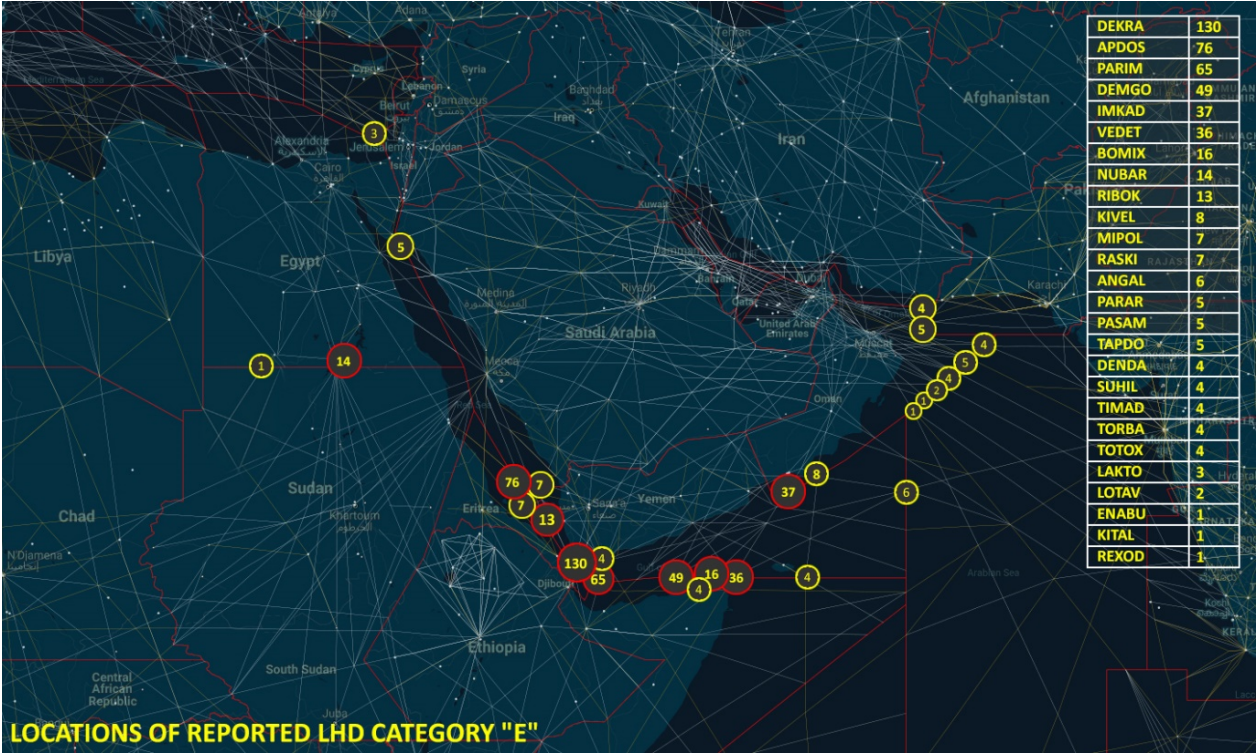
2.2.4 The Table below presents a summary of operational risk associated with Large Height Deviation (LHD) reports by LHD categories, these reports used to calculate the overall vertical collision risk for the MID RVSM airspace.

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	3	35
B	Flight crew climbing or descending without ATC clearance	2	60

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C	Incorrect operation or interpretation of airborne equipment	1	40
D	ATC system loop error	-	-
E	ATC transfer of control coordination errors due to human factors	14	660
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	1	30
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	1	3420
M	Other	1	40
		Total	21
			4285

Summary of Operational Risk associated with Large Height Deviation Reports



2.2.5 RVSM Safety Protocol at the Eastern Boundaries of Muscat FIR and the increased Number of LHD reports submitted by Yemen related to some its adjacent FIRs:

2.2.5.1 The MIDRMA continued to monitor the LHD reports at the eastern boundaries of Muscat FIR filed by Mumbai and Muscat ACCs. The MIDRMA would like to draw the meeting's attention to the fact that Muscat/Mumbai RVSM safety protocol is still open since 2017, and it is time to make a decision to close it provided the risk is eliminated or reduced to its bare minimum, which the MIDRMA cannot see it is happening without confirmation of installing OLDI/AIDC in both ACCs.

Note: in this working paper details the LHD reports filed by both ATCUs from 01st January until 31st October 2022.

2.2.5.2 A virtual meeting arranged by the ATM officers in ICAO MID and ESAF Offices last March and was attended by MIDRMA, Yemen and Addis Ababa ATCUs to discuss the continued increasing number of LHD reports filed by Sana'a ACC related to its neighbouring FIRs. MIDRMA presented all the archived LHD reports filed by Yemen and requested to explore all possible solutions and agree in corrective measures to reduce the number of these LHDs as soon as possible because it started to affect the ICAO overall TLS. The attendees agreed to continue arranging for other meetings to discuss this issue with other neighbouring ACCs.

2.2.6 The MIDRMA pointed out during MIDRMA Board 17 & 18 the lack of response to the received LHD reports using the feature of direct response to the reporting unit to ensure that all responses are archived and referenced when needed. Unfortunately, the extreme majority of the Member States continue to ignore using this feature and don't bother to investigate and reply to the received LHD reports.

2.2.7 The table below reflects the LHD reports received from all MIDRMA member states from 01st January until 31st October 2022.

MID FIRs	No. of Reported LHDs	No. of Related LHDs
Bahrain	5	NIL
Baghdad	1	1
Amman	2	2
Tehran	2	8
Cairo	26	13
Damascus	NIL	1
Khartoum	9	17
Kuwait	NIL	4
Muscat	53	41
Jeddah/ Riyadh	11	102
Tripoli	NIL	NIL

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Emirates	5	1
Sana'a	424	3

2.3 Assessment of Non-RVSM Approved Aircraft 2022

2.3.1 The MIDRMA conducts systematic reviews of the operator compliance with State RVSM approvals within the ICAO Middle East Region as part of the tasks and responsibilities of a Regional Monitoring Agency (RMA), as specified in ICAO Doc 9937 and 9574. In order to protect the safety of the RVSM airspace, these checks are performed to detect aircraft that are not approved and using the RVSM airspace.

2.3.2 Although daily compliance monitoring of the entire ICAO Middle East airspace would be preferable, challenges in collecting traffic information make this impracticable. According to ICAO Doc 9937, the responsible RMA must monitor full airspace compliance for at least 30 days per year, while MIDRMA fulfills this responsibility on a monthly basis.

2.3.3 MIDRMA stipulates that there must be two sources of data to track operator adherence to state RVSM approval:

- a- List of operators, types and registration marks of aircraft operating in the RVSM airspace, and
- b- The latest worldwide RVSM approvals database.

2.3.4 The first requirement is met once a year in the form of the traffic data sample used for the MID RVSM risk analysis, as well as the monthly RVSM TDS received from Bahrain, IRAQ, and the UAE, though aircraft registrations are missing in much of the data from some Member States. As a result, this information cannot confirm the true state of non-compliant traffic in some FIR regions.

2.3.5 MIDRMA uses Bahrain, Baghdad, and Emirates FIRs RVSM traffic data as the primary source for checking non-RVSM approved aircraft in the MIDRMA area of responsibility because it is difficult to obtain traffic data from all Member States on a monthly basis. The MIDRMA would like to take this opportunity to thank Bahrain CAA, IRAQ CAA, and UAE General Civil Aviation Authority for sending their FIRs RVSM traffic on a monthly basis for inspecting the noncompliant aircraft in the region. The data received from these Member States is consistently complete and in the proper format.

Note: Recently, Jeddah started to send their RVSM traffic data which will definitely improve MIDRMA scrutiny of none-RVSM approved aircraft.

2.3.6 The second requirement in 2.3.3 is the combined approvals database containing the approval records provided by all RMAs (Worldwide Combined RVSM Approvals Database) is used to verify the RVSM approval status of the operations identified in the traffic movement data sample. The combined global RVSM database updated by all RMAs on a regular basis.

2.3.7 To ensure that traffic data only includes valid RVSM approvals, it is compared to the most recent global RVSM approval database. The processes that fit this description but didn't have valid RVSM approvals will be listed for further investigation and confirmation. Cross-checks with the MIDRMA's latest updated RVSM approvals, typos in traffic data, code sharing, and lease agreements

between airline operators who will maintain aircraft under a duplicate RVSM approval in two countries at the same time are all part of the verification process. The appropriate Civil Aviation Airworthiness Authority will be contacted to clarify the discrepancy and request a response with their findings and the corrective measures being taken to resolve the issue once the verification process is finished and our findings are validated.

2.3.8 The primary systemic cause of the non-conformity of the missing approvals, according to the findings of MIDRMA's investigation, is the delay in notifying the appropriate RMA before the aircraft begin to operate within the RVSM airspace. These results highlight how crucial it is for states to promptly inform the concerned RMA of the operator approval status.

2.3.9 When the findings of MIDRMA have been checked and verified, official letters or emails will be sent to the following:

- a- MIDRMA Airworthiness Inspectors responsible for the non-RVSM approved aircraft found operating in ICAO MID RVSM airspace or outside the region if reported by other RMAs, and will be required to respond with the results of their investigations.
- b- All RMAs responsible for violating aircraft must conduct investigations into noncompliant aircraft operations in the MID RVSM airspace and report their findings.

2.3.10 This type of scrutiny, which is carried out using the monthly RVSM traffic data received from Bahrain, Iraq, and the UAE, assisted MIDRMA in tracking down violating aircraft and alerting relevant air traffic control units of those aircraft.

2.3.11 The tables below reflects the MIDRMA Bulletin of the Non-RVSM Approved aircraft observed operating within the ICAO MID RVSM airspace and in the RVSM airspace of other RMAs, the expectation from the this analysis related to States exercising operational authority would act to address the approval issue well in advance and before allowing the approved aircraft to operate within the RVSM airspace to avoid undesirable actions against legitimate operators and also States that find such aircraft operating in their airspace will take appropriate action.

NON-RVSM approved aircraft – Responsibility of MIDRMA Member States

#	Observed Operating RVSM in	ACFT Reg.	ICAO Type	First Observed on	Responsible State
1	Jeddah	STALL	CRJ1	11-06-2022	SUDAN
2	Khartoum, Jeddah	STTAH	B737	06-01-2022	SUDAN
3	EURRMA	5ALEX	BE200	09-07-2022	LIBYA
4	Baghdad, Damascus	YKATA	IL76	01-01-2020	SYRIA

NON-RVSM approved aircraft – Responsibility of other RMAs

#	Observed in FIR	ACFT Reg.	ICAO Type	First Observed on	Responsible RMA
1	Sana'a	21140	IL76	19-06-2022	CHINARMA
2	Bahrain, Emirates	40001A	C17	25-01-2020	AAMA
3	Emirates	60208A	C17	30-03-2020	AAMA
4	Emirates	5NBOD	GLF4	28-01-2022	AFIRMA

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5	Cairo	5YFAN	CRJ2	15-07-2020	AFIRMA
6	Khartoum	5YWBH	C56X	14-07-2020	AFIRMA
7	Cairo	ETATF	B350	08-07-2020	AFIRMA
8	Sana'a	ZSCQP	CRJ9	07-07-2020	AFIRMA
9	Emirates	FAB2857	KC39	22-05-2022	CARSAM
10	Emirates	CNTMX	E35L	29-12-2021	EURRMA
11	Baghdad, Emirates	EW550TH	IL76	04-12-2021	EURRMA
12	Cairo	UR11316	AN12	22-07-2020	EURRMA
13	Cairo	URAZN	B753	01-02-2022	EURRMA
14	Cairo	URAZO	B753	01-02-2022	EURRMA
15	Cairo	URAZR	B77W	03-02-2022	EURRMA
16	Bahrain, Emirates, Baghdad	URFSA	IL76	09-05-2021	EURRMA
17	Bahrain, Baghdad	URFSC	IL76	28-09-2021	EURRMA
18	Bahrain, Emirates	URFSC	IL76	05-12-2021	EURRMA
19	Bahrain, Emirates	URFSD	IL76	29-09-2021	EURRMA
20	Emirates	URFSD	IL76	24-12-2021	EURRMA
21	Emirates	URSQO	B738	02-12-2021	EURRMA
22	Cairo	80002A	C17	23-07-2020	MAAR
23	Cairo, Muscat	CB8001	C17	29-07-2020	MAAR
24	Cairo, Muscat, Emirates	CB8004	C17	24-07-2020	MAAR
25	Bahrain	IN307	IL38	03-12-2020	MAAR
26	Muscat	K3604	E35L	17-07-2020	MAAR
27	Emirates	KJ3452	IL76	03-08-2020	MAAR
28	Emirates	KJ3454	IL76	16-03-2020	MAAR
29	Bahrain, Emirates	N312JE	CL60	25-08-2022	NAARMO
30	Bahrain, Emirates	N46HB	F9000	22-08-2022	NAARMO
31	Bahrain, Emirates	N88YH	CRJ2	17-08-2022	NAARMO
32	Cairo	N1112B	B350	16-07-2020	NAARMO
33	Emirates	N131GA	GLF5	14-03-2020	NAARMO
34	Emirates	N145DB	E35L	22-01-2022	NAARMO
35	Emirates	N181CK	GLEX	17-12-2020	NAARMO
36	Bahrain, Emirates, Baghdad	N298RB	GLF4	14-05-2021	NAARMO
37	Baghdad, Emirates	N298RB	GLF4	09-01-2022	NAARMO
38	Emirates	N302PJ	H25B	01-07-2021	NAARMO
39	Emirates	N405LL	H25B	29-05-2022	NAARMO
40	Emirates	N410F	FA8X	09-05-2022	NAARMO
41	Emirates	N411VP	EA50	01-05-2022	NAARMO
42	Bahrain, Emirates	N44UA	CL60	07-06-2020	NAARMO
43	Emirates	N5062	SF50	14-01-2020	NAARMO
44	Bahrain, Baghdad	N527EF	GLF4	11-04-2020	NAARMO
45	Bahrain	N558QA	C510	05-05-2022	NAARMO

46	Khartoum	N604DT	CL60	26-02-2022	NAARMO
47	Bahrain, Emirates	N605AS	PC12	11-04-2022	NAARMO
48	Bahrain, Emirates, Baghdad	N685MF	GLF4	08-12-2021	NAARMO
49	Emirates	N685SC	CL60	06-05-2022	NAARMO
50	Cairo	N71KM	C30J	26-02-2022	NAARMO
51	Cairo	N866G	ZZZZ	14-02-2022	NAARMO
52	Bahrain, Baghdad	N920SA	F2TH	18-02-2021	NAARMO
53	Emirates	N981DB	H25B	05-04-2022	NAARMO
54	Emirates	XAFEM	GA6C	03-02-2022	NAARMO

2.4 Minimum Monitoring Requirements 2022

2.4.1 All operators that operate or intend to operate in airspace where RVSM is applied are required to participate in the regional RVSM monitoring program. This monitoring program addresses requirements for monitoring the height-keeping performance of aircraft in order to meet regional safety objectives and addresses the requirements for monitoring established in ICAO Annexes 6 and 11 as well as Doc 9574 and 9937. In their application to the appropriate State authority for RVSM approval, operators must show a plan for meeting the applicable monitoring requirements. Initial monitoring should be completed as soon as possible but not later than 3 months after the issue of the temporary RVSM approval and thereafter as directed by the regional monitoring agency. A table detailing the minimum monitoring requirements is published by the MIDRMA in conjunction with ICAO and other Regional Monitoring agencies and it is available on the MIDRMA website.

2.4.2 Since the height monitoring mandated, the MIDRMA and MIDANPIRG agree that this requirement should be implemented in accordance with the RVSM Minimum Monitoring Requirements (MMRs), the MIDRMA continued to coordinate with all MIDRMA Member States to publish their minimum monitoring requirements through the MIDRMA's automated MMR system, which is published on the MIDRMA website to ensure the availability of these requirements at all times for the concerned MID Civil Aviation Authorities and airline operators.

2.4.3 The majority of current aircraft types are eligible for RVSM airworthiness approval under group approval provisions. These provisions permit the defining of aircraft-type groups consisting of aircraft types which are designed and assembled by one manufacturer and are of nominally identical design and build with respect to all details that could influence the accuracy of height-keeping performance. It is not normally necessary to monitor all airframes within a monitoring group providing an adequate sample is available and the performance of the group is within the satisfied parameters. The minimum monitoring requirements (MMR) document lists the aircraft types which are eligible for RVSM approval under the group provisions and the groups to which they belong. It also indicates the level of monitoring that should be expected for each operator.

2.4.4 The total number of RVSM approved aircraft registered by the MIDRMA member states is **1905** aircraft, the MIDRMA continuously monitor the validity dates of height monitoring requirements for all these aircraft and keep all member states fully aware of the validity status through the Minimum Monitoring Requirement software available in the MIDRMA website.

Note: The online MMR software is linked with the MID RVSM approvals database and constantly updated with the member states approvals list.

2.4.5 The MIDRMA programmed the MMR software to send automatic reminders on a monthly basis for all member states to send their updated RVSM approval list, also the software sends a monthly summary MMR tables with the validity status for all the RVSM approved aircraft in the Middle East region. These reminders helped all MIDRMA focal points for airworthiness issues to react before the height monitoring expiry dates and instruct airline operators to conduct height monitoring when necessary.

2.4.6 The meeting may wish note that MIDANPIRG Conclusion 17/3 concerning the procedures for the follow-up with States and the issuance of warning related to RVSM approved aircraft without valid height-keeping performance monitoring results. Accordingly, the MIDANPIRG agreed to the following conclusion:

MIDANPIRG CONCLUSION 17/3: PROCEDURE FOR THE FOLLOW-UP WITH STATES AND THE ISSUANCE OF WARNING RELATED TO RVSM APPROVED AIRCRAFT WITHOUT VALID HEIGHT-KEEPING PERFORMANCE MONITORING RESULTS

- a) The MIDRMA will notify the States concerned every 3 months about their aircraft noncompliance with ICAO RVSM Height Monitoring requirements;*
- b) States should take remedial actions to rectify the situation and ensure that their relevant aircraft are complying with ICAO RVSM Height Monitoring requirements in a timely manner, and notify the MIDRMA about their corrective action plans;*
- c) States should develop corrective action plans in coordination with the airlines concerned and MIDRMA, which includes a time frame to allow the concerned airline operator rectify this violation as early as possible, this period should not exceed 90 days to perform the height monitoring;*
- d) If no height monitoring would be conducted during the 90 days, the concerned States must withdraw the RVSM approval of the aircraft concerned and inform the MIDRMA;*
- e) The MIDRMA should issue a warning to all MID States and RMAs related to noncompliance aircraft registered in the MID Region;*
- f) The MIDRMA in coordination with the ICAO MID Office will continue working closely with the States concerned to resolve the issue; and*
- g) Once the issue would be resolved, a notification should be issued by MIDRMA to all MID States and RMAs.*

2.4.6.1 MIDRMA can't see the implementation of this procedures by some member states especially those with high percentage of their RVSM approved aircraft that are not compliant for long time of height monitoring according to ICAO Annex 6 part 1 requirements. It is therefore necessary to address this issue to the Member States shown in the MMR table below, which must explain to the meeting why their authorities didn't take any action to comply with this conclusion.

2.4.7 The updated Minimum Monitoring Requirements table reflected below.

Note: The status of the Syrian RVSM approved aircraft will be explained in Part 2 of this WP.

**MID STATES RVSM AIRCRAFT MINIMUM MONITORING REQUIREMENTS
TABLE**

Valid as of 31st October 2022

MID States	RVSM APPROVED A/C	HAVE RESULTS OR COVERED	NOT COVERED	NOT COVERED IN %	A/C MMR
Bahrain	62	62	0	0%	0
Egypt	151	125	26	18%	19
Iran	213	199	14	7%	12
Iraq	47	47	0	0%	0
Jordan	45	42	3	7%	3
KSA	281	229	52	19%	6
Kuwait	68	68	0	0%	0
Lebanon	32	28	4	13%	3
Libya	40	30	10	25%	8
Oman	74	73	1	1%	1
Qatar	276	276	0	0%	0
Sudan	15	11	4	27%	3
Syria	15	0	15	100%	9
UAE	580	548	33	6%	14
Yemen	6	4	2	33%	2
TOTAL	1905	1742	164	9%	80

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Table 1: LHD Reports Filed by Muscat Related to Mumbai

#	ID	Date of Occ	Reported By	Related to	Location	Nature of the occurrence:	Category
1	10527	06/02/2022	Muscat	Mumbai	PARAR	Revised FL Not Coordinated	E
2	10528	18/02/2022	Muscat	Mumbai	KITAL	ACFT Entered FIR Without Coordination	E
3	10529	27/02/2022	Muscat	Mumbai	RASLI	ACFT Entered FIR Without Coordination	E
4	10589	01/03/2022	Muscat	Mumbai	LOTAV	Revised FL Not Coordinated	E
5	10590	07/03/2022	Muscat	Mumbai	TOTOX	Revised FL Not Coordinated	E
6	10591	07/03/2022	Muscat	Mumbai	TOTOX	Revised Estimate Not Coordinated	E
7	10592	27/03/2022	Muscat	Mumbai	RASKI	Revised FL Not Coordinated	E
8	10837	01/07/2022	Muscat	Mumbai	TOTOX	ACFT Entered FIR Without Coordination	E
9	10838	03/07/2022	Muscat	Mumbai	KITAL	ACFT Entered FIR Without Coordination	E
10	10839	07/07/2022	Muscat	Mumbai	PARAR	Revised FL Not Coordinated	E
11	10840	17/07/2022	Muscat	Mumbai	REXOD	ACFT Entered FIR Without Coordination	E
12	10841	20/07/2022	Muscat	Mumbai	RASKI	Revised FL Not Coordinated	E
13	10842	20/07/2022	Muscat	Mumbai	LOTAV	ACFT Entered FIR Without Coordination	E
14	10843	27/07/2022	Muscat	Mumbai	PARAR	Revised Estimate Not Coordinated	E
15	10844	28/07/2022	Muscat	Mumbai	RASKI	Revised FL Not Coordinated	E
16	10845	30/07/2022	Muscat	Mumbai	RASKI	Revised FL Not Coordinated	E
17	10907	08/08/2022	Muscat	Mumbai	LOTAV	Revised Estimate Not Coordinated	E
18	10908	12/08/2022	Muscat	Mumbai	LOTAV	ACFT Entered FIR Without Coordination	E
19	10909	15/08/2022	Muscat	Mumbai	RASKI	Revised FL Not Coordinated	E
20	10910	16/08/2022	Muscat	Mumbai	REXOD	Revised FL Not Coordinated	E
21	10911	16/08/2022	Muscat	Mumbai	RASKI	ACFT Entered FIR Without Coordination	E
22	10912	18/08/2022	Muscat	Mumbai	TOTOX	Revised FL Not Coordinated	E
23	10913	20/08/2022	Muscat	Mumbai	RASKI	Revised FL Not Coordinated	E
24	10914	25/08/2022	Muscat	Mumbai	KITAL	ACFT Entered FIR Without Coordination	E

Table 2 : LHD Reports Filed by Mumbai Related to Muscat

#	ID	Date of Occurrence	Reported By	Related to	Location	Nature of the occurrence:	
1	LHD001574	21/07/2022	Mumbai	Muscat	KITAL	No or late FL revision	E
2	LHD001572	30/08/2022	Mumbai	Muscat	TOTOX	No or late FL revision	E
3	LHD001571	30/08/2022	Mumbai	Muscat	REXOD	No or late FL revision	E
4	LHD001570	28/08/2022	Mumbai	Muscat	REXOD	No or late FL revision	E
5	LHD001567	17/08/2022	Mumbai	Muscat	PARAR	No or late FL revision	E
6	LHD001566	14/08/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
7	LHD001526	30/07/2022	Mumbai	Muscat	RASKI	No or late FL revision	E

8	LHD001525	28/07/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
9	LHD001524	27/07/2022	Mumbai	Muscat	PARAR	No or late estimate time revision	E
10	LHD001523	20/07/2022	Mumbai	Muscat	LOTAV	No transfer information	E
11	LHD001522	20/07/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
12	LHD001521	17/07/2022	Mumbai	Muscat	REXOD	No transfer information	E
13	LHD001520	07/07/2022	Mumbai	Muscat	PARAR	No transfer information	E
14	LHD001519	03/07/2022	Mumbai	Muscat	KITAL	No transfer information	E
15	LHD001518	01/07/2022	Mumbai	Muscat	TOTOX	No transfer information	E
16	LHD001472	15/06/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
17	LHD001451	30/05/2022	Mumbai	Muscat	REXOD	No transfer information	E
18	LHD001450	27/05/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
19	LHD001447	08/05/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
20	LHD001446	03/05/2022	Mumbai	Muscat	RASKI	No transfer information	E
21	LHD001401	29/04/2022	Mumbai	Muscat	LOTAV	No or late FL revision	E
22	LHD001373	01/03/2022	Mumbai	Muscat	LOTAV	No or late FL revision	E
23	LHD001372	07/03/2022	Mumbai	Muscat	TOTOX	No or late FL revision	E
24	LHD001369	07/03/2022	Mumbai	Muscat	TOTOX	No or late estimate time revision	E
25	LHD001368	27/03/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
26	LHD001367	06/02/2022	Mumbai	Muscat	PARAR	No or late FL revision	E
27	LHD001365	18/02/2022	Mumbai	Muscat	KITAL	No transfer information	E
28	LHD001363	27/02/2022	Mumbai	Muscat	RASKI	No transfer information	E
29	LHD001361	19/03/2022	Mumbai	Muscat	LOTAV	No transfer information	E
30	LHD001360	13/03/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
31	LHD001359	12/03/2022	Mumbai	Muscat	PARAR	No or late FL revision	E
32	LHD001358	09/03/2022	Mumbai	Muscat	PARAR	No transfer information	E
33	LHD001357	05/03/2022	Mumbai	Muscat	KITAL	No transfer information	E
34	LHD001356	05/03/2022	Mumbai	Muscat	KITAL	No transfer information	E
35	LHD001355	03/03/2022	Mumbai	Muscat	LOTAV	No or late FL revision	E
36	LHD001301	23/02/2022	Mumbai	Muscat	PARAR	No or late FL revision	E
37	LHD001300	27/02/2022	Mumbai	Muscat	KITAL	No or late FL revision	E
38	LHD001278	31/01/2022	Mumbai	Muscat	TOTOX	No or late FL revision	E
39	LHD001277	09/01/2022	Mumbai	Muscat	RASKI	No or late FL revision	E
40	LHD001276	09/01/2022	Mumbai	Muscat	REXOD	No or late estimate time revision	E
41	LHD001275	09/01/2022	Mumbai	Muscat	TOTOX	No or late estimate time revision	E

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Appendix B

2.5 RVSM Height Monitoring Activities Update

2.5.1.1 Syria RVSM Approved Aircraft : With the increased number and activities of the RVSM approved aircraft registered by the Syrian Civil Aviation Authority in the ICAO Middle East Region, the MIDRMA submitted an official request since last year for an OFAC License to the FAA and the US Department of Treasury to conduct RVSM height monitoring by using the Enhanced GMU equipment, this license is under process and follow-up by MIDRMA and the FAA but without knowing if the OFAC license will be granted or not.

2.5.1.2 As we all know, height monitoring is a very critical safety issue and its very much related to the analysis conducted in the annual SMR because lack of height monitoring means lack of 1000 ft vertical separation assurance. The Syrian Civil Aviation Authority (SCAA) shows positive and responsible actions towards this matter and ready to conduct the required monitoring for all their registered approved aircraft as soon as possible, but without an OFAC license that restricts MIDRMA to perform height monitoring in accordance with the agreed purchase agreement for the EGMUs, MIDRMA is unable to accomplish this task.

2.5.1.3 The MIDRMA coordinated with the SCAA Flight Safety Department to legalize the lack of height monitoring issue and to follow the procedure for granting temporary RVSM approvals for all the registered aircraft and to put an official request to MIDRMA for conducting height monitoring as per ICAO Annex 6 Part 1 requirements during the 60 days waiver period which was expired by end September 2022 and renewed again by the same authority to be valid until end of December 2022. The MIDRMA coordinated with ICAO MID office to escalate this issue with the FAA but it seems their response is not very promising and no update received until now concerning our application for the OFAC license although it was already addressed to the FAA representative who attended the last MIDRMA Board/18.

2.5.2 Libya RVSM Approved Aircraft: The MIDRMA managed to conduct height monitoring for 14 aircraft registered by the Libyan CAA and was able to reduce the noncompliant percentage from 82% to 25%, there are 9 other aircraft that must be checked as soon as possible and work hard to prevent these aircraft from entering the airspace in case they fail to comply with RVSM height monitoring requirements as per ICAO Annex 6 Part 1.

2.5.3 Iran RVSM Approved Aircraft: MIDRMA coordinated with Iran CAO Flight Safety Department and agreed to conduct height monitoring of the remaining 12 RVSM approved aircraft by end of November 2022 which will reflect Iran CAO to be fully compliant for RVSM height monitoring when these aircraft are inspected.

2.5.4 Egypt RVSM Approved Aircraft: Despite the monthly reminders sent to MIDRMA focal point for airworthiness issues, the MIDRMA didn't receive any response from the responsible airworthiness inspectors to meet ICAO Annex 6 Part 1 requirements for conducting RVSM height monitoring for 19 aircraft which are expired for long time.

2.5.5 Sudan RVSM Approved Aircraft: The responsible Airworthiness Inspector coordinated with MIDRMA to conduct RVSM height monitoring by MID of November 2022 for all the remaining aircraft required to be monitored which will reflect Sudan CAA to be fully compliant for RVSM height monitoring.

Appendix C

2.6 MIDRMA Proposal to Include the Following States in the MID Air Navigation Deficiency Database (MANDD):

- 1- Kuwait: Due to corrupted RVSM TDS submitted for SMR 2022.
- 2- Egypt: No action has been taken for a long time to correct the problem of prolonged lack of RVSM height monitoring.
- 3- Lebanon: No RVSM TDS submitted for SMR 2022.

To complete this table please consider the following points:

1)	data is required for each Aerodrome in column "B"
2)	for States having more than one aerodrome, data is required for each aerodrome separately
3)	in column "C" the total number of Departures for the month of June 2021 is required for the calculation of KPI 01
4)	in column "D" we need the result of your calculation in percentage (based on the KPI 01 sheet)
5)	in column "E" you don't need to take any action
6)	in column "F" the total number of Arrivals for the month of July 2021 is required for the calculation of KPI 14
7)	in column "G" we need the result of your calculation in percentage (based on the KPI 14 sheet)
8)	in column "H" you don't need to take any action
9)	in column "I" the total number of Departures for the month of June 2021 is required for the calculation of KPI 02
10)	in column "J" the reference taxi-out time is needed for each Aerodrome for the calculation of the Taxi-out additional time
11)	in column "K" we need the result of your calculation in minutes per flight (based on the KPI 02 sheet)
12)	in column "L" you don't need to take any action
13)	in column "M" the total number of Arrivals for the month of July 2021 is required for the calculation of KPI 13
14)	in column "N" the reference taxi-in time is needed for each Aerodrome for the calculation of the Taxi-in additional time
15)	in column "O" we need the result of your calculation in minutes per flight (based on the KPI 13 sheet)
16)	in column "P" you don't need to take any action

KPI (KPIAs)	Title / Definition	Measurement Units	Variants	Data Requirement	Formula / Algorithm	Data collection Timeframe
KPI 01	Departure punctuality Percentage of flights departing from the gate on-time (compared to schedule).	% of flights	Variant 2A – % of departures within ± 15 minutes of scheduled time of departure	For each departing scheduled flight: - List of all IFR scheduled departure for each international aerodrome - Scheduled time of departure (STD) or Scheduled off-block time (SOBT) - Actual off-block time (AOBT)	At the level of individual flights: 1. Exclude non-scheduled departures 2. Categorize each scheduled departure as on-time or not At aggregated/National level: 3. Compute the KPI: number of on-time departures divided by total number of IFR scheduled departures	1 month (June 2021)
KPI 02	Taxi-out additional time Actual taxi-out time compared to an unimpeded/reference taxi-out time.	Excess taxi-out time in Minutes/flight	Variant 1 – basic (computed without departure gate and runway data)	For each departing flight: -List of all IFR departures for each international aerodrome - Actual off-block time (AOBT) - Actual take-off time (ATOT)	At the level of individual flights: 1. Select departing flights, exclude helicopters 2. Compute actual taxi-out duration: ATOT minus AOBT 3. Compute additional taxi-out time: actual taxi-out duration minus unimpeded/reference taxi-out time At aggregated/National level: 4. Compute the KPI: sum of additional taxi-out times divided by number of IFR departures	1 month (June 2021)
KPI 13	Taxi-in additional time Actual taxi-in time compared to an unimpeded/reference taxi-in time	Excess taxi-in time in Minutes/flight	Variant 1 – basic (computed without landing runway and arrival gate data)	For each arriving flight: - List of all IFR scheduled Arrivals for each international aerodrome - Actual landing time (ALDT) - Actual in-block time (AIBT)	At the level of individual flights: 1. Select arriving flights, exclude helicopters 2. Compute actual taxi-in duration: AIBT minus ALDT 3. Compute additional taxi-in time: actual taxi-in duration minus unimpeded/reference taxi-in time At aggregated/National level: 4. Compute the KPI: sum of additional taxi-in times divided by number of IFR arrivals	1 month (July 2021)
KPI 14	Arrival punctuality Percentage of flights arriving at the gate on-time (compared to schedule)	% of flights	Variant 2A – % of arrivals within ± 15 minutes of scheduled time of arrival	For each arriving scheduled flight: - List of all IFR scheduled arrival for each international aerodrome - Scheduled time of arrival (STA) or Scheduled in-block time (SIBT) - Actual in-block time (AIBT)	At the level of individual flights: 1. Exclude non-scheduled arrivals 2. Categorize each scheduled arrival as on-time or not At aggregated/National level: 3. Compute the KPI: number of on-time arrivals divided by total number of scheduled arrivals	1 month (July 2021)

MID Region AIDC/OLDI Applicability Area (Priority 1 and 2 for Implementation)

As of December 2019

ACC	Adjacent ACCs						
Amman	Cairo (1)	Baghdad (2)	Damascus (2)	Jeddah (1)	Tel Aviv (1)		
Baghdad	Amman (2)	Ankara (1)	Damascus (2)	Jeddah (2)	Tehran (2)	Kuwait (1)	
Bahrain	Doha (1)	Emirates (1)	Jeddah (1)	Kuwait (1)	Riyadh (1)	Tehran (2) AFTN MSG	Dammam(2)
Beirut	Damascus (2)		Nicosia (1)				
Cairo	Amman (1)	Athena (2)	Jeddah (1)	Khartoum (1)	Nicosia (1)	Tel Aviv (2)	Tripoli (2)
Damascus	Amman (2)	Ankara (2)	Bagdad (2)	Beirut (2)	Nicosia (2)		
Doha*	Bahrain (1)	Emirates (1)	Jeddah (2)	Riyadh (2)			
Emirates	Bahrain (1)	Doha (1)	Jeddah (1)	Muscat (1)	Tehran (2) AFTN MSG		
Jeddah	Amman (1)	Asmara (2)	Baghdad (2)	Bahrain (1)	Cairo (1)	Doha (2)	Emirates (1)
	Khartoum (1)	Kuwait (2)	Muscat (1)	Riyadh (1)		Sana'a (2)	
Riyadh	Bahrain (1)	Doha (2)	Kuwait (2)	Jeddah (1)			
Khartoum	Addis (1)	Asmara (2)	Brazzaville (2)	Cairo (1)	Entebbe (2)	Jeddah (1)	Juba (1)
	Kinshasa (2)	N'Djamena (2)	Nairobi (2)	Tripoli (2)			
Kuwait	Baghdad (1)	Bahrain (1)	Jeddah (2)	Tehran (2)			
Muscat	Emirates (1)	Jeddah (1)	Karachi (2)	Mumbai (1)	Sana'a (2)	Tehran (1) AFTN MSG	
Sana'a	Djibouti (Addis Ababa) (2)	Asmara (2)	Jeddah (2)	Mogadishu (2)	Mumbai (2)	Muscat (2)	
Tehran	Ankara (1)	Ashgabat (2)	Baghdad (2)	Bahrain (1) AFTN MSG	Baku (2)	Emirates (2) AFTN MSG	Kabul (2)
	Karachi (1)	Kuwait (2)	Muscat (1)	Yerevan (2)			
Tripoli	Algiers (2)	Cairo (2)	Khartoum (2)	Malta (2)	N'Djamena (2)	Niamey (2)	Tunis (2)

(1) = Priority 1 for implementation based on the number of traffic movements and/or operational needs (Green color means already implemented)

(2) = Priority 2 for implementation based on the number of traffic movements or if other solution is in place such as exchange of information via AFTN

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ATM SG/8-REPORT
APPENDIX 4L

4L-2

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MID REGION SAR AGREEMENT STATUS BETWEEN ANSPS/ACCS
October 2021

STATE	CORRESPONDING STATES			REMARKS*
BAHRAIN	<input checked="" type="checkbox"/> IRAN <input checked="" type="checkbox"/> SAUDI ARABIA	<input checked="" type="checkbox"/> KUWAIT <input checked="" type="checkbox"/> UAE	<input type="checkbox"/> QATAR	4/5
EGYPT	<input checked="" type="checkbox"/> CYPRUS <input type="checkbox"/> JORDAN <input type="checkbox"/> SUDAN	<input type="checkbox"/> GREECE <input checked="" type="checkbox"/> LYBIA	<input type="checkbox"/> Israel <input type="checkbox"/> SAUDI ARABIA	2/7
IRAN	<input checked="" type="checkbox"/> ARMENIA <input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> OMAN <input type="checkbox"/> TURKMENISTAN	<input checked="" type="checkbox"/> AZERBAIJAN <input type="checkbox"/> IRAQ <input type="checkbox"/> PAKISTAN <input checked="" type="checkbox"/> UAE	<input type="checkbox"/> AFGHANISTAN <input checked="" type="checkbox"/> KUWAIT <input type="checkbox"/> TURKEY	6/11
IRAQ	<input type="checkbox"/> IRAN <input checked="" type="checkbox"/> JORDAN	<input type="checkbox"/> KUWAIT <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA <input type="checkbox"/> TURKEY	1/6
JORDAN	<input type="checkbox"/> EGYPT <input checked="" type="checkbox"/> IRAQ	<input type="checkbox"/> ISRAEL <input checked="" type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SYRIA	2/5
KUWAIT	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAN	<input type="checkbox"/> IRAQ	<input checked="" type="checkbox"/> SAUDI ARABIA	3/4
LEBANON	<input checked="" type="checkbox"/> CYPRUS	<input type="checkbox"/> SYRIA		1/2
LIBYA	<input type="checkbox"/> ALGERIA <input type="checkbox"/> CHAD <input type="checkbox"/> EGYPT	<input type="checkbox"/> MALTA <input type="checkbox"/> NIGER	<input type="checkbox"/> SUDAN <input type="checkbox"/> TUNIS	0/7
OMAN	<input type="checkbox"/> INDIA <input checked="" type="checkbox"/> IRAN	<input checked="" type="checkbox"/> SAUDI ARABIA <input type="checkbox"/> PAKISTAN	<input type="checkbox"/> UAE <input type="checkbox"/> YEMEN	2/6
QATAR	<input type="checkbox"/> BAHRAIN	<input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> UAE	0/3
SAUDI ARABIA	<input checked="" type="checkbox"/> BAHRAIN <input type="checkbox"/> IRAQ <input checked="" type="checkbox"/> OMAN <input type="checkbox"/> UAE	<input type="checkbox"/> EGYPT <input checked="" type="checkbox"/> JORDAN <input type="checkbox"/> Qatar <input type="checkbox"/> YEMEN	<input type="checkbox"/> ERITREA <input checked="" type="checkbox"/> KUWAIT <input type="checkbox"/> SUDAN	4/11
SUDAN	<input type="checkbox"/> CENTRAL AFRICAN <input type="checkbox"/> CHAD <input type="checkbox"/> EGYPT	<input checked="" type="checkbox"/> ERITREA <input checked="" type="checkbox"/> ETHIOPIA <input type="checkbox"/> LIBYA	<input type="checkbox"/> SAUDI ARABIA <input type="checkbox"/> SOUTH SUDAN	2/8
SYRIA	<input type="checkbox"/> IRAQ <input type="checkbox"/> JORDAN	<input type="checkbox"/> LEBANON <input checked="" type="checkbox"/> CYPRUS	<input checked="" type="checkbox"/> TURKEY	2/5
UAE	<input checked="" type="checkbox"/> BAHRAIN <input checked="" type="checkbox"/> IRAN	<input type="checkbox"/> OMAN <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> QATAR	2/5
YEMEN	<input type="checkbox"/> DJIBOUTI <input type="checkbox"/> ERITREA <input type="checkbox"/> ETHIOPIA	<input type="checkbox"/> INDIA <input type="checkbox"/> OMAN <input type="checkbox"/> SAUDI ARABIA	<input type="checkbox"/> SOMALIA	0/7

Agreement Signed Agreement NOT Signed *Signed Agreements / Total No. of required Agreements

LIST OF GADSS FOCAL POINTS

OCT 2022

State	Name	Title	Email	Tel. & Mobile
Bahrain	Mr. Ahmed Al Shamlan	Head of Search & Rescue Air Navigation Directorate	ahmed.alshamlan@mtt.gov.bh bahrainsar@mtt.gov.bh	Tel.: +973 17329969/9959
Egypt	Mr. Hesham AbdelBasset AbdelAziz	GM, Crisis Management	crimang@civilaviation.gov.eg	Tel. +202 22677 617 Mob. +201141130 557
	Mr. Mohamed Abbass Elgamal	Search and Rescue Senior Inspector	Visaversa82@yahoo.com	Mob. +201061826970
Iran	Mr. Hamid Reza Saanei	Aeronautical Operations Chief Expert and Aerodrome Expert	h-saanei@cao.ir saanei@gmail.com	Tel: +982 166073534 Mob: +989125935990
Iraq	Mr. Thaer Hasan Salim	CNS Inspector/ flight safety Iraq Civil Aviation Authority	ans.sur@icaa.gov.iq thaerhasan1976@gmail.com	Tel.: +964 7702974405
Jordan	Eng. Mohammed Ali ALmomani	Chief Of Safety & Standard ANS	ma.almomani@carc.gov.jo	Tel: +962 6 4892282 Mob: +962 777307032
	Mr. Ali Taleb	Chief of Amman TACC & RCC	ali.taleb@carc.gov.jo	Tel: +96264799120 ext. 5689 Mob: +962799766728
Kuwait				
Lebanon				
Libya				
Oman	Mr. Jaffer Abdul Amir Moosani	AIM Director	jaffer@caa.gov.om	Tel: +968-24354945 Mob: +968-99316040
Qatar	Ahmad Eshaq	ANS Directorate	Ahmed@QCAA.gov.qa	Tel.: +974 55550440

ATM SG/8-REPORT
APPENDIX 40

40-2

State	Name	Title	Email	Tel. & Mobile
Saudi Arabia	Mr. Fahad Saud Alharbi	Head of Aeronautical Search and Rescue Center	fasalharbi@sans.com.sa	Tel: +966 11 525 3779 Mob: +966 505329284
	Mr. Hamdan Alshaibani	Safety Inspector	hmalshaibani@gaca.gov.sa	
Sudan	Mr. Hashim Basheer	Head of SAR	Berger124@gmail.com hashim_sar@scaa.gov.sd HSSSYCYX	+249 123179582 +249 912382433
Syria				
UAE	Mr. Omar Al Abdouli	Senior Manager / Air Traffic Operations	oabdouli@szc.gcaa.ae	Tel.: +971-2-599-6910
Yemen				

ASBU Element		Applicability	Targets	Timelines	Status
GADS B1/2	Contact directory service	All States	100%	Dec 2021	Bahrain
					Egypt
					Iran
					Iraq
					Jordan
					Kuwait
					Lebanon
					Libya
					Oman
					Qatar
					Saudi Arabia
					Sudan
					Syria
					UAE
Yemen					

**MONITORING THE IMPLEMENTATION OF THE PRIORITY 1 ASBU RELATED
ATM/SAR THREADS/ELEMENTS**

100%	More than 50% but less than 100%	Less than 50%	Not applicable	No information																	
Element	Applicability	Targets	Timelines	Status																	
APTA B0/1	PBN Approaches (with basic capabilities)	All RWYs ENDS at International Aerodromes	100%	Dec 2017	<table border="1"> <tr><td>Bahrain</td></tr> <tr><td>Egypt</td></tr> <tr><td>Iran</td></tr> <tr><td>Iraq</td></tr> <tr><td>Jordan</td></tr> <tr><td>Kuwait</td></tr> <tr><td>Lebanon</td></tr> <tr><td>Libya</td></tr> <tr><td>Oman</td></tr> <tr><td>Qatar</td></tr> <tr><td>Saudi Arabia</td></tr> <tr><td>Sudan</td></tr> <tr><td>Syria</td></tr> <tr><td>UAE</td></tr> <tr><td>Yemen</td></tr> <tr><td>Below target</td></tr> </table>	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen	Below target
Bahrain																					
Egypt																					
Iran																					
Iraq																					
Jordan																					
Kuwait																					
Lebanon																					
Libya																					
Oman																					
Qatar																					
Saudi Arabia																					
Sudan																					
Syria																					
UAE																					
Yemen																					
Below target																					
APTA B0/2	PBN SID and STAR procedures (with basic capabilities)	All RWYs ENDS at International Aerodromes	70%	Dec 2022	<table border="1"> <tr><td>Bahrain</td></tr> <tr><td>Egypt</td></tr> <tr><td>Iran</td></tr> <tr><td>Iraq</td></tr> <tr><td>Jordan</td></tr> <tr><td>Kuwait</td></tr> <tr><td>Lebanon</td></tr> <tr><td>Libya</td></tr> <tr><td>Oman</td></tr> <tr><td>Qatar</td></tr> <tr><td>Saudi Arabia</td></tr> <tr><td>Sudan</td></tr> <tr><td>Syria</td></tr> <tr><td>UAE</td></tr> <tr><td>Yemen</td></tr> </table>	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen	
Bahrain																					
Egypt																					
Iran																					
Iraq																					
Jordan																					
Kuwait																					
Lebanon																					
Libya																					
Oman																					
Qatar																					
Saudi Arabia																					
Sudan																					
Syria																					
UAE																					
Yemen																					
APTA B0/4	CDO (Basic)	OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ	100%	Dec 2021	<table border="1"> <tr><td>Bahrain</td></tr> <tr><td>Egypt</td></tr> <tr><td>Iran</td></tr> <tr><td>Iraq</td></tr> <tr><td>Jordan</td></tr> <tr><td>Kuwait</td></tr> <tr><td>Lebanon</td></tr> <tr><td>Libya</td></tr> <tr><td>Oman</td></tr> <tr><td>Qatar</td></tr> <tr><td>Saudi Arabia</td></tr> <tr><td>Sudan</td></tr> <tr><td>Syria</td></tr> <tr><td>UAE</td></tr> <tr><td>Yemen</td></tr> <tr><td>Below target</td></tr> </table>	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen	Below target
Bahrain																					
Egypt																					
Iran																					
Iraq																					
Jordan																					
Kuwait																					
Lebanon																					
Libya																					
Oman																					
Qatar																					
Saudi Arabia																					
Sudan																					
Syria																					
UAE																					
Yemen																					
Below target																					
APTA B0/5	CCO (Basic)	OBBI, OIIE, OIKB, OIFM,	100%	Dec 2021	<table border="1"> <tr><td>Bahrain</td></tr> <tr><td>Egypt</td></tr> <tr><td>Iran</td></tr> </table>	Bahrain	Egypt	Iran													
Bahrain																					
Egypt																					
Iran																					

		OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ			Iraq Jordan Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan Syria UAE Yemen Below target
APTA B0/7	Performance based aerodrome operating minima – Advanced aircraft	All States	50%	Dec 2021	Bahrain Egypt Iran Iraq Jordan Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan Syria UAE Yemen Above target
FRTO B0/2	Airspace planning and Flexible Use of Airspace (FUA)	Bahrain, Egypt, Jordan, Qatar, Saudi Arabia (2 ACCs), Sudan, UAE	50%	Dec 2022	Bahrain Egypt Iran Iraq Jordan Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan Syria UAE Yemen
FRTO B0/4	Basic conflict and conformance monitoring	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia (2 ACCs), Sudan, UAE	70%	Dec 2021	Bahrain Egypt Iran Iraq Jordan Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan

					Syria
					UAE
					Yemen
NOPS B0/1	Initial integration of collaborative airspace management with air traffic flow management	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	50%	Dec 2022	Bahrain
					Egypt
					Iran
					Iraq
					Jordan
					Kuwait
					Lebanon
					Libya
					Oman
					Qatar
					Saudi Arabia
					Sudan
					Syria
					UAE
Yemen					
SNET B0/1	Short Term Conflict Alert (STCA)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	80%	Dec 2018	Bahrain
					Egypt
					Iran
					Iraq
					Jordan
					Kuwait
					Lebanon
					Libya
					Oman
					Qatar
					Saudi Arabia
					Sudan
					Syria
					UAE
Yemen					
SNET B0/2	Minimum Safe Altitude Warning (MSAW)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syria, UAE	80%	Dec 2018	Bahrain
					Egypt
					Iran
					Iraq
					Jordan
					Kuwait
					Lebanon
					Libya
					Oman
					Qatar
					Saudi Arabia
					Sudan
					Syria
					UAE
Yemen					
SNET B0/3	Area Proximity Warning (APW)	Bahrain, Egypt, Iran, Iraq, Kuwait, Jordan, Lebanon, Oman,	70%	Dec 2021	Bahrain
					Egypt
					Iran
					Iraq
					Jordan

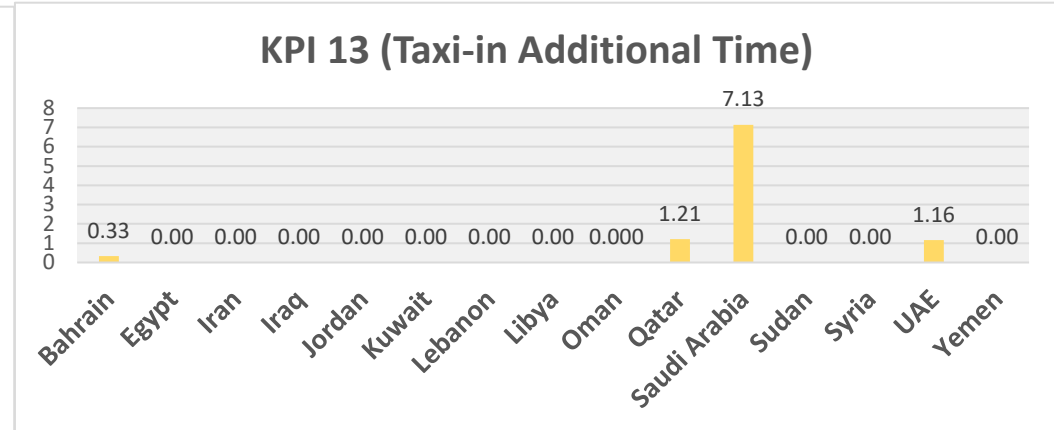
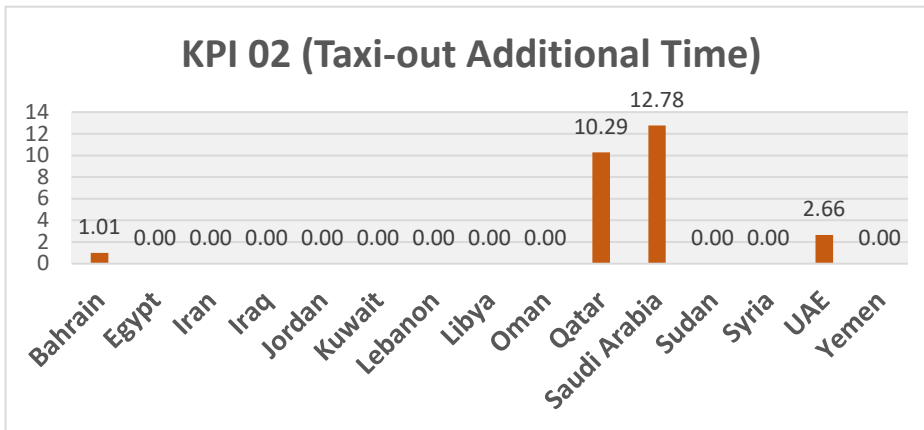
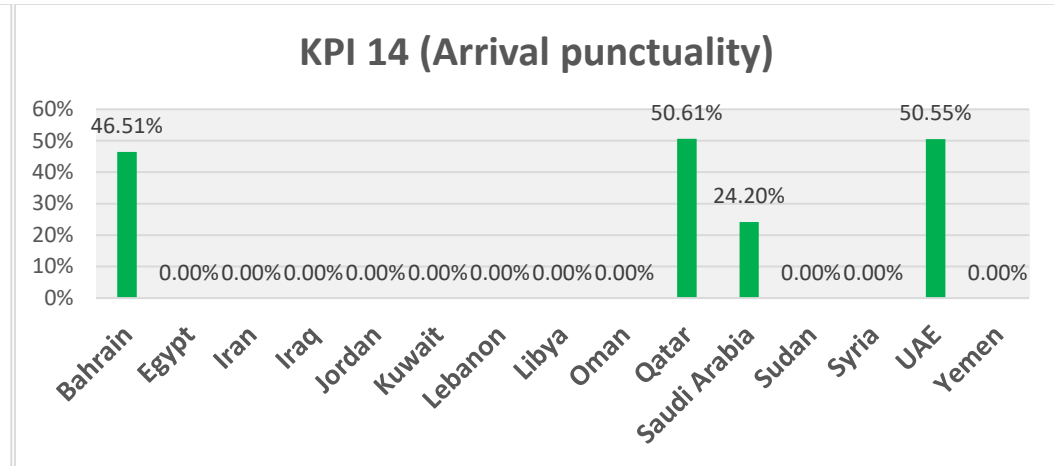
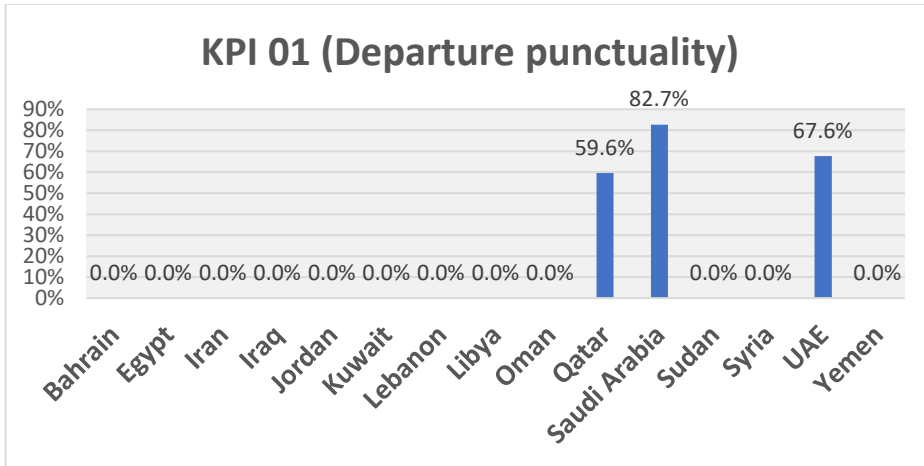
		Qatar, Saudi Arabia, Sudan, UAE			Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan Syria UAE Yemen
GADS B1/2	Contact directory service	All States	100%	Dec 2021	Bahrain Egypt Iran Iraq Jordan Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan Syria UAE Yemen Below target
RSEQ B0/1	Arrival Management	OBBI, HECA, HEBA, HELX, HESN, HESH, OTBD, OTHH, OEJN, OEDF, OEMA, OERK OMDB, OMAA	80%	Dec 2022	Bahrain Egypt Iran Iraq Jordan Kuwait Lebanon Libya Oman Qatar Saudi Arabia Sudan Syria UAE Yemen Average 84%

States' inputs related to the measurements of the MID Region List of KPIs

KPI	Title / Definition	Measurement Units	Variants	Data Requirement	Formula / Algorithm	Data collection Timeframe
KPI 01	Departure punctuality Percentage of flights departing from the gate on-time (compared to schedule).	% of flights	Variant 2A – % of departures within ± 15 minutes of scheduled time of departure	For each departing scheduled flight: - List of all IFR scheduled departure for each international aerodrome - Scheduled time of departure (STD) or Scheduled off-block time (SOBT) - Actual off-block time (AOBT)	At the level of individual flights: 1. Exclude non-scheduled departures 2. Categorize each scheduled departure as on-time or not At aggregated/National level: 3. Compute the KPI: number of on-time departures divided by total number of IFR scheduled departures	1 month (June 2021)
KPI 02	Taxi-out additional time Actual taxi-out time compared to an unimpeded/reference taxi-out time.	Excess taxi-out time in Minutes/flight	Variant 1 – basic (computed without departure gate and runway data)	For each departing flight: -List of all IFR departures for each international aerodrome - Actual off-block time (AOBT) - Actual take-off time (ATOT)	At the level of individual flights: 1. Select departing flights, exclude helicopters 2. Compute actual taxi-out duration: ATOT minus AOBT 3. Compute additional taxi-out time: actual taxi-out duration minus unimpeded/reference taxi-out time At aggregated/National level: 4. Compute the KPI: sum of additional taxi-out times divided by number of IFR departures	1 month (June 2021)
KPI 13	Taxi-in additional time Actual taxi-in time compared to an unimpeded/reference taxi-in time	Excess taxi-in time in Minutes/flight	Variant 1 – basic (computed without landing runway and arrival gate data)	For each arriving flight: - List of all IFR scheduled Arrivals for each international aerodrome - Actual landing time (ALDT) - Actual in-block time (AIBT)	At the level of individual flights: 1. Select arriving flights, exclude helicopters 2. Compute actual taxi-in duration: AIBT minus ALDT 3. Compute additional taxi-in time: actual taxi-in duration minus unimpeded/reference taxi-in time At aggregated/National level: 4. Compute the KPI: sum of additional taxi-in times divided by number of IFR arrivals	1 month (July 2021)
KPI 14	Arrival punctuality Percentage of flights arriving at the gate on-time (compared to schedule)	% of flights	Variant 2A – % of arrivals within ± 15 minutes of scheduled time of arrival	For each arriving scheduled flight: - List of all IFR scheduled arrival for each international aerodrome - Scheduled time of arrival (STA) or Scheduled in-block time (SIBT) - Actual in-block time (AIBT)	At the level of individual flights: 1. Exclude non-scheduled arrivals 2. Categorize each scheduled arrival as on-time or not At aggregated/National level: 3. Compute the KPI: number of on-time arrivals divided by total number of scheduled arrivals	1 month (July 2021)

States	AD	KPI 01 (Departure punctuality)			KPI 14 (Arrival punctuality)			KPI 02 (Taxi-out Additional Time)				KPI 13 (Taxi-in Additional Time)				Status
		Total no of DEPs	AD KPI 01 (%)	No of flights meeting KPI01	Total no of ARR s	AD KPI 14 (%)	No of flights meeting KPI14	Total no of DEPs	unimpeded/reference taxi out time	AD KPI 02 (min)	Total minutes of delay	Total no of ARRs	unimpeded/reference taxi in time	AD KPI 13 (min)	Total minutes of delay	
Bahrain	OBBI	3272	79.55%	2603	3550	46.51%	1651	3596		1.01	3631.96	3804		0.33	1255.32	completed
Qatar	OTBD	109	44.04%	48	78	38.16%	30	124		8.24	1021.76	80		2.73	218.40	completed
	OTHH	8116	59.77%	4851	9137	50.72%	4634	8703		10.32	89814.96	9168		1.20	11001.60	completed
Saudi Arabia	OEDF	2995	80.93%	2424	3129	21.25%	665	2924		9.60	28070.40	3129		12.93	40457.97	completed
	OEJN	7631	85.53%	6527	8281	35.15%	2911	7520		12.35	92872.00	8281		7.32	60616.92	completed
	OEMA	1750	77.49%	1356	1462	28.59%	418	1710		12.98	22195.80	1462		5.52	8070.24	completed
	OERK	7904	81.76%	6462	8388	13.73%	1152	7625		14.37	109571.25	8388		5.05	42359.40	completed
UAE	OMDB	10880	67.64%	7359	14645	50.55%	7403	10877		2.66	28932.82	14630		1.16	16970.80	completed

Results of Measurement of KPIs



Deficiencies in the ATM field										
IRAN										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action	
1	MID ANP TABLE ATM II-MID-1 MID REGION ATS ROUTE NETWORK	-	ATS routes A418/UP574 not implemented	Dec 2006	KUMUN-PAPAR segment not implemented.	S O	Corrective Action Plan has not been formally provided by the State	Iran- UAE	Dec 2021	B

Deficiencies in the ATM field									
IRAQ									
Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action
1	MID ANP Table ATM II-MID-1 MID REGION ATS ROUTE NETWORK	-	ATS route G667 not implemented	Sep 2006	Segment ALSAN-ABD not implemented	S Corrective Action Plan has not been formally provided by the State	Iraq- Iran- Kuwait	Dec 2021	B
2	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Nov 2006	Contingency Agreement to be signed with Syria	S Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2021	A
3	MID ANP Table ATM II-MID-1 MID REGION	-	ATS route G795 not implemented	May 2008	RAF-BSR segment not implemented	S Corrective Action Plan has not been formally	Iraq- Saudi Arabia	Dec 2021	B

6A-3

	ATS ROUTE NETWORK					provided by the State			
4	MID ANP Table ATM II-MID-1 MID REGION ATS ROUTE NETWORK	-	ATS route A424 not implemented	May 2008	LOTAN-LOVEK segment not implemented	O Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2021	B

Deficiencies in the ATM field									
JORDAN									
Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Nov 2006	Contingency agreements not signed with Syria.	H Corrective Action Plan has not been formally provided by the State. State comment: due to political impact in the region Jordan is not able to complete the signature of contingency agreements with all adjacent States	Jordan	Dec 2021	A

6A-5

Deficiencies in the ATM field										
LEBANON										
Item No	Identification		Deficiencies			Corrective Action				
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action	
1	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Nov 2006	Contingency agreements not signed with Syria	S	Corrective Action Plan has not been formally provided by the State	Lebanon	Dec 2021	A

Deficiencies in the ATM field										
LIBYA										
Item No	Identification		Deficiencies			Corrective Action				
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action	
1	Annex 11 Para 3.3.5.1	-	Not reporting the required data to the MIDRMA in a timely manner.	Dec 2013	-	H O	Corrective Action Plan has not been formally provided by the State	Libya	Dec 2021	A
2	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs	Dec 2014	Agreement signed only with Egypt	S O	Corrective Action Plan has not been formally provided by the State	Libya	Dec 2021	A

6A-7

Deficiencies in the ATM field									
QATAR									
Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Nov 2006	Contingency agreements not signed with UAE.	S Corrective Action Plan has not been formally provided by the State	Qatar-Bahrain	Dec 2021	A

Deficiencies in the ATM field										
SAUDI ARABIA										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action	
1	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Nov 2006	Contingency Agreements not signed with Iraq, Qatar and Sudan.	S Corrective Action Plan has not been formally provided by the State	Saudi Arabia	Dec 2021	A	

6A-9

Deficiencies in the ATM field										
SUDAN										
Item No	Identification		Deficiencies			Corrective Action				
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action	
1	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Dec 2014	Contingency Agreement signed only with Egypt	H S O	Corrective Action Plan has not been formally provided by the State	Sudan	Dec 2021	A

Deficiencies in the ATM field										
SYRIA										
Item No	Identification		Deficiencies			Corrective Action				
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action	
1	MID ANP Table ATM II-MID-1 MID REGION ATS ROUTE NETWORK	-	ATS route G202 not implemented	Dec 1997	Segment DAKWE - Damascus not implemented	S	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2021	B
2	MID ANP Table ATM II-MID-1 MID REGION ATS ROUTE NETWORK	-	ATS route UL602 not implemented	Dec 2003	Segments ELEXI-DRZ-GAZ not implemented.	S	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2021	B
3	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency	Nov 2006	No signed agreement yet	H O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2021	A

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			agreements should be signed with all adjacent ACCs.							
4	Annex 11 Para 3.3.5.1	-	Reporting unsatisfactory LHDs to MIDRMA	Oct 2013	Syria to coordinate with MIDRMA.	H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2021	A

Deficiencies in the ATM field									
UAE									
Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 11 Para. 2.31	-	Development of contingency plan for implementation in the event of disruption or potential disruption of ATS and related supporting services. The Plan should also address natural disasters and public health emergencies. Contingency agreements should be signed with all adjacent ACCs.	Nov 2006	Plan completed and Agreements signed with Bahrain, Iran, Oman and Saudi Arabia. The plan next is to sign with Qatar after the finalization of the LoA.	O Corrective Action Plan has not been formally provided by the State	UAE	Dec 2021	A
2	MID ANP Table ATM II-MID-1 MID REGION ATS ROUTE NETWORK	-	ATS routes A418/UP574 not implemented	Dec 2006	KUMUN-PAPAR segment not implemented.	S Corrective Action Plan has not been formally provided by the State	Iran- UAE	Dec 2021	B

Deficiencies in the SAR field										
IRAQ										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 12 Para. 2.1	-	Lack of provision of required SAR services	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2021	A
2	Annex 6 Part I, Chap.6 and Part II Chap. 2 Annex 10, Vol III, Chap. 5 Annex 12 para. 2.6.4	ELT	Non-compliance with carriage of Emergency Locator Transmitter (ELT) requirements	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2021	A

Deficiencies in the SAR field										
KUWAIT										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 6 Part I chap. 6 and Part II chap. 2 Annex 10, Vol III, Chap. 5 Annex 12 para. 2.6.4	ELT	Non-compliance with carriage of Emergency Locator Transmitter (ELT) requirements	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Kuwait	Dec 2021	A

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Deficiencies in the SAR field										
LEBANON										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 12 Para. 2.1	-	Lack of provision of required SAR services	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Lebanon	Dec 2021	A

Deficiencies in the SAR field										
LIBYA										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 6 Part I chap. 6 and Part II chap. 2 Annex 10, Vol III, Chap. 5 Annex 12 para. 2.6.4	-	Non-compliance with carriage of Emergency Locator Transmitter (ELT) requirements	Dec 2014	-	H S O	Corrective Action Plan has not been formally provided by the State	Libya	Dec 2021	A
2	Annex 12 Para. 2.1	-	Lack of provision of required SAR services	Dec 2014	-	H S O	Corrective Action Plan has not been formally provided by the State	Libya	Dec 2021	A

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Deficiencies in the SAR field										
SYRIA										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 12 Para. 2.1	-	Lack of provision of required SAR services	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2021	A
2	Annex 6 Part I chap. 6 and Part II chap. 2 Annex 10, Vol III, Chap. 5 Annex 12 para. 2.6.4	-	Non-compliance with carriage of Emergency Locator Transmitter (ELT) requirements	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2021	A

Deficiencies in the SAR field										
YEMEN										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 12 Para. 2.1	-	Lack of provision of required SAR services	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2021	A
2	Annex 6 Part I chap. 6 and Part II chap. 2 Annex 10, Vol III, Chap. 5 Annex 12 para. 2.6.4	-	Non-compliance with carriage of Emergency Locator Transmitter (ELT) requirements	Apr 2012	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2021	A

THE MIDDLE EAST AIR NAVIGATION DEFICIENCIES MANAGEMENT PROCESS (MIDAND-MP)

1. Introduction

1.1 Based on the information resulting from the assessment carried out by ICAO on the input received from various regions regarding deficiencies in the air navigation field, it became evident that improvements were necessary in the following areas:

- a) collection of information;
- b) safety assessment of reported problems;
- c) identification of suitable corrective actions technical/ operational/ financial/organizational), both short-term and long-term; and
- d) method of reporting in the reports of ICAO planning and implementation regional groups (PIRGs).

1.2 This methodology is therefore prepared with the assistance of ICAO PIRGs and is approved by the ICAO Council for the efficient identification, assessment and clear reporting of air navigation deficiencies. It may be further updated by the Air Navigation Commission in the light of the experience gained in its utilization.

1.3 For the purpose of this methodology, the definition of deficiency is as follows:

A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.

2. Collection and inclusion of information in the Data Base

2.1 Collection of the information for all the sources (**Regional office, States, Users, Professional provider organizations' sources**): Refer to the Section 2 of the MIDANPIRG Procedural Handbook,

MID Air Navigation Deficiencies Data Base (MANDD)

2.2 In order to support the implementation of the Uniform Methodology for the identification, assessment and reporting of deficiencies, the MID Air Navigation Deficiencies Data Base (MANDD) that is a web-based platform provides an online tool for States and relevant stakeholders to manage Air Navigation Deficiencies in the region. The application is available at <https://mandd.icao.int/>.

3. Reporting of information on Deficiencies actions taken by the MID Office

3.1 In order to enable the MIDANPIRG to make consistent evaluation of deficiencies, States and concerned International organizations including IATA, IFALPA and IFATCA, are expected to provide the information they have to the ICAO MID Regional Office for action as appropriate, during MIDANPIRG meetings.

3.2 The information should at least include description of the deficiency, risk assessment, possible solution, deadlines, responsible entities, agreed new action to be taken to resolve identified Deficiencies.

3.3 Newly identified deficiencies shall be sent to MID Office by the State/Organization Focal Point through the MANDD. Evidences to support the information provided should be forwarded via email to the ICAO MID Regional Office (icaomid@icao.int) or attached in the MANDD (as potentially upgraded).

3.4 The newly added deficiency in the MANDD will always have an “N” status for New at the point of entering the details in the reporting form. Once approved by the concerned Regional Officer, the deficiency will appear in the database list highlighted in “Yellow” and will be available for MANDD users in the delete, update, search and print options.

3.5 Once received and updated in the MANDD system by the ICAO MID Office, the request is forwarded to the appropriate Regional Officer for review and analysis as per the paragraph 2.1.1 of the MIDANPIRG Procedural Handbook. The ICAO MID Office may contact the source of the information and the concerned State for more details when required. The result of the evaluation is submitted with all the evidences to a committee formed by the Regional Office subject matter Experts and the Deputy Regional Director for review.

3.6 If the deficiencies are confirmed, the State is informed by the ICAO MID Regional Office and given a time period to take appropriate actions. If actions are taken in time, the case is closed and captured in the MANDD as proposed for deletion and will appear highlighted in “Yellow” as a strike through then notified to the MIDANPIRG meeting.

3.7 Otherwise, the case is submitted to the MIDANPIRG Meeting for consideration and endorsement using the List of reported Deficiencies extracted from the MANDD system. The MIDANPIRG’ endorsed deficiencies are uploaded in the MANDD by the MID Office and the concerned State(s) are requested to submit a Corrective Action Plan within a given deadline.

3.8 The concerned State(s) shall follow-up the implementation of proposed mitigation actions, as established in the action plan and submit relevant evidences for consideration to the ICAO MID Office through the MANDD/by email.

3.9 In case of challenges with the implementation, the State Focal point should inform and coordinate with the Regional Officer managing the AND concerned Area (AOP, ATM, AIM, CNS, MET and SAR). Both, the State’s Focal Points and Regional Officer should ensure that the information provided in the MANDD is continuously updated.

3.10 The agenda of MIDANPIRG meeting should include an item on air navigation deficiencies, including information reported by States and other stakeholders in accordance with Section 2 of the MIDANPIRG Procedural Handbook. The review of the deficiencies should be a top priority for each MIDANPIRG meeting which should make an assessment of the safety impact, of the reviewed lists of deficiencies, for subsequent review by the ICAO Air Navigation Commission.

3.11 In line with the above and keeping in mind the need to eventually make use of this information in the planning and implementation process, it is necessary that once a deficiency has been identified and validated, defined fields of information should be provided in the reports on deficiencies in the air navigation systems. The Model reporting table for use in the MIDANPIRG report and Actions by the ICAO MID Office are stated in the Sections 5 and 6 of the MIDANPIRG Procedural Handbook.

Additional Guidance for Minimum Reporting on non-compliances

3.12 In order to encourage reporting, the Group has adopted a list of minimum reporting areas which is reflected at Attachment A to this Process. The intent of the list is NOT to replace reporting based on ICAO Council policy, but to encourage reporting, in recognition of Assembly Resolution A37-15 Appendix L, and noting the historical critically low level of reporting, as well as the expanse of SARPs and requirements on which reporting may be effected.

3.13 Without prejudice to the definition of “deficiency” as approved by the Council, States, Regulators and Air Navigation Service Providers (ANSPs), users, and professional organizations (IFALPA, IFATCA, IFATSEA, etc.) are encouraged to report on non-compliances in the areas listed in

Attachment A, in addition to reporting any other deficiencies as defined by the Council.

Monitoring & Removal of MIDANPIRG endorsed Deficiencies from the Data base

3.14 The ICAO MID Office will monitor the implementation by the States of their corrective actions plans and report to MIDANPIRG. States shall implement their action plans and submit relevant evidences for consideration to the ICAO MID Regional Office by email to icaomid@icao.int.

3.15 The relevant Regional Officers should assess on the regular basis the implementation of the States action plans until their completion. Once the implementation completed, a documented report, comprising evidences should be submitted the ICAO MID Office for their review by the ICAO MID Regional Officers and the Deputy Regional Director. The review report is submitted to the MIDANPIRG meeting for appropriate action.

3.16 If deemed satisfactory, the deficiency is deleted from the MANDD at which point will appear as a strike though highlighted in “Yellow” and the information is provided to the State.

3.17 Once validated and confirmed by the MIDANPIRG meeting to be an existing deficiency based on provided evidences, a command is run in the system to remove the resolved (proposed for deletion) deficiencies from the Database by the Regional Office.

4. Assessment and prioritization

4.1 A general guideline would be to have three levels of priority organized on the basis of safety, regularity and efficiency assessment as follows:

“U” priority (Red) = Urgent requirements having a direct impact on safety and requiring immediate corrective actions. Urgent requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is urgently required for air navigation safety.

“A” priority (Orange) = Top priority requirements necessary for air navigation safety. Top priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation safety.

“B” priority (Green) = Intermediate requirements necessary for air navigation regularity and efficiency. Intermediate priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation regularity and efficiency.

4.2 In addition, the MIDANPIRG’s Sub-Groups including the ASPIG (Aerodromes Safety Planning and Implementation Group) should assess, as deemed necessary, the endorsed Deficiencies based on SMS principles. As practical as it can be, the assessment and prioritization of Deficiencies is based on the safety risk matrix contained in the Safety Management Manual (SMM), Doc 9859:

Table 1. Safety risk probability table

Likelihood	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely to occur, but possible (has occurred rarely)	3
Improbable	Very unlikely to occur (not known to have occurred)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Note.— This is an example only. The level of detail and complexity of tables and matrices should be adapted to the particular needs and complexities of each organization. It should also be noted that organizations might include both qualitative and quantitative criteria.

Table 2. Example safety risk severity table

Severity	Meaning	Value
Catastrophic	<ul style="list-style-type: none"> • Aircraft / equipment destroyed • Multiple deaths 	A
Hazardous	<ul style="list-style-type: none"> • A large reduction in safety margins, physical distress or a workload such that operational personnel cannot be relied upon to perform their tasks accurately or completely • Serious injury • Major equipment damage 	B
Major	<ul style="list-style-type: none"> • A significant reduction in safety margins, a reduction in the ability of operational personnel to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency • Serious incident • Injury to persons 	C
Minor	<ul style="list-style-type: none"> • Nuisance • Operating limitations • Use of emergency procedures • Minor incident 	D
Negligible	<ul style="list-style-type: none"> • Few consequences 	E

Table 3. Example safety risk matrix

Safety Risk		Severity				
Probability		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

Note.— In determining the safety risk tolerability, the quality and reliability of the data used for the hazard identification and safety risk probability should be taken into consideration.

Table 4. Example of safety risk tolerability

Safety Risk Index Range	Safety Risk Descriptio	Recommended Action
5A, 5B, 5C, 4A, 4B, 3A	INTOLERABLE	Take immediate action to mitigate the risk or stop the activity. Perform priority safety risk mitigation to ensure additional or enhanced preventative controls are in place to bring down the safety risk index to tolerable.
5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C, 1A	TOLERABLE	Can be tolerated based on the safety risk mitigation. It may require management decision to accept the risk.
3E, 2D, 2E, 1B, 1C, 1D, 1E	ACCEPTABLE	Acceptable as is. No further safety risk mitigation required.

AIR TRAFFIC MANAGEMENT SUB-GROUP (ATM SG)

1. TERMS OF REFERENCE

1.1 The Terms of Reference of the ATM Sub-Group are:

- a) ensure that the planning and implementation of ATM in the MID Region is coherent and compatible with developments in adjacent regions, and is in line with the Global Air Navigation Plan (GANP), the Aviation System Block Upgrades (ASBU) framework and the MID Region Air Navigation Strategy;
- b) monitor the status of implementation of the MID Region ATM-related ASBU threads/elements included in the MID Region Air Navigation Strategy as well as other required ATM facilities and services; identify the associated difficulties and deficiencies and provide progress reports, as required;
- c) keep under review the MID Region ATM performance objectives/priorities, develop action plans to achieve the agreed performance targets and propose changes to the MID Region ATM plans/priorities;
- d) seek to achieve common understanding and support from all stakeholders involved in or affected by the ATM developments/activities in the MID Region;
- e) provide a platform for harmonization of developments and deployments in the ATM domain;
- f) based on the airspace user needs and in coordination with stakeholders (States, International Organizations, user representative organizations and other ICAO Regions), identify requirements and improvements for achieving and maintaining an efficient route network in the MID Region;
- g) foster and initiate actions aimed at improving civil/military cooperation and Flexible Use of Airspace (FUA) implementation;
- h) keep under review the adequacy of requirements in Search and Rescue field, taking into account, *inter alia*, changes to aircraft operations and new operational requirements or technological developments;
- i) ensure the effectiveness of the SSR code allocation system in the MID Region;
- j) identify, State by State, those specific deficiencies that constitute major obstacles to the provision of efficient air traffic management and recommend specific measures to eliminate them;
- k) develop the MID Region ATM Contingency Plan and ensure that its maintained up to date;
- l) monitor the implementation of the MID Region ASBU Modules included in the MID Region Air Navigation Strategy related to the ATM, provide expert inputs for ATM related issues; and propose solutions for meeting ATM operational requirements;
- m) monitor and review the latest developments in the area of ATM;

- n) Coordinate with relevant MIDANPIRG and RASG-MID Subsidiary bodies issues with common interests;
- o) provide regular progress reports to the MIDANPIRG concerning its work programme; and
- p) review periodically its Terms of Reference and propose amendments as necessary.

1.2 **In order to meet the Terms of Reference, the ATM Sub-Group shall:**

- a) provide necessary assistance and guidance to States to ensure harmonization and interoperability in line with the GANP, the MID ANP and ASBU framework;
- b) provide necessary inputs to the MID Region Air Navigation Strategy through the monitoring of the agreed Key Performance Indicators related to ATM;
- c) review the MID ATS Routes Network in order to assess its capacity and constraints;
- d) identify requirements and improvements for achieving and maintaining an efficient ATS route network in the MID Region;
- e) propose a strategy and prioritized plan for development of improvements to the route network, highlighting:
 - areas that require immediate attention
 - interface issues with adjacent ICAO Regions
- f) develop a working depository for route proposals that will be used as a dynamic reference document for ongoing discussions on routes under development/ modification. In this respect, the Task Force should explore the utility that can be realized from the route catalogue concept/ATS routes database;
- g) engage the necessary parties regarding routes under consideration, especially the Military Authorities;
- h) promote civil/military cooperation and the implementation of the concepts of Flexible Use of Airspace (FUA), free flight, flexible tracks;
- i) facilitate effective civil/military cooperation and joint use of airspace in the MID Region;
- j) in coordination with the MIDRMA, carry out safety assessment of the proposed changes to the ATS Routes Network;
- k) submit completed route proposals for amendment of the Basic ANP Table ATS-1, to the ICAO MID Regional Office for processing;
- l) monitor the RVSM operations and support the continued safe use of RVSM in the MID Region;
- m) review and maintain the MID Region SSR Code Allocation Plan and monitor the implementation of the SSR codes allocation procedures in the Region;

- n) assist States in the development and co-ordination of contingency plans and ensure that the Regional contingency plan is maintained up-to-date;
- o) assess the effectiveness of the agreed Contingency measures/procedures and propose mitigation measures, as appropriate;
- p) address ATM and SAR interface issues with other regions and make specific recommendations to achieve seamlessness and harmonization;
- q) review the requirements and monitor the status of implementation of ATM and SAR services;
- r) analyse, review and monitor deficiencies in the ATM and SAR fields;
- s) develop proposals for the updating of relevant ICAO documentation, including the amendment of relevant parts of the MID ANP, as deemed necessary;
- t) establish and monitor ATM performance objectives for the MID Region; and
- u) taking into account human factors studies and available guidance material, make operational recommendations related to ATM personnel in the changing technological environment.

2. COMPOSITION

2.1 The Sub-Group is composed of:

- a) MIDANPIRG Member States;
- b) experts nominated by Middle East Provider States from both Civil Aviation Authority and Military Authority;
- c) concerned International and Regional Organizations as observers; and
- d) other representatives from provider States and Industry may be invited on ad hoc basis, as observers, when required.

3. WORKING ARRANGEMENTS

3.1 The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Sub-Group. The Sub-Group shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paperwork (paperless meetings). Permanent contact shall be maintained between the Chairperson, Secretary and Members of the Sub-Group to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.

3.2 Face-to-face meetings will be conducted when it is necessary to do so.

**TERMS OF REFERENCE (TOR) OF THE
MIDANPIRG AIR TRAFFIC FLOW MANAGEMENT TASK FORCE
(ATFM TF)**

I. TERMS OF REFERENCE

- 1.1 Perform a joint assessment and confirmation of the Pre-requisites for a regional ATFM solution, this shall include:
 - a) Assessment of the performance objectives of the individual participating States and definition of common performance objectives for a regional ATFM service.
 - b) Perform a data collection and analysis to identify hot-spot areas and critical times in a regional ATFM service area where demand consistently exceeds capacity. The reasons and contributing factors for unbalanced demand and capacity are to be identified.
 - c) Analysis of air traffic flows within the designated area of the regional ATFM service that is causing unbalanced demand and capacity. The analysis shall identify the traffic fractions that due to their uniformity are candidates for effective ATFM measures to increase the efficiency without violating the equity principle.
- 1.2 Develop an ATFM Concept of Operations and a Framework which addresses ATFM minimum requirements for the implementation of ATFM in the ICAO MID Region.
- 1.3 Agree on a mechanism to support the phased implementation of ATFM measures in the MID Region, when and where required.
- 1.4 Identify, research and recommend appropriate guidance regarding:
 - a) Aerodromes and Airspace capacity under the normal circumstances and adjustment factors affecting the capacity;
 - b) regular review for all aerodromes and ATC sectors where traffic demand is expected to reach capacity, or is resulting in traffic congestion;
 - c) regular review of the implemented ATFM measures and the related publications; to support implementation of the required measures and reflection by the data houses (such as: Flight Planning Systems) and compliance of the airspace users;
 - d) mechanisms for ATFM data gathering, and exchanging operational data related to airspaces/aerodromes availability and air operation data between States, ANSPs, Airspace users, Organizations and ICAO, which may include:
 - i. adjusted aerodromes and enroute capacity due to factors affecting capacity such as:
 - Amid and after crisis management measures (mainly related to ANS Business Continuity Plans and recovery);
 - special use airspace status, runway closures; or
 - weather phenomena.
 - ii. traffic demand information which may include flight schedules, flight plan data, repetitive flight plan data as well as associated surveillance updates of flight status; and

- iii. ATFM Daily Plan.
 - e) measure compliance of airspace users with the applicable ATFM measures; and
 - f) any other guidance relevant to the Regional ATFM Framework.
- 1.5 Consider existing and planned ATFM initiative in the Region and make specific recommendations to ensure their alignment.
 - 1.6 Ensure inter-regional ATFM harmonization with adjacent ICAO Regions.
 - 1.7 Recommend appropriate inputs related to the implementations of ASBU Elements / Threads relevant to ATFM such as NOPS, A-CDM, etc.
 - 1.8 Report to the ATM SG.
 - 1.9 Review periodically its Terms of Reference and propose amendments as necessary.

Coordinate as deemed necessary with the relevant MIDANPIRG Sub-Groups and the Regional initiatives, matters of mutual interest.

II. COMPOSITION

- 2.1 The Task Force is composed of MID ATFM focal points and experts from:
 - a) MIDANPIRG Member States;
 - b) India, FAA, AACO, ACAO, AEROTHAI, CANSO, EUROCONTROL, IATA, and ICAO (Bangkok, Cairo, Paris Offices and HQ); and
 - c) other representatives from provider States and Industry may be invited on ad hoc basis, as observers, when required.
- 2.2 The Task Force shall elect a Chairperson to act as the point of contact on behalf the Task Force.
- 2.3 ICAO MID Office will act as the Secretary of the ATFM Task Force meetings.

III. WORKING ARRANGEMENTS

- 3.1 The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Task Force. The Task Force shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paperwork (paperless meetings). Permanent contact shall be maintained between the Chairperson, Secretary and Members of the Task Force to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.
- 3.2 Face-to-face meetings will be conducted when it is necessary to do so.

**TERMS OF REFERENCE (TOR) OF THE
MIDANPIRG FIFA WORLD CUP 2022 TASK FORCE
(FWC2022 TF)**

1. OBJECTIVES AND SCOPE

- 1.1 The Task Force will be expected to apply the performance-based approach through a collaborative manner to address the most strategic decisions to reach the following:
- a) A sufficient coordination between the Air Navigation Service Providers (ANSPs), airports, airspace users and regulators;
 - b) A sufficient coordination at local, regional and inter-regional levels to accommodate safely and efficiently the expected significant increase of traffic; and
 - c) A defragmented approach from an operational perspective to achieve (gate-to-gate, city pairs, and an oriented track system) which leads to more than optimum flight and airport operations efficiency.
- 1.2 The Task Force shall support the MID Region ATFM System once established.

2. TERMS OF REFERENCE OF THE TASKFORCE

- 2.1 Develop and follow-up the implementation of FWC2022 Action Plan to accommodate the expected high increase of traffic, in a safe and efficient manner, taking into consideration similar experiences from other regions.
- 2.2 Address other major events and develop action plan(s) to accommodate the changes in traffic flows as required.
- 2.3 Define explicit and implicit strategic objectives (e.g. improved safety, increased air traffic capacity, improved efficiency, and mitigation of airspace congestion impact).
- 2.4 Identify operational and technical requirements including proposals for airspace management changes and amendment to the MID ATS Route Network to accommodate the air traffic through the establishment of temporary routes as required.
- 2.5 Develop the concept of collaborative decision-making at the strategic, tactical and pre-tactical levels, which would be implemented before and during the World Cup event.
- 2.6 Suggest methods for increased interaction between airspace providers in order to make sure that the network effects of any trajectory selection are properly incorporated in the decisions.
- 2.7 Develop collaborative regional mechanism for the implementation of ATFM solutions/measures such as Ground Delay Program (GDP), which would be implemented for departures from airports in the region.
- 2.8 Assess the operational performance of the ATM network by its capability to accommodate demand through realistically modeled network nodes, i.e. airports and airspace volumes.
- 2.9 The Task Force shall work in close coordination with the ATFM TF to avoid duplication of efforts.

3. COMPOSITION

- 3.1 The World Cup 2022 Task Force is composed of experts from:
- a) MIDANPIRG Member States;
 - b) India, FAA, AACO, ACAO, AEROTHAI, CANSO, EUROCONTROL and IATA; and
 - c) other representatives from States, Organizations and Industry may be invited on ad-hoc basis, when required.
- 3.2 ICAO MID Office will act as the Secretary of the Task Force.

4. WORKING PROCEDURES

- 4.1 Qatar shall act as the Chairman of the Task Force.
- 4.2 In order to effectively perform its tasks and responsibilities, the Task Force will meet as required in order to achieve its objectives.
- 4.3 A Core Team might be established to follow-up with the concerned State(s) and air operators the conduct of safety and operational assessments and provide support as appropriate.
- 4.4 The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Task Force. The Task Force shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paper work (paperless meetings). Permanent contact shall be maintained between the Chairpeson, Secretary and Members of the Task Force to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.
- 4.5 Face-to-face meetings will be conducted when it is necessary to do so.

MID Doc 007



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**MIDDLE EAST AIR NAVIGATION PLANNING
AND IMPLEMENTATION REGIONAL GROUP
(MIDANPIRG)**

**MID REGION
PERFORMANCE BASED NAVIGATION
IMPLEMENTATION PLAN**

EDITION MAY, 2023

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EXECUTIVE SUMMARY

The MID Region Performance Based Navigation (PBN) Implementation Plan has been developed to harmonize PBN implementation in the MID Region and to address the strategic objectives of PBN based on clearly established operational requirements, avoiding equipage of multiple on-board or ground based equipment, avoidance of multiple airworthiness and operational approvals and explains in detail contents relating to potential navigation applications.

The Plan was prepared in accordance with ICAO provisions related to PBN, the Global Air Navigation Plan, Aviation System Block Upgrades (ASBU) methodology, MID Region Air Navigation Plan and the MID Region Air Navigation Strategy. In addition to the Assembly Resolutions and the twelfth Air Navigation Conference (AN-Conf/12) Recommendations related to PBN.

The plan envisages pre- and post-implementation safety assessments and continued availability of conventional air navigation procedures during transition. The plan discusses issues related to implementation which include traffic forecasts, aircraft fleet readiness, adequacy of CNS infrastructure etc. Implementation targets for various categories of airspace for the short term (up to Dec 2024) and for – Medium-to Long-Term (2025-2030+) have been projected in tabular forms to facilitate easy reference.

This Document consolidates, updates and supersedes all previous MID Region PBN Plans.

The parts related to PBN implementation for En-route will be reviewed and updated by the ATM Sub-Group and those related to terminal and approach will be reviewed and updated by the PBN Sub-Group.

Explanation of Terms

The drafting and explanation of this document is based on the understanding of some particular terms and expressions that are described below:

MID Region PBN Implementation Plan - A document offering appropriate guidance for air navigation service providers, airspace operators and users, regulating agencies, and international organizations, on the evolution of navigation, as one of the key systems supporting air traffic management, and which describes the RNAV and RNP navigation applications that should be implemented in the short, medium and long term in the MID Region.

Navigation aid (NAVAID) infrastructure. NAVAID infrastructure refers to space-based and/or ground-based NAVAIDs available to meet the requirements in the navigation specification.

Navigation application. The application of a navigation specification and the supporting NAVAID infrastructure, to routes and procedures, within a defined airspace volume, in accordance with the intended airspace concept.

Note.— The navigation application is one element, along with communications, ATS surveillance and ATM procedures which meet the strategic objectives in a defined airspace concept.

Navigation specification. A set of aircraft and aircrew requirements needed to support Performance-based Navigation operations within a defined airspace. There are two kinds of navigation specification:

RNAV specification. A navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

RNP navigation specification. A navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH

Performance-based navigation. Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP navigation specification) in terms of accuracy, integrity, continuity and functionality needed for the proposed operation in the context of a particular airspace concept.

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REFERENCE DOCUMENTS

The below ICAO Documents provide Guidance related to the PBN implementation:

- Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM) (Doc 4444)
- Procedures for Air Navigation Services — Aircraft Operations, (PANS OPS), Volumes I and II, (Doc 8168)
- Performance-based Navigation (PBN) Manual (Doc 9613)
- Global Navigation Satellite System (GNSS) Manual (Doc 9849)
- Required Navigation Performance Authorization Required (RNP AR) Procedure Design Manual (Doc 9905)
- Continuous Descent Operations (CDO) Manual (Doc 9931)
- Continuous Climb Operations (CCO) Manual (Doc 9993)
- Manual on the Use of Performance-Based Navigation (PBN) in Airspace Design (Doc 9992)
- Quality Assurance Manual for Flight Procedure Design Manual (Doc 9906)
- Performance-based Navigation (PBN) Operational Approval Manual (Doc 9997)
- The Global Air Navigation Plan (GANP) (Doc 9750)
- The European PBN Implementation and Transition Planning Handbook

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ACRONYMS

The acronyms used in this document along with their expansions are given in the following List:

ABAS	Aircraft-Based Augmentation System
AIP	Aeronautical information publication
AIRAC	Aeronautical information regulation and control
AIS	Aeronautical Information System
ANSP	Air navigation service provider
APCH	Approach
APV	Approach Procedures with Vertical Guidance
A-RNP	Advanced RNP
AOC	Air operator certificate
ATC	Air Traffic Control
ASBU	Aviation System Block Upgrades
Baro VNAV	Barometric Vertical Navigation
CCO	Continuous Climb Operations
CDO	Continuous Decent Operations
CNS/ATM	Communication Navigation Surveillance/Air Traffic Management
CPDLC	Controller Pilot Data Link Communications
DME	Distance Measuring Equipment
FIR	Flight Information Region
FMS	Flight Management System
GBAS	Ground-Based Augmentation System
GNSS	Global Navigation Satellite System
GLS	GBAS Landing System
INS	Inertial Navigation System
IRU	Inertial Reference Unit
LNAV/VNAV	Lateral navigation/vertical navigation
LOA	Letter of authorization/letter of acceptance
MEL	Minimum equipment list
MID eANP	MID Region Air Navigation Plan
MIDANPIRG	Middle East Air Navigation Planning and Implementation Regional Group
PANS	Procedures for Air Navigation Services
PBN	Performance Based Navigation
RCP	Required Communication Performance
RNAV	Area Navigation
RNP	Required Navigation Performance
SARP	Standards and Recommended Practices
SBAS	Satellite-Based Augmentation System
SID	Standard Instrument Departure
SOP	Standard operating procedure
STAR	Standard Instrument Arrival
TAWS	Terrain awareness warning system
TMA	Terminal Control Area
VOR	VHF Omni-directional Radio-range
WGS-84	World Geodetic System — 1984

CHAPTER 1

PERFORMANCE BASED NAVIGATION

1. INTRODUCTION

1.1 The Performance Based Navigation (PBN) concept specifies aircraft RNAV system performance requirements in terms of accuracy, integrity, availability, continuity and functionality needed for the proposed operations in the context of a particular airspace concept, when supported by the appropriate navigation infrastructure. In this context, the PBN concept represents a shift from sensor-based to performance based navigation.

1.2 The main tool for optimizing the airspace structure is the implementation of PBN, which will foster the necessary conditions for the utilization of RNAV and RNP capabilities by a significant portion of airspace users in the MID Region.

1.3 The MID Regional PBN Implementation Plan will serve as guidance for regional projects for the implementation of air navigation infrastructure, as well as for the development of national implementation plans.

1.4 The PBN Manual (Doc 9613) provides guidance on PBN navigation specifications and encompasses two types of approvals: airworthiness, exclusively relating to the approval of aircraft, and operational, dealing with the operational aspects of the operator. PBN approval will be granted to operators that comply with these two types of approval.

1.5 After the implementation of PBN as part of the airspace concept, the total system needs to be monitored to ensure that safety of the system is maintained. A system safety assessment shall be conducted during and after implementation and evidence collected to ensure that the safety of the system is assured.

2. BENEFITS OF PERFORMANCE BASED NAVIGATION

PBN offers a number of advantages over the sensor-specific method of developing airspace and obstacle clearance criteria. For instance, PBN:

- a) reduces the need to maintain sensor-specific routes and procedures, and their associated costs. For example, moving a single VOR ground facility can impact dozens of procedures, as VOR can be used on routes, VOR approaches, missed approaches, etc. Adding new sensor-specific procedures will compound this cost, and the rapid growth in available navigation systems would soon make sensor-specific routes and procedures unaffordable;
- b) avoids the need for development of sensor-specific operations with each new evolution of navigation systems, which would be cost-prohibitive. The expansion of satellite navigation services is expected to contribute to the continued diversity of RNAV and RNP systems in different aircraft. Some augmentations support PBN operations, and the introduction of new core-constellations and signals will further improve GNSS performance. The use of GNSS/inertial integration is also expanding;
- c) allows for more efficient use of airspace (route placement including the use of free routing, fuel efficiency, noise abatement, etc.);
- d) clarifies the way in which RNAV and RNP systems are used; and
- e) facilitates and harmonizes the operational authorization process for operators by providing a limited set of navigation specifications intended for global use.

3. DRIVERS AND OBJECTIVES OF PBN IMPLEMENTATION

3.1. The PBN Implementation has two main drivers:

- ICAO Resolution 37/11: Urges all States to implement RNAV and RNP air traffic services (ATS) routes and approach procedures in accordance with the ICAO PBN concept laid down in the Performance-based Navigation (PBN) Manual (Doc 9613). This resolution covers all phases of flight, and only specifies the kind of specification for the final approach phase.
- ICAO Doc 9750, the Global Air Navigation Plan (GANP) identifies PBN as the “highest priority” and outlines implementation issues involving PBN planning and implementation as part of the Aviation System Block Upgrades (ASBUs);

3.2. The MID Region PBN Implementation Plan has been developed in line with ICAO Resolution 37/11: adopted by ICAO Assembly in its 37th Session held in September 2010 and has the following strategic objectives:

- a) ensure that implementation of the navigation element of the MID CNS/ATM system is based on clearly established operational requirements;
- b) avoid unnecessarily imposing the mandate for multiple equipment on board or multiple systems on ground;
- c) avoid the need for multiple airworthiness and operational approvals for intra and inter-regional operations; and
- d) avoid an eclipsing of ATM operational requirements by commercial interests, generating unnecessary costs to States , and airspace users.

3.3. Furthermore, the Plan is being updated to provide a high-level strategy for the evolution of the navigation applications to be implemented in the MID Region for the short term (up to Dec 2024) and for Medium-to Long-Term (2025-2030+).

3.4. The plan is intended to assist the main stakeholders of the aviation community to plan the future transition and their investment strategies. For example, Operators can use this Regional Plan to derive future equipage and additional navigation capability investment; Air Navigation Service Providers can plan a gradual transition for the evolving ground infrastructure, Regulating Agencies will be able to anticipate and plan for the criteria that will be needed in the future.

4. PLANNING PRINCIPLES

4.1. The implementation of PBN in the MID Region shall be based on the following principles:

- a) implementation of PBN navigation specification and granting operational approvals should be in compliance with ICAO provisions;
- b) Pre- and post-implementation safety assessments will be conducted in accordance with ICAO provisions to ensure the application and maintenance of the established target level of safety;
- c) continued application of conventional air navigation procedures during the transition period, to guarantee the operation by users that are not PBN capable;
- d) Airspace users’ consultation, dedicated studies and safety cases are required to mitigate the withdrawal of existing ground networks.
- e) Strategy for rationalization of conventional radio navigation aids and evolution toward supporting performance-based navigation should be guided by the Guidelines and Principles as at attachment H, Annex 10, Vol I
- f) Users/operational requirements should be taken into consideration while planning

for PBN implementation;

- g) States should assess the benefit accrued from the implementation of PBN procedures and ATS Routes, and to report the environmental benefits to the ICAO MID Regional Office.

5. PBN OPERATIONAL REQUIREMENTS AND IMPLEMENTATION STRATEGY

5.1. Introduction of PBN should be consistent with the Global Air Navigation Plan. Moreover, PBN Implementation shall be in full compliance with ICAO SARPs and PANS.

En-route

5.2. Considering the traffic characteristic and CNS/ATM capability of the Region, the en-route operations can be classified as oceanic, remote continental, continental, and local/domestic. In principle, each classification of the en-route operations should adopt, but not be limited to single PBN navigation specification. This implementation strategy should be applied by the States in coordination with airspace users and as coordinated at regional level to ensure harmonization.

5.3. For that MIDANPIRG established the PBN Sub-group to develop a PBN implementation plan for the MID Region and to address related regional PBN implementation issues. Accordingly, States are encouraged to work cooperatively bilaterally, multilaterally and with the PBN Sub-group to ensure regional harmonization of PBN implementation.

5.4. In areas where operational benefits can be achieved and appropriate CNS/ATM capability exists or can be provided for a more accurate navigation specification, States are encouraged to introduce more accurate navigation specification on the basis of coordination with stakeholders and affected neighbouring States.

5.5. Similarly, in circumstances where affected States are agreeable to completing an implementation in advance of the timelines specified in this plan, early implementation is encouraged on the basis of coordination between affected States and airspace users.

Terminal

5.6. Terminal operations have their own characteristics, taking into account the applicable separation minima between aircraft and between aircraft and obstacles. It also involves the diversity of aircraft, including low-performance aircraft flying in the lower airspace and conducting arrival and departure procedures on the same path or close to the paths of high-performance aircraft.

5.7. In this context, the States should develop their own national plans for the implementation of PBN in Terminal Control Areas (TMAs), based on the MID Region PBN Implementation Plan, seeking the harmonization of the application of PBN and avoiding the need for multiple operational approvals for intra- and inter-regional operations, and the applicable aircraft separation criteria.

5.8. Improved management of climb/descent flight profiles, together with the use of PBN, provides safer and more cost-effective operations in terminal areas. PBN procedures contribute to the increased use of CCO/CDO, which improves flight efficiency and reduces fuel consumption, CO₂ emissions and noise. MID States are encouraged to implement CCO and CDO, where appropriate, as part of their PBN implementation plans, in line with the provisions of the Continuous Descent Operations (CDO) Manual (Doc 9931) and the Continuous Climb Operations (CCO) Manual (Doc 9993) , and in accordance with the MID Region Air Navigation Strategy (Doc002).

Approach

5.9. ICAO Assembly Resolution 37-11 calls for an 'implementation of approach procedures with vertical guidance (APV) (Baro-VNAV and/or augmented GNSS), including LNAV-only minima, for all instrument runway ends, either as the primary approach or as a back-up for precision approaches ...',

5.10. It is not foreseen that SBAS or GBAS augmentation systems will be available in the MID Region for the development of approach procedures in the period considered herein.

5.11. Approach procedures with vertical guidance (APV) should be implemented for all Instrument Runway End, with the purpose of increasing safety with stabilized approaches and reducing the possibility of CFIT. Priority will be given to their implementation at international airports and other controlled airports as determined by the competent authority of each State. The navigation specifications to be applied will be RNP APCH and A-RNP, with baro-VNAV for vertical guidance.

5.12. States are encouraged to plan for the implementation of RNP AR procedures, which can provide significant operational and safety advantages over other area navigation (RNAV) procedures by incorporating additional navigational accuracy, integrity and functional capabilities to permit operations using reduced obstacle clearance tolerances that enable approach and departure procedures to be implemented in circumstances where other types of approach and departure procedures are not operationally possible or satisfactory. Procedures implemented in accordance with RNP AR Procedure Design Manual (Doc 9905) allow the exploitation of high-quality, managed lateral and vertical navigation (VNAV) capabilities that provide improvements in operational safety and reduced unstabilized approaches and Controlled Flight Into Terrain (CFIT) risks.

5.13. The design of RNP APCH procedures with RF leg will be encouraged, with a view to shortening approach paths, with the corresponding fuel and CO2 savings.

5.14. ATC workload should be taken into account while developing PBN Approach Procedures. One possible way to accomplish this would be by co-locating the Initial Approach Waypoint (IAW) for PBN with the Initial Approach Fix (IAF) of the conventional approaches. States should phase-out conventional non-precision approach procedures at a certain point when deemed operationally suitable and taking in consideration GNSS integrity requirements.

CHAPTER 2

CNS INFRASTRUCTURE

Within an airspace concept, PBN requirements will be affected by the communications, ATS surveillance and ATM services, the NAVAID infrastructure, and the functional and operational capabilities needed to meet the ATM application. PBN requirements also depend on what reversionary, conventional navigation techniques are available and what degree of redundancy is required to ensure adequate continuity of functions.

States (ANSPs) shall ensure that the navigation, surveillance and communications infrastructure has the capabilities needed to support the intended PBN operation.

1. NAVIGATION INFRASTRUCTURE

1.1. The NAVAID infrastructure refers to ground- or space-based NAVAIDs. Conventional ground-based NAVAIDs include DME and VOR. The PBN concept requires that NAVAID Infrastructure provides position information to the aircraft through an on-board area navigation system. Space-based NAVAIDS include GNSS elements.

1.2. Performance Based Navigation provides procedures that can be flown with a variety of navigation aids and airborne sensors. Each navigation specification stipulates which positioning sensor may be used for a particular navigation application as indicated in the PBN Manual Doc 9613, Volume II table (II-A-1-4).

1.3. As such, each combination of navigation aid and sensor needs to be assessed to see if the requirements to support a specific procedure are met. Consequently, an ANSP can declare which navigation infrastructures are available to support the navigation specification in a given airspace.

1.4. Detailed guidance on the relationship between navigation infrastructure, navigation specifications and their application in a specific airspace are contained in ICAO Doc 9613, Performance Based Navigation Manual.

Global Navigation Satellite System (GNSS)

1.5. PBN procedures should always allow the use of GNSS.

1.6. Because GNSS (and ABAS using RAIM in particular) is available on a worldwide basis, infrastructure assessment for GNSS differs significantly from terrestrial navigation aids. Relevant aspects such as safety assessment and GNSS performance assessment are described in the GNSS Manual, ICAO Doc 9849 (2017 edition, especially chapters 7.5 and 7.8.2). In addition to considering constellation performance, the ANSP should assess that the space weather and radio frequency interference environment is satisfactory for the planned procedures, and implement vulnerability mitigation measures, if appropriate (chapter 5 and appendix F of the GNSS Manual). Further guidance on assessing and measuring GNSS interference is contained in ICAO Doc 8071, Testing of Radio Navigation Aids. During outages of GNSS and depending on available NAVAID facilities, ANSPs may find it useful to consider suspending planned routine maintenance activities to ensure the availability of an alternate source of navigation.

1.7. The processes in the Performance Based Navigation (PBN) Manual are defined with the aim to either identify which navigation specification can be applied in order to serve the operational requirements given by the constraints of a particular airspace environment. This involves lining up a navigation application with the appropriate navigation specification and navigation infrastructure.

1.8. States need to evaluate the navigation infrastructure both in the initial process of

identifying which navigation specification can support the application given the infrastructure, as well as in the final implementation once it has been agreed which specification to use. For each navigation specification, there are specific requirements on the infrastructure. The infrastructure assessment determines if these requirements are met.

1.9. Appropriate tools should be used to assess navigation infrastructure. While the assessment could be conducted using manual analysis and flight inspection, the use of a software tool is recommended in order to make the assessment more efficient. The software tool should be tailored to allow evaluating the infrastructure in light of the requirements imposed by a specific navigation specification. Such a tool could, but does not have to be integrated with procedure design tools.

1.10. In general, RNAV assessment tools should include a 3D terrain model with sufficient resolution and accuracy to allow predicting the line of sight visibility of NAVAIDS along a procedure service volume, including an analysis of their respective subtended angles and a variety of other geometric constraints.

1.11. Closely related to RNAV infrastructure assessment is RNAV instrument flight procedure validation, which looks at flyability and other operational aspects. It differs from RNAV flight inspection, which focuses on signal in space compliance with ICAO Annex 10 only. Guidance on instrument flight procedure validation is contained in ICAO DOC 9906 (Quality Manual, esp. Vol 5). Guidance on ground analysis and flight testing for PBN is discussed in chapter 8 of ICAO DOC 8071 Manual on Testing of Radio Navigation Aids, Volume 1 (2018 edition). Further context on the evolution of conventional navigation aids as a complementary infrastructure to GNSS in support of PBN can be found in ICAO Annex 10, Attachment H.

1.12. Note: Guidance material concerning for RNAV 1 Infrastructure Assessment is contained Doc EUROCONTROL- -GUID-114 accessible through the link : <https://www.eurocontrol.int/sites/default/files/2021-07/eurocontrol-guidelines-rnav-1-infrastructure-assessment-20.pdf> .

2. SURVEILLANCE INFRASTRUCTURE

2.1. For RNAV operations, States should ensure that sufficient surveillance coverage is provided to assure the safety of the operations. Because of the on-board performance monitoring and alerting requirements for RNP operations, surveillance coverage may not be required. Details on the surveillance requirements for PBN implementation can be found in the ICAO PBN Manual (Doc 9613) and ICAO PANS-ATM (Doc 4444), and information on the current surveillance infrastructure in the MID can be found in the MID eANP and in the MID Region Surveillance Plan.

3. COMMUNICATION INFRASTRUCTURE

3.1. Implementation of RNAV and RNP routes includes communication requirements. Details on the communication requirements for PBN implementation can be found in ICAO PANS-ATM (Doc 4444), ICAO RCP Manual (Doc 9869), and ICAO Annex 10. Information on the current communication infrastructure in the MID can also be found in MID eANP.

4. PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE (PBCS)

4.1 The performance-based communication and surveillance (PBCS) concept provides objective operational criteria to evaluate emerging communication and surveillance technologies suited for the evolving needs of ATM functions. Once these criteria are established and accepted, the implementation of a specific ATM function, including its performance in technical and human terms, can be assessed against these operational criteria to determine its feasibility.

4.2 The PBCS concept is aligned with that of PBN. While the PBN concept applies required navigation Performance (RNP) and area navigation (RNAV) specifications to the navigation element,

the PBCS concept applies the required communication performance (RCP) and required surveillance performance (RSP) specifications to communication and surveillance elements, respectively. Each RCP/RSP specification includes criteria attributed to the components of the communication and surveillance systems involved.

4.3 Where beneficial, the RCP, RNP/RNAV and RSP specifications may be applied to the communication, navigation and surveillance elements to ensure the operational system and its components perform in accordance with the specifications.

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CHAPTER 3

IMPLEMENTATION OF PBN

1. ATM OPERATIONAL REQUIREMENTS

1.1. The Global ATM Operational Concept (Doc 9854) makes it necessary to adopt an airspace concept able to provide an operational scenario that includes route networks, minimum separation standards, assessment of obstacle clearance, and a CNS infrastructure that satisfies specific strategic objectives, including safety, access, capacity, efficiency, and environment.

1.2. During the planning phase of any implementation of PBN, States should gather inputs from all aviation stakeholders to obtain operational needs and requirements. These needs and requirements should then be used to derive airspace concepts and to select appropriate PBN navigation specification

1.3. In this regard, the following should be taken into consideration:

- a) Traffic and cost benefit analyses
- b) Necessary updates on automation
- c) Operational simulations in different scenarios
- d) ATC personnel training
- e) Flight plan processing
- f) Flight procedure design training to include PBN concepts and ARINC-424 coding standard
- g) Enhanced electronic data and processes to ensure appropriate level of AIS data accuracy, integrity and timeliness
- h) WGS-84 implementation in accordance with ICAO Annex 15 provisions
- i) Uniform classification of adjacent and regional airspaces, where practicable
- j) RNAV/RNP applications for SIDs and STARs
- k) Coordinated RNAV/RNP routes implementation
- l) RNP approach with vertical guidance
- m) Establish PBN approval database

1.4. The implementation of PBN additional functionalities/path terminator should be considered while planning/designing new procedures such as:

- the Radius to Fix (RF) for approach;
- Fixed Radius Transition (FRT) for En-route; and

2. AIRSPACE CONCEPT

2.2. The PBN Manual describes the Airspace Concept as a formal way to set out and respond to operational airspace change requirements. As such, the development of the Airspace Concept is a key step in PBN implementation because PBN ATS routes, SIDs/STARs are the backbone of the airspace organisation.

2.3. During the planning phase of any implementation of PBN routes, States should gather inputs from all aviation stakeholders to obtain operational needs and requirements. These needs and requirements should then be used to derive airspace concepts and to select appropriate PBN navigation specification.

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3. IMPLEMENTATION ROADMAP:

En-route

Short Term (up to Dec 2024):

Oceanic Airspace and remote continental

RNP10 (RNAV10) is applied in certain airspaces, such as oceanic airspace of Muscat and Sana'a FIRs over Arabian Sea. This navigation specification and its applications rely primarily on GNSS to support the navigation element of the airspace concept.

Continental en-route

RNAV 5 implementation should be completed by December 2024.

Based on operational requirements, States may choose to implement RNAV 1 routes to enhance efficiency of airspace usages and support closer route spacing, noting that appropriate communication and surveillance coverage is provided. Details of these requirements are provided in the PBN manual (Doc 9613) and PANS-ATM (Doc 4444).

Medium-to Long-Term (2025-2030+):

Oceanic and remote continental

Migration to RNP4 to support 30 NM lateral and the 30 NM longitudinal distance-based separation minima in a procedural oceanic or remote area airspace. It does not require any ground-based NAVAID infrastructure. GNSS is the primary navigation sensor to support RNP 4, either as a stand-alone navigation system or as part of a multi-sensor system.

Continental en-route

RNAV 5 specifications are applicable to all ATS routes in MID region.

RNAV 1 would be considered for implementation for en-route continental/local domestic operations.

Terminal

Short Term (up to Dec 2024):::

RNAV 1 or RNP 1 SIDs and STARs consistent with APTA-B0/2 should be completed at all RWYs ENDS at International Aerodromes.

Improved management of climb/descent flight profiles, together with the use of PBN, provides safer and more cost-effective operations in terminal areas. PBN procedures contribute to the increased use of CCO/CDO, which improves flight efficiency and reduces fuel consumption, CO2 emissions and noise. States should take into account CCO/CDO operations in the design of SIDs/STARs, within the possibilities of each scenario considered. CCO and CDO consistent with APTA B0/4 and APTA B0/5 should be implemented at the defined TMAs, in accordance with the State PBN implementation Plans, the MID Region Air Navigation Strategy and the MID ANP.

Medium-to Long-Term (2025-2030+):

RNAV 1 or RNP 1 SIDs and STARs consistent with APTA-B0/2 will be implemented in all TMAs, as appropriate.

CCO and CDO consistent with APTA B0/4 and APTA B0/5 should be implemented at all RWYs ENDS at International Aerodromes.

Approach

Short Term (up to Dec 2024)::

Implementation of PBN Approaches (with basic capabilities) consistent with APTA-B0/1 for all instrument runway ends at the international aerodromes listed in the MID ANP except where approach procedures with vertical guidance (APV) is not feasible. RNP APCH with LNAV minima only should be deployed.

The introduction of PBN Approaches (with advanced capabilities) consistent with APTA-B1/1 would be limited to selected airports, to allow for the introduction of more flexible approaches including the use of RF legs within the Final Approach Segment where operational benefits can be obtained.

Medium-to Long-Term (2025-2030+):

Implementation of PBN Approaches (with basic capabilities) consistent with APTA-B0/1 for all instrument runway ends except where approach procedures with vertical guidance (APV) is not feasible. RNP APCH with LNAV minima only should be deployed.

Widespread implementation of PBN Approaches (with advanced capabilities) consistent with APTA-B1/1 continue for airports where there are operational benefits.

2.1. Table 3-2 summarizes the implementation targets of each PBN navigation specification in the MID Region:

Table 3-2. SUMMARY TABLE AND IMPLEMENTATION TARGETS

Airspace	Short Term (up to Dec 2024)		Medium-to Long-Term (2025-2030+):	
	Navigation Specification Preferred	Performance Indicators/ Targets	Navigation Specification Acceptable	Performance Indicators/ Targets
En-route – Oceanic and Remote continental	RNAV 10 or RNP 4*	70 % by 2024	RNAV 10 RNP 4*	100% by 2030
En-route – Continental	RNAV 5 RNAV 1	70 % by 2024	RNAV 5 RNAV 1	100% by 2030
En-route - Local / Domestic	RNAV 5 RNAV 1	70 % by 2024	RNAV 5 RNAV 1	100% by 2030
TMA – Arrival	RNAV 1 or RNP 1	70% by 2022 and 100% by 2024 for STARs at International Aerodromes	RNAV 1 or RNP 1	100% by 2030 for STARs at all TMAs, as appropriate
TMA – Departure	RNAV 1 or RNP 1	70% by 2022 100% by 2024 for SIDs at International Aerodromes	RNAV 1 or RNP 1	100% by 2030 SIDs at all TMAs, as appropriate
Approach	RNP APCH to LNAV/VNAV and LNAV minima only, as required. (PBN Approaches with basic capabilities) RNP AR APCH (PBN Approaches with advanced capabilities)	100% by 2022 for all instrument runway ends at the international aerodromes 100% by 2024 at selected Airports in MID	RNP APCH to LNAV/VNAV and LNAV minima only, as required. (PBN Approaches with basic capabilities) for all instrument runway ends Widespread implementation of RNP AR APCH (PBN Approaches with advanced capabilities)	100% by 2030 W/A
CCO and CDO	CDO (Basic) and CCO (Basic) at the defined TMAs	100% by 2022	CDO (Basic) and CCO (Basic) at all RWYs ENDS at International Aerodromes.	100 % by 2030

– W/A: where applicable/defined Airspace, in accordance with State PBN implementation Plans, the MID Region Air Navigation Strategy and the MID ANP.

– * would be considered for implementation at the identified Airspace/TMAs

When no month is specified means by the end of the year.

CHAPTER 4

SAFETY ASSESSMENT AND MONITORING

1. NEED FOR SAFETY ASSESSMENT

4.1. To ensure that the introduction of PBN en-route applications within the MID Region is undertaken in a safe manner and in accordance with relevant ICAO provisions, implementation shall only take place following the conduct of a safety assessment that has demonstrated that an acceptable level of safety will be met. This assessment may also need to demonstrate levels of risk associated with specific PBN en-route implementation. Additionally, ongoing periodic safety reviews shall be undertaken where required in order to establish that operations continue to meet the target levels of safety

2. ROLES AND RESPONSIBILITIES

4.2. To demonstrate that the system is safe, it will be necessary that the implementing agency – a State or group of States - ensures that a safety assessment and, where required, ongoing monitoring of the PBN en-route implementation are undertaken.

4.3. In undertaking a safety assessment to enable en-route implementation of PBN, a State or the implementing agency shall:

- a) establish and maintain a registry of PBN approvals;
- b) monitor aircraft horizontal-plane navigation performance and the occurrence of large navigation errors and report results;
- c) conduct safety and readiness assessments;
- d) monitor operator compliance with State approval requirements after PBN implementation; and
- e) initiate necessary remedial actions if PBN requirements are not met.

CHAPTER 5 OPERATIONAL APPROVAL

1. OPERATIONAL APPROVAL REQUIREMENTS

5.1. Operational approval is usually the responsibility of the regulatory authority of the State of the Operator for commercial air transport operations and the State of Registry for general Aviation (GA) operations. For certain operations, GA operators may not be required to follow the same authorization model as commercial operators.

5.2. The operational approval assessment must take account of the following:

- a) aircraft eligibility and airworthiness compliance;
- b) operating procedures for the navigation systems used;
- c) control of operating procedures (documented in the OM);
- d) flight crew initial training and competency requirements and continuing competency requirements;
- e) dispatch training requirements; and
- f) control of navigation database procedures. Where a navigation database is required, operators need to have documented procedures for the management of such databases. These procedures will define the sourcing of navigation data from approved suppliers, data validation procedures for navigation databases and the installation of updates to databases into aircraft so that the databases remain current with the AIRAC cycle. (For RNP AR applications, the control of the terrain database used by TAWS must also be addressed.)

Aircraft eligibility

5.3. An aircraft is eligible for a particular PBN application provided there is clear statement in:

- a) the Type Certificate (TC); or
- b) the Supplement Type Certificate (STC); or
- c) the associated documentation — Aircraft Flight manual (AFM) or equivalent document; or
- d) a compliance statement from the manufacturer that has been approved by the State of Design and accepted by the State of Registry or the State of the Operator, if different.

5.4. The operator must have a configuration list detailing the pertinent hardware and software components and equipment used for the PBN operation.

5.5. The TC is the approved standard for the production of a specified type/series of aircraft. The aircraft specification for that type/series, as part of the TC, will generally include a navigation standard. The aircraft documentation for that type/series will define the system use, operational limitations, equipment fitted and the maintenance practices and procedures. No changes (modifications) are permitted to an aircraft unless the CAA of the State of Registry either approves such changes through a modification approval process, STC or accepts technical data defining a design change that has been approved by another State.

5.6. For recently manufactured aircraft, where the PBN capability is approved under the TC, there may be a statement in the AFM limitations section identifying the operations for which the aircraft is approved. There is also usually a statement that the stated approval does not itself constitute an approval for an operator to conduct those operations. Alternate methods of achieving the airworthiness

approval of the aircraft for PBN operations is for the aircraft to be modified in accordance with approved data. (e.g. STC, minor modification, etc.)

5.7. One means of modifying an aircraft is the approved Service Bulletin (SB) issued by the aircraft manufacturer. The SB is a document approved by the State of Design to enable changes to the specified aircraft type and the modification then becomes part of the type design of the aircraft. Its applicability will normally be restricted by the airframe serial number. The SB describes the intention of the change and the work to be done to the aircraft. Any deviations from the SB require a design change approval; any deviations not approved will invalidate the SB approval. The State of Registry accepts the application of an SB and changes to the maintenance programme, while the State of the Operator accepts changes to the maintenance programme and approves changes to the MEL, training programmes and Operations specifications. An Original Equipment Manufacturer (OEM) SB may be obtained for current production or out of production aircraft.

5.8. In respect of PBN, in many cases for legacy aircraft, while the aircraft is capable of meeting all the airworthiness requirements, there may be no clear statement in the applicable TC or STC or associated documents (AFM or equivalent document). In such cases, the aircraft manufacturer may elect to issue an SB with appropriate AFM update or instead may publish a compliance statement in the form of a letter, for simple changes, or a detailed aircraft type specific document for more complex changes. The State of Registry may determine that an AFM change is not required if it accepts the OEM documentation. **Table 5-1** lists the possible scenarios facing an operator who wishes to obtain approval for a PBN application, together with the appropriate courses of action.

Table 5-1

Scenario	Aircraft certification status	Actions by operator/owner
1	Aircraft designed and type certificated for PBN application. Documented in AFM, TC or the STC	No action required, aircraft eligible for PBN application
2	Aircraft equipped for PBN application but not certified. No statement in AFM. SB available from the aircraft manufacturer	Obtain SB (and associated amendment pages to the AFM) from the aircraft manufacturer
3	Aircraft equipped for PBN application. No statement in AFM. SB not available. Statement of compliance available from the aircraft manufacturer	Establish whether the statement of compliance is acceptable to the regulatory authority of the State of Registry of the aircraft
4	Aircraft equipped for PBN application. No statement in AFM. SB not available. Statement of compliance from the aircraft manufacturer not available	Develop detailed submission to State of Registry showing how the existing aircraft equipment meets the PBN application requirements
5	Aircraft not equipped for PBN application	Modify aircraft in accordance with the aircraft manufacturer's SB or develop a major modification in conjunction with an approved design organization in order to obtain an approval from the State of Registry (STC).

Operating procedures

5.9. The Standard operating procedure (SOP) must be developed to cover both normal and non-normal (contingency) procedures for the systems used in the PBN operation. The SOP must address:

- a) preflight planning requirements including the MEL and, where appropriate, RNP/RAIM prediction;
- b) actions to be taken prior to commencing the PBN operation;
- c) actions to be taken during the PBN operation; and
- d) actions to be taken in the event of a contingency, including the reporting of significant incidents

GA pilots must ensure that they have suitable procedures/checklists covering all these areas

Control of operating procedures

5.10. The SOP must be adequately documented in the OM and checklists

Flight crew and dispatch training

5.11. A flight crew and dispatch training programme for the PBN operation must cover all the tasks associated with the operation and provide sufficient background to ensure a comprehensive understanding of all aspects of the operation. The operator must have adequate records of course completion for flight crew, flight dispatchers and maintenance personnel.

Control of navigation database procedures

5.12. If a navigation database is required, the procedures for maintaining currency, checking for errors and reporting errors to the navigation database supplier must be documented in the maintenance manual by commercial operators

2. DOCUMENTATION OF OPERATIONAL APPROVAL

2.1. Operational approval may be documented as an endorsement of the Air operator certificate (AOC) through:

- a) Operations specification, associated with the AOC; or
- b) amendment to the OM; or
- c) LOA.

2.2. During the validity of the operational approval, the CAA should consider any anomaly reports received from the operator or other interested party. Repeated navigation error occurrences attributed to a specific piece of navigation equipment may result in restrictions on use or cancellation of the approval for use of that equipment. Information that indicates the potential for repeated errors may require modification of an operator's training programme. Information that attributes multiple errors to a particular pilot or crew may necessitate remedial training and checking or a review of the operational approval.

2.3. The State may determine that a GA aircraft may operate on a PBN route/procedure provided that the operator has ensured that the aircraft has suitably approved equipment (is eligible), the navigation database is valid, the pilot is suitably qualified and current with respect to the equipment, and adequate procedures (checklists) are in place.

3. STATE REGULATORY MATERIAL

3.1. Individual States must develop national regulatory material which addresses the PBN applications relevant to their airspace or relevant to operations conducted in another State by the State's operators or by aircraft registered in that State. The regulations may be categorized by operation, flight phase, area of operation and/or navigation specification. Approvals for commercial operations should require specific authorization.

4. APPROVAL PROCESS

General

3.2. Since each operation may differ significantly in complexity and scope, the project manager and the operational approval team need considerable latitude in taking decisions and making recommendations during the approval process. The ultimate recommendation by the project manager and decision by the DGCA regarding operational approval should be based on the determination of whether or not the applicant:

- a) meets the requirements established by the State in its air navigation regulations;
- b) is adequately equipped; and
- c) is capable of conducting the proposed operation in a safe and efficient manner.

3.3. The complexity of the approval process is based on the inspector's assessment of the applicant's proposed operation. For simple approvals, some steps can be condensed or eliminated. Some applicants may lack a basic understanding of what is required for approval. Other applicants may propose a complex operation, but may be well prepared and knowledgeable. Because of the variety in proposed operations and differences in an applicant's knowledge, the process must be thorough enough and flexible enough to apply to all possibilities.

Phases of the approval process

Step 1 — Pre-application phase

3.4. The operator initiates the approval process by reviewing the requirements; establishing that the aircraft, the operating procedures, the maintenance procedures and the training meet the requirements; and developing a written proposal to the regulator. A number of regulators have published "job aids" to assist the operator in gathering the necessary evidence to support the approval application. At this stage a pre-application meeting with the regulator can also be very beneficial. If the proposed application is complex, the operator may need to obtain advice and assistance from OEMs or other design organizations, training establishments, data providers, etc.

Step 2 — Formal application phase

3.5. The operator submits a formal, written application for approval to the CAA, which appoints a project manager either for the specific approval or generally for PBN approvals.

Step 3 — Document evaluation phase

3.6. The CAA project manager evaluates the formal, written application for approval to determine whether all the requirements are being met. If the proposed application is complex, the project manager may need to obtain advice and assistance from other organizations such as regional agencies or experts in other States.

Step 4 — Demonstration and inspection phase

3.7. During a formal inspection by the project manager (assisted as necessary by a CAA team), the operator demonstrates how the requirements are being met.

Step 5 — Approval phase

3.8. Following a successful formal inspection by the CAA, approval is given through:

- a) Operations specification, associated with the AOC; or
- b) amendment to the OM; or
- c) LOA.

Some PBN applications may not require formal approval for GA operations — this will be determined by the State of Registry.

Note.— The approval procedure described above consists of a simplified process of the certification guidance contained in Part III of the Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (Doc 8335).

5. FOREIGN OPERATIONS

5.1. A State undertakes, in accordance with Article 12 to the Convention, to ensure that every aircraft flying over or maneuvering within its territory shall comply with the rules and regulations relating to the flight and maneuver of aircraft there in force. Article 33 to the Convention provides that certificates of airworthiness and certificates of competency and licenses issued, or rendered valid, by the State in which an aircraft is registered, shall be recognized by other States, provided that the requirements under which such certificates or licenses were issued or rendered valid are equal to or above the minimum standards which may be established by ICAO. This requirement for recognition is now extended by Annex 6, Part I and Part III, Section II, such that Contracting States shall recognize as valid an AOC issued by another Contracting State, provided that the requirements under which the certificate was issued are at least equal to the applicable Standards specified in Annex 6, Part I and Part III.

5.2. States should establish procedures to facilitate the application by foreign operators for approval to operate into their territory. States should be careful in their requirements for applications, to request only details relevant to the evaluation of the safety of the operations under consideration and their future surveillance. When evaluating an application by an operator from another State to operate within its territory a State will examine both the safety oversight capabilities and record of the State of the Operator and, if different, the State of Registry, as well as the operational procedures and practices of the operator. This is necessary in order for the State, in the terms of Article 33 to the Convention, to have confidence in the validity of the certificates and licenses associated with the operator, its personnel and aircraft, in the operational capabilities of the operator and in the level of certification and oversight applied to the activities of the operator by the State of the Operator.

5.3. The operator will need to make applications to each State into or over which it is intended to operate. The operator will also need to keep its own CAA, as the authority of the State of the Operator, informed of all applications to operate in other States. Applications should be made direct to the CAAs of the States into which it is intended to operate. In some cases it will be possible to download information and instructions for making an application and the necessary forms from a website maintained by the CAA in question.

5.4. Because functional and performance requirements are defined for each navigation specification, an aircraft approved for an RNP specification is not automatically approved for all RNAV specifications. Similarly, an aircraft approved for an RNP or RNAV specification having a stringent

accuracy requirement (e.g. RNP 0.3 specification) is not automatically approved for a navigation specification having a less stringent accuracy requirement (e.g. RNP 4).

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CHAPTER 6

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NATIONAL PBN IMPLEMENTATION STRATEGY & PLAN

1. INTRODUCTION

6.1 The ICAO Assembly Resolution 37-11 stressed the need for a National PBN Implementation Plan.

6.2 In order to assist States to achieve the ICAO objectives set out in Resolution 37-11, this chapter provides step-by-step guidance to States on how to establish their own national plan in a standard consistent way in relation to Assembly Resolutions, ICAO SARPs, GANP, GASP, Regional plans and other related documents.

6.3 Whilst it is not possible to provide a tailor made PBN implementation plan, and even less desirable to create a 'one-size fits all' plan, what is possible is to provide a generic architecture showing one example of such a PBN Implementation Plan and suggests what such a plan could contain.

6.4 This chapter provides a skeleton 'architecture' or 'outline' which could assist States and ANSPs formulate an ICAO National PBN Implementation Plan.

2. PLANNING PRINCIPLES

6.5 The following principles should be applied in drawing up the State PBN implementation plan.

Global harmonization: all regulations, navigation requirements, and flight procedures designs should comply with ICAO's PBN Manual, SARPs, PANS, and other international standards

Regional harmonization: there should be no conflict with MID region's PBN implementation plan.

Smooth transition: continued application of conventional air navigation procedures during the transition period, to guarantee availability by users that are not RNAV- and/or RNP-equipped;

CBA: conduct of cost-benefit analyses to justify the implementation of the RNAV and/or RNP concepts in each particular airspace;

Safety Assessment: conduct of pre- and post-implementation safety assessments to ensure the application and maintenance of the established target levels of safety.

Collaborative Consultation: collaborative consultation is critical between the regulatory authority, the service provider, other stakeholders, and the users of the air navigation services.

3. STATES' UPDATE ON PBN IMPLEMENTATION

6.6 States should provide the ICAO MID Regional Office with their updated PBN Implementation Plans on an annual basis (by end of December) in accordance with MSG Conclusion 4/11. The States' National PBN Implementation Plan should be published on the MID Office website as per MSG Conclusion 6/21, to facilitate consultation and planning of airspace users.

4. STATE PBN IMPLEMENTATION STRATEGY

6.7 It is expected that the State (CAA) will develop the policy and PBN Implementation Strategy and the Service Provider will define a deployment plan to deliver the policy goals. The PBN Implementation Plan should be completed in collaborative-partnership approach.

6.8 To ensure the civil aviation authority's (CAA's) plans are complementary to the ANSP and industry plans, they should begin with a shared broad strategic direction. This could start in the form of PBN Implementation Strategy that evolves into a State PBN implementation plan

6.9 A Sample State PBN Implementation Strategy is provided at the PBN Portal through the link <https://pbnportal.eu/epbn/main/Implementing-PBN/Implementation-Considerations/Sample-State-PBN-Implementation-Strategy.html>

5. NATIONAL PBN IMPLEMENTATION PLAN-CONTENT

The National PBN Implementation Plan should contain the following:

a) Executive Summary

The ANSP may elect to explain why a PBN implementation plan is being developed. It is highly likely that the NSPs will want to highlight why the changes are required and what the expected benefits will be for the airspace users.

b) Drivers for PBN Implementation

Within this section, the ANSP could identify the specific reasons why an airspace change is needed.

c) Analysis of Current Operations

Detailing the current operations would provide the Service Providers with the initial input to the PBN implementation. This detailing of current operations is known as the Reference Scenario is described in Activity 4 of the Manual on the Use of Performance-Based Navigation (PBN) in Airspace Design (Doc 9992). The Reference Scenario includes all existing ATS Routes, SIDs/STARs, airspace volumes, ATC sectorization, air traffic data and as well as all the existing coordination agreements. Description and analysis of the Reference Scenario is a crucial exercise. The Reference Scenario provides a 'baseline' to understand and analyze the current operations, within the national airspace and airports could cover the following elements:

Airspace:

- a. Structure
- b. Airspace Classification
- c. Sectorisation
- d. TMA and CTR
- e. Route Structure

Aircraft Fleet

- f. Fleet Equipage Assessment
- g. Categories of Airspace Users
- h. Aircraft certification
- i. Crew operational approval

Communication Infrastructure

- j. Communications coverage and limitations

Navigation Infrastructure

- k. Conventional Navigation Aids
- l. Precision Approach Landing Aids
- m. GNSS status

Surveillance Infrastructure

- n. Surveillance coverage and limitations

ATM capabilities (existing and planned)

WGS-84 implementation

d) PBN Operational Requirements & Implementation Strategy

Selection of applicable Navigation Specifications

- Based on National Objectives

- Ensuring Regional Harmonization
- Aligned with ICAO implementation strategies / policies

Realistic Near / Medium / Long term implementation roadmaps for:

- Enroute Operations
 - o Key traffic flows and City Pairs Identified
 - o Harmonization and interoperability across FIR
- Terminal Operations
 - o Specific terminal areas selected for implementation
- Instrument Approaches
 - o Designation of airports eligible for RNP APCH and APV
 - o Selection of airports requiring RNP AR APCH (based on operational justification)

e) Transition Strategies

Considerations for mandate or phased update of procedures or equipage

Infrastructure

- NAVAID phase-out and replacement strategy (VOR / DME / NDB / ILS)
- Requirements for continued application of conventional navigation procedures to accommodate non-RNAV / RNP users
- Provisions for contingency operations

Procedure

- Strategy for mixed-mode operations
- Integration with ATM system

Personnel

- Promotion and training for ATC, Designers and Inspectors

f) Safety Assessment & Monitoring Requirements

Need for a safety assessment

Pre and Post safety assessment in accordance with ICAO provisions

Periodic safety reviews undertaken by the State or group of States where required

Required Metrics

g) Expected Operational Benefits - specific implementations

High-level business case for implementation near / mid long-term)

ATTACHMENT A



LIST OF PARTICIPANTS

STATES		
State	Name	Title
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	Mr. Nart Omar Younis Bzadogh	Director Quality / Safety Management System
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