INTERNATIONAL CIVIL AVIATION ORGANIZATION

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

REPORT OF THE EIGHTH MEETING OF MET SUB-GROUP (MET SG/8)

(Cairo, Egypt, 1 - 3 July 2019)

The views expressed in this Report should be taken as those of the MIDANPIRG MET 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 Meteorology Sub-Group of the Middle East Air Navigation Planning and Implementation Regional Group (MET SG/8) was held at the ICAO Middle East Office – Cairo, Egypt, from 1 to 3 July 2019.

2. OPENING

2.1 The meeting was opened by Mr. Christopher Keohan, the ICAO Air Navigation Systems Implementation (Meteorology), Europe and North Atlantic, who welcomed the participants to Cairo and wished them a successful and fruitful meeting.

2.2 Mr. Keohan underlined the importance of implementing ASBU B0-AMET as a prerequisite for implementing ASBU B1-AMET. High level implementation measurements indicated the need for implementation of Quality Management System (QMS), SADIS and SIGMET and required OPMET data for some States in the MID Region. In addition, the meeting would be informed on issues related to global developments in the field of Meteorology, and in particular to expected advancements of the World Area Forecast System by providing higher resolution MET data in space and time in support to Trajectory Based Operations, Continuous Climb and Decent Operations and Long-Haul Flight Operations

2.3 In closing, Mr. Keohan thanked the participants for their attendance and wished the meeting every success in its deliberations.

3. ATTENDANCE

3.1 The meeting was attended by a total of fifteen (15) participants, from four (4) States (Egypt, Oman, Saudi Arabia and Sudan). The list of participants is at the **Attachment A**.

4. OFFICERS AND SECRETARIAT

The meeting was chaired by Mr. Abdulrahman Majed Alsaqabi, ANS Safety Inspector, General Authority of Civil Aviation, Saudi Arabia. The Secretary of the meeting was Mr. Christopher Keohan, Air Navigation Systems Implementation (Meteorology), Europe and North Atlantic, supported by Ms. Muna Alnadaf, Regional Officer, Communication, Navigation and Surveillance, from the ICAO Middle East Office.

5. LANGUAGE

5.1 The meeting was conducted in English and documentation posted under meetings on the ICAO MID Regional Office website.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1: Adoption of the Provisional Agenda and election of Chairperson

Agenda Item 2: Follow-up on MIDANPIRG/17 & RASG MID/7 Conclusions and Decisions relevant to MET

Agenda Item 3: Global/Regional developments related to MET

Agenda Item 4: Performance Framework for MET implementation in the MID Region:

4.1 Review of the implementation of WAFS and SADIS
4.2 Review implementation of the Meteorological Advisories and Warnings:
a) International Airways Volcano Watch (IAVW);
b) Tropical Cyclone Warning System; and
c) SIGMET and AIRMET information, and other warnings
4.3 Review of requirements for OPMET data and status of implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain as well as IWXXM Implementation
4.4 Review and update of the draft MID Air Navigation Strategy parts related to MET
4.5 Quality Management System
4.6 Review of the MET Provisions in the MID electronic Air Navigation Plan

Agenda Item 5: Review of air navigation deficiencies in the MET field

Agenda Item 6: Future Work Programme

Agenda Item 7: Any other business

7. CONCLUSIONS AND DECISIONS - DEFINITIONS

7.1 All MIDANPIRG Sub-Groups and Task Forces record their actions in the form of Conclusions and Decisions with the following significance:

a) **Conclusions** deal with the matters which, in accordance with the Group's terms of reference, merit directly the attention of States on which further action will be initiated by ICAO in accordance with established procedures; and

b) **Decisions** deal with matters of concern only to the MIDANPIRG and its contributory bodies.

8. LIST OF DRAFT CONCLUSIONS AND DRAFT DECISIONS

DRAFT CONCLUSION 8/1: MID eANP VOLUMES II PART MET

DRAFT CONCLUSION 8/2: MID eANP VOLUMES III PART MET

DRAFT DECISION 8/3: MET SG TERMS OF REFERENCE

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA AND ELECTION OF CHAIRPERSON

1.1 The subject was addressed in WP/1, presented by the Secretariat. The meeting reviewed and adopted the Provisional Agenda with the inclusion of election of the chairperson as at Para 6 of the History of the Meeting.

1.2 In accordance with the MIDANPIRG Procedural Handbook, the meeting unanimously elected Mr. Abdulrahman Majed Alsaqabi, ANS Safety Inspector – Aviation Standards Sector, General Authority of Civil Aviation of Saudi Arabia, as the Chairperson of the MET Sub-Group.

REPORT ON AGENDA ITEM 2: FOLLOW-UP ON MIDANPIRG/17 & RASG-MID/7 CONCLUSIONS AND DECISIONS RELEVANT TO MET

2.1 The subject was addressed in WP/2 presented by the Secretariat. The meeting noted the status of the MIDANPIRG/17 & RASG-MID/7 Conclusions and Decisions relevant or of interest to MET and the follow-up actions taken by concerned parties as at **Appendix 2A**.

REPORT ON AGENDA ITEM 3: GLOBAL/REGIONAL DEVELOPMENTS RELATED TO MET

MET Panel

3.1 This subject was addressed in IP/3 presented by the Secretariat. The meeting emphasized outcomes that produced future updates to meteorological provisions.

3.2 Specifically, Amendment 79 to Annex 3 was expected to include SATCOM MOD under space weather effect as well as updating the flight level resolution from 30 to 10 for space weather advisory information; ability to indicate parameters that are missing in METAR; utilizing WI of TC Centre for SIGMET on Tropical Cyclone; inclusion of changes in intensity in Tropical Cyclone Advisories; use of Aeronautical Fixed Service (AFS) versus Aeronautical Fixed Telecommunications Network (AFTN) for the exchange of OPMET bulletins; inclusion of re-suspended volcanic ash in Volcanic Ash Advisory (VAA) template; revised Eddy Dissipation Rate (EDR) threshold values; update to references to quality management system guidance material and inclusion of heavy dust storms (HVY DS) in special air-reports.

3.3 The meeting requested more frequent updates related to information on global developments in MET. The Secretariat agreed to provide updates when they become available.

3.4 Furthermore, the meeting agreed that the Secretariat will inform the MID MET focal points when the *Manual on Space Weather Information in Support of International Air Navigation* (ICAO Doc 10100) becomes available. The Secretariat will also distribute a presentation on space weather that describes the new provisions in this regard.

REPORT ON AGENDA ITEM 4: PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

4.1 REVIEW IMPLEMENTATION OF THE WAFS AND SADIS

4.1.1 The subject was addressed in WP/13 presented by the Secretariat on behalf of the SADIS Provider. Furthermore, the SADIS Provider provided a presentation on the World Area Forecast System (WAFS) 10 years plan.

4.1.2 SADIS developments included the creation of a SADIS Data Catalogue based on monitoring of OPMET data in February 2019. This was done to easily identify missing TAF and METAR data that should be available on SADIS. States were encouraged to review this catalogue (located on the WG-MOG public webpage: https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx) and if some METAR or TAF data was identified absent, States were encouraged to contact the SADIS manager (SADISmanager@metoffice.gov.uk).

4.1.3 The meeting noted that a new directory has been set up on the SADIS for space weather forecasts (applicable November 2019).

4.1.4 The SADIS Provider plans to make ICAO Meteorological Information Exchange Model (IWXXM) format data available on SADIS by November 2020 (Amendment 78 to Annex 3). Beginning approximately November 2019, IWXXM version 3.0 data will be made available to all SADIS users.

4.1.5 Quarterly backup tests were conducted between the World Area Forecast Centres (WAFC) London and Washington for the issuance of SIGWX (in BURF-code and PNG-chart format) and results posted on the WG-MOG public webpage in the document called 'Forthcoming and Historical Record of WAFC Backup Tests.

4.1.6 Verification data for harmonized WAFS gridded upper air forecasts for Clear Air Turbulence potential and Cumulonimbus cloud forecasts were made available on the 'WAFC Performance Indicators' webpage, http://www.metoffice.gov.uk/aviation/responsibilities/icao. The same for gridded upper air forecasts for Icing potential can be accessed at http://www.emc.ncep.noaa.gov/gmb/icao/.

4.1.7 The SADIS Provider noted that due to internet connection upgrade, SADIS downloads now mostly take place at the speed of the users own internet connection.

4.1.8 The SADIS Provider encouraged individual users to participate in the 2019 SADIS Efficacy Survey that will be available in early July 2019.

4.1.9 The meeting noted the trial of Low-Level Area Forecasts in graphical format (GAMETs) on SADIS which was extended until 2024 unless an IWXXM equivalent product is decided on. States that would like to participate in the trial may contact the SADIS manager.

4.1.10 The SADIS Provider suggested that SADIS users review the new SADIS workstation evaluation guide (WG-MOG public webpage) and consider using it to check if their systems provide the correct functionality.

4.1.11 The SADIS Provider encouraged users to apply for WAFS Internet File Service (WIFS) accounts for the establishment of backup/contingency processes in the rare event of a failure of SADIS. Information can be found on the WG-MOG public webpage titled 'Obtaining access to WIFS as a backup to SADIS FTP'.

4.1.12 The next generation SADIS system is planned to become operational in November 2022. The new system will provide the new larger WAFS gridded data sets in a SWIM compliant manner using Application Programming Interface (API) and cloud technology. Organizations interested in talking to the SADIS Provider about the technology being developed for the next generation SADIS system should contact the SADIS manager.

4.1.13 Expanding on the WAFS 10 years plan, the World Area Forecast Centres (WAFC) plan to provide WAFS forecasts that accommodate the needs the operators considering trajectory based operations, continuous climb and decent operations as well as increased long-haul flight operations. A demonstration of turbulence expressed in eddy dissipation rate and icing severity at a higher resolution (from 1.25 degrees to .25 degrees) was expected to be available in November 2020.

4.1.14 In addition, the WAFC data sets will be provided with an increase in vertical and temporal resolutions in order to improve flight planning. SIGWX forecasts will also be available with more time steps and extended to T+48 hours (November 2022). When provided in IWXXM format, users would be able to utilize this data by providing features in colour, zooming images for sub-regions of concern, adding aeronautical and/or flight information as well as being able to identify changes in SIGWX features by stepping through the different time steps of data.

4.1.15 A significant increase in volume of WAFC data sets will require a change in the way this information is disseminated. The WAFCs envision the use of a cloud system based on the users requests (dynamic or a predefined set of data that is known each time). This would require a change to the users workstation in order to make use of Application Programming Interface (API). The SADIS Provider will produce training material in advance of these expected changes by November 2022.

REPORT ON AGENDA ITEM 4: PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

4.2 REVIEW IMPLEMENTATION OF THE METEOROLOGICAL ADVISORIES AND WARNINGS

4.2.1 The subject was addressed in WP/3, WP/4 and WP/5 presented by the Secretariat and the Chairperson.

Volcanic Ash Exercise

4.2.2 The meeting noted that a volcanic ash exercise called VOLCEX19 planned for 20 November 2019 (0800-1600 UTC) will simulate a volcano eruption of Vesuvius Italy. The simulated volcanic ash plume will have a direct impact to many Flight Information Regions (FIRs) in the MID Region (Amman, Baghdad, Beirut, Cairo, Damascus, Jeddah, Tehran and Tripoli) who were invited to participate in this exercise in order to practice their response to the volcanic ash event following the MID ATM Volcanic Ash Contingency Plan (VACP) (ICAO MID Doc 003, Chapter 5). Furthermore, border FIRs (Bahrain, Emirates, Khartoum, Muscat, Qatar and Sana'a) were also invited to participate in this exercise in order to be better prepared for a real volcanic ash event as they may experience more operators in their FIRs if they choose to fly around the volcanic ash cloud. This may require Air Traffic Flow Management (ATFM) measures depending on demand and capacity in certain FIR sectors.

4.2.3 To facilitate in preparing for this exercise, the meeting noted that there will be a VOLCEX19 Preparatory Workshop at the ICAO EUR/NAT Regional Office in Paris from 2 to 3 October 2019. This would assist in understanding the various roles of expected participants (Airline Operators, Regulators, Air Navigation Service Providers, Air Traffic Flow Management, Meteorological Watch Offices and NOTAM Offices). The MID States will be informed about this Workshop by a State Letter.

SIGMET Tests

4.2.4 The meeting was apprised of participation of SIGMET tests conducted on 7, 14 and 21 November 2018 for tropical cyclone (WC), volcanic ash (WV) and other phenomena (WS), respectively.

4.2.5 The meeting noted results as provided by ROC Vienna as follows (white – test message received at one of the participating COM centres; gray – test message not received at any of the participating COM centres; black - not applicable):

Test	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Saudi Arabia	Sudan	Syria	UAE	Yemen
SIGMET for Tropical Cyclone														
SIGMET for Volcanic Ash														
SIGMET for other phenomenon														

4.2.6 States were encouraged to continue active participation in SIGMET tests and verify routing if a test message was sent and not indicated in the above table. Clarification was also provided for the ICAO location indicator in that the MWO id was different than the FIR id it serves (e.g. MWO OEJN serves FIR OEJD) in most cases.

Wind Shear

4.2.7 The meeting noted the developments related to defining whether or not wind shear systems were warranted at aerodromes in their State from a MET perspective (criteria) and SAFETY perspective (requirements).

4.2.8 The meeting agreed that the sequence of determining if wind shear detection is a requirement for an aerodrome, the following steps need to be taken:

- Gather information on wind shear encounters
  - Safety analysis on wind shear accidents, serious incidents and incidents
  - ATC logs
    - Time
    - Location
    - Wind shear encountered
      - Gain in indicated airspeed
      - Loss in indicated airspeed
    - Current weather conditions

- Analyze the reported events
  - Using archived meteorological data (e.g. surface observations, radar, satellite)

- Determine if a wind shear system is needed based on number of wind shear occurrences and potential hazard to operations, particularly at low altitudes (short final and landing/roll-out and take off)

- Determine type of wind shear system that would provide information on the hazard using the *Manual on Low-Level Wind Shear* (ICAO Doc 9817) as guidance
  - dry wind shear
  - wet wind shear
  - vertical wind shear

4.2.9 Furthermore, Saudi Arabia planned to send their response to the wind shear survey that addressed the MET perspective (State letter Ref.: ME 3/2.3 – 18/066) in due time. Oman requested this survey be sent to the MET SG/8 participant from Oman. When this information is received, the results of this survey as provided at **Appendix 4.2A** will be updated accordingly.

REPORT ON AGENDA ITEM 4: PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

4.3 REVIEW OF REQUIREMENTS FOR OPMET DATA AND STATUS OF IMPLEMENTATION OF REGIONAL OPMET CENTER (ROC) JEDDAH AND BACK-UP ROC BAHRAIN AS WELL AS IWXXM IMPLEMENTATION

Implementation of ROC Jeddah and back-up ROC Bahrain

4.3.1 This subject was addressed in WP/6 presented by the Chairperson on behalf of the Secretariat. The meeting was apprised of the status of implementation of ROC Jeddah and back-up ROC Bahrain in support to MIDANPIRG Conclusions 14/30 and 15/33.

4.3.2 In particular, as of April 2019, nine (9) States (Iraq, Lebanon, Libya, Jordan, Oman, Qatar, Saudi Arabia, Sudan and United Arab Emirates) have fully implemented the appropriate OPMET exchange scheme. Four (4) States (Bahrain, Egypt, Iran and Kuwait) have partially implemented this scheme, while two (2) States (Syria and Yemen) have not started implementation in this regard.

4.3.3 The meeting noted that the main challenge in implementation was determining the OPMET data needed in a State to meet operators' needs. ROC Jeddah and back-up ROC Bahrain needs this information in order to provide the State the relevant OPMET data from the MID Region and other Regions. Egypt plans to verify if this step has been taken, and if so, implementation would be complete for Egypt with reference to meeting the OPMET data exchange in support to ROC Jeddah and back-up ROC Bahrain.

4.3.4 The meeting noted that the MIDANPIRG/17 RASG-MID/7 reiterated that States, that have not yet done so, should complete the implementation of the OPMET exchange scheme that supports ROC Jeddah and back-up ROC Bahrain.

IWXXM Implementation

4.3.5 The meeting also recalled that basic ROC functions are a prerequisite for the implementation of ICAO Meteorological Information Exchange Model (IWXXM). MSG/6 agreed that the Main (Jeddah) and Backup (Bahrain) Regional OPMET Centres and the Main COM Centres in the MID Region be urged to join the CRV Project in order to enable the exchange of OPMET information in IWXXM format (MSG Conclusion 6/30 refers).

4.3.6 The meeting was provided with clarification on the CRV Project by the MID CNS Regional Officer. CRV is a Regional project to establish MID IP Network for aeronautical applications, CRV can reduce the cost and improve the communication performance. Moreover, States in the MID Region may require to have direct connection with the Main and Backup ROCs, which will impose additional cost on the ROCs and MID States. Therefore, States are encouraged to join CRV to reduce the infrastructure cost and eliminate the complexity.

4.3.7 ANSIG/3 also suggested that the ROCs could serve as translation centres.

IWXXM Survey

4.3.8 This subject was addressed in WP/7 presented by the Secretariat. The meeting noted that five (5) States (Egypt, Jordan, Libya, Oman and Sudan) replied to an IWXXM survey (State letter Ref.: ME3/2.3 – 18/114 dated 10 April 2018 refers). Saudi Arabia planned to provide a response to the survey in due time and therefore the results of the survey as provided at **Appendix 4.3A** would be updated accordingly.

Guidelines for the Implementation of OPMET data exchange using IWXXM

4.3.9 The meeting noted that to assist in IWXXM implementation, MIDANPIRG/17 RASG-MID/7 Conclusion 17/39 endorsed the *Guidelines for the Implementation of OPMET data exchange using IWXXM* as ICAO MID Doc 012. This guidance was developed to:

- define the purpose of transiting to IWXXM;
- describe current operations and capabilities, including the definition of data producers, National OPMET Centres, Regional OPMET Centres and Interregional OPMET Gateways;
- describe the changes required;
- propose the service concept including specifying the Operating Principles and making recommendations;
- elaborate on functional requirements in the form of a Framework; and
- define the requirements for successful transition, in three proposed phases.

4.3.10 To further assist in IWXXM implementation, the meeting was invited to access the available information provided at the ROC/IWXXM Implementation Workshop held in Cairo, Egypt from 11-12 November 2017 at the following website: https://www.icao.int/MID/Pages/2017/ROC%20IWXXM%20Workshop.ASPX.aspx (in particular, PPT05 – steps on IWXXM implementation).

BMG ToRs

4.3.11 The meeting noted that the terms of reference of the MID OPMET Bulletin Management Group (BMG) was updated to reflect ROC Jeddah and back-up ROC Bahrain duties as well as the implementation of IWXXM as provided at **Appendix 4.3B** (MIDANPIRG Conclusion 17/40 refers).

REPORT ON AGENDA ITEM 4: PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

4.4 REVIEW AND UPDATE OF THE MID AIR NAVIGATION STRATEGY PARTS RELATED TO MET

4.4.1 This subject was addressed in WP/8 presented by the Chairperson on behalf of the Secretariat. The meeting was apprised of the status of implementation related to ASBU B0-AMET – *Meteorology information supporting enhanced operational efficiency and safety*.

4.4.2 The meeting recalled that the revised MID Region Air Navigation Strategy (MID Doc 002, Third Edition - 2018) was endorsed by MSG/6 (MSG Conclusion 6/5 refers). The meeting also recalled that this version of the MID Region Air Navigation Strategy included a new Key Performance Indicator (KPI) related to the implementation of OPMET (METAR and TAF) as provided at **Appendix 4.4A**. This brought the total of KPIs in MET to four for ASBU B0-AMET: number of States having implemented SADIS FTP; number of States having implemented QMS for MET; and number of States having implemented SIGMET; and number of States having implemented METAR and TAF.

4.4.3 The meeting made no further comments related to the KPIs for ASBU B0-AMET.

REPORT ON AGENDA ITEM 4: PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

4.5 QUALITY MANAGEMENT SYSTEM

4.5.1 The subject was addressed in WP/9 presented by the Chair on behalf of the Secretariat. The meeting was apprised of the status of implementation of Quality Management System related to MET in accordance to Annex 3, paragraph 2.2.2.

4.5.2 The meeting recalled that implementation of Quality Management System (QMS) was a key performance indicator expressed in percentage of States in the MID Region that meet QMS provisions in Annex 3. The associated key performance indicator is described in Agenda Item 4.4.

4.5.3 The meeting noted that nine (9) States (Bahrain, Egypt, Iran, Jordan, Kuwait, Qatar, Saudi Arabia, Sudan and the United Arab Emirates) have been certified ISO 9001 meeting QMS provisions in Annex 3. Oman informed the meeting that they plan to begin the process of certification in 2020. Egypt provided an update on the most recent certification date for ISO 9001:2015 and other MID States requested to provide the ICAO MID Regional Office their latest certificates which would be included in the status of QMS implementation as provided at **Appendix 4.5A**.

4.5.4 The meeting also noted that the International Organization for Standardization (ISO) made a revision to the ISO 9001 quality management systems (QMS) standards. The latest ISO 9001:2015 standards were published in September 2015 and the ISO 9001:2008 certificate will no longer be valid after September 2018. To assist in implementation, WMO updated WMO-No. 1100, *Guide to the implementation of a quality management system for national meteorological and hydrological services*. Other information from ISO on the ISO 9001:2015 standard can be found at: https//www.iso.org/standard/62085.html.

REPORT ON AGENDA ITEM 4: PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

4.6 REVIEW OF THE MET PROVISIONS IN THE MID ELECTRONIC AIR NAVIGATION PLAN

4.6.1 This subject was addressed in WP/10 presented by the Chairperson on behalf of the Secretariat. The meeting was apprised that the MID electronic Air Navigation Plan Volumes I, II and III were made available at https://www.icao.int/MID/Pages/default.aspx.

4.6.2 The meeting noted that harmonization of Tables amongst Regions was necessary as ICAO was in the process of making the eANP Tables machine readable. This warranted a proposed change to Table MET II-3 in expressing the 5-minute VOLMET broadcast range as provided at **Appendix 4.6A**. The meeting agreed to this proposal and formulated the following Draft Conclusion:

DRAFT CONCLUSION 8/1: MID eANP VOLUME II PART MET

*That the MID eANP Volume II Part MET be updated as provided at **Appendix 4.6A**.*

4.6.3 Furthermore, the meeting reviewed the draft Table B0-AMET 3-6, OPMET Availability, as provided at **Appendix 4.6B** for inclusion in Volume III of the MID eANP recalling that this proposed table was linked to the Key Performance Indicator on OPMET implementation in the MID Air Navigation Strategy. The meeting agreed to this proposal and formulated the following Draft Conclusion:

DRAFT CONCLUSION 8/2: MID eANP VOLUME III PART MET

*That the MID eANP Volume III Part MET be updated to include Table B0-AMET 3-6, OPMET Availability, as provided at **Appendix 4.6B**.*

4.6.4 The meeting also noted that the column, state of the runway, in eANP Volume II, Table MET II-2, would be deleted in November 2020 as this information will be replaced with the Global Reporting Format.

4.6.5 The meeting agreed that eANP Volume II, Table II-MID-1, *Exchange of Operational Meteorological Information During the Pilgrimage Season*, maybe outdated due to the OPMET exchange scheme currently implemented. Saudi Arabia and Sudan would verify if this is the case in August 2019 when the Pilgrimage Season begins.

4.6.6 The meeting also recalled that the proposed changes to Volume I and II as provided at **Appendix 4.6C** and **4.6D** were endorsed by MIDANPIRG/16 (MIDANPIRG Conclusion 16/29 refers); however since these proposals impacted the general MET and/or CNS part(s) of Volumes I and II, approval was needed by the eANP Working Group as well as the Council. These changes include removing references to SADIS 2G; updating the SADIS acronym; providing clarity that MID is served by World Area Forecast Centre (WAFC) London; providing clarity on ROC functions; and providing criteria to consider in determining when to issue half-hourly METAR.

REPORT ON AGENDA ITEM 5: REVIEW OF AIR NAVIGATION DEFICIENCIES IN THE MET FIELD

5.1 The subject was addressed in WP/11 presented by the Chairperson on behalf of the Secretariat.

5.2 The meeting recalled that MIDANPIRG/17 reviewed the contents of the MIDANPIRG Air Navigation Deficiency Database (MANDD). Of relevance to MET, the MIDANPIRG/17 noted that the total number of MET deficiencies is ten (10) priority 'A' deficiencies and that six (6) were related to QMS; and four (4) related to METAR, TAF, SIGMET and WAFS.

5.2 The meeting also noted that the majority of deficiencies listed in the MANDD still did not have any specific Corrective Action Plan (CAP). The MIDANPIRG/16 urged States to implement the provisions of MIDANPIRG Conclusion 15/35 related to eliminating Air Navigation Deficiencies, and in particular, providing a specific CAP for each deficiency.

5.3 The meeting reviewed the list of deficiencies and agreed to include the following deficiencies: OPMET for Iraq (ORBM METAR and 24-hour TAF missing), WAFS for Libya, and required OPMET for Yemen (OYAA METAR and 30-hour TAF as well as OYHD, OYRN, OYSN, OYTZ METAR and 24-hour TAF), as provided at **Appendix 5A**.

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

6.1 This subject was addressed in WP/12 presented by the Chairperson on behalf of the Secretariat. The meeting reviewed the MET SG Terms of Reference (TORs) and noted that the Air Navigation Systems Implementation Group (ANSIG) should be replaced with MSG and MIDANPIRG since the MIDANPIRG/17 agreed to dissolve the ANSIG as per MIDANPIRG Decision 17/44. Consequently, the meeting agreed to the following draft Decision:

DRAFT DECISION 8/3: MET SG TERMS OF REFERENCE

That the MET SG Terms of Reference be amended as at ***Appendix 6A***.

6.2 Taking into consideration, the planned ICAO MID Regional events, which are of relevance to the activity of the MET Sub-Group, in particular the MIDANPIRG/18 meeting, it was agreed that the MET SG/9 meeting be held during the first quarter of 2021. The venue will be in Cairo, unless a State is willing to host.

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

7.1 Nothing has been discussed under this Agenda Item.

APPENDICES

APPENDIX 2A

FOLLOW-UP ACTION PLAN ON MIDANPIRG/17 & RASG MID/7 CONCLUSIONS AND DECISIONS

CONCLUSIONS AND DECISIONS	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	STATUS/REMARKS
CONCLUSION 17/9: THIRD EDITION OF THE MID REGION AIR NAVIGATION REPORT (2018) That, the Third Edition of the MID Region Air Navigation Report (2018) is endorsed and be posted by the ICAO MID Office on the website.	MIDANPIRG/17	MID AN Report	Apr. 2019	**Completed**
CONCLUSION 17/10: MID REGION AIR NAVIGATION REPORT (2019) That, a) States be urged to provide the ICAO MID Office, with relevant data necessary for the development of the Fourth Edition of the MID Region Air Navigation Report (2019), by **1 December 2019**; b) the MID Region Air Navigation Report (2019) be presented to the MSG/7 for endorsement.	ICAO & MID States ICAO	State Letter MSG/7 WP	Dec. 2019 Apr. 2020	**Ongoing**
CONCLUSION 17/13: AMENDMENT TO THE MID eANP VOLUME III That, the amendment to the MID eANP Volume III at **Appendix 6.2D** is approved**.**	MIDANPIRG/17	Amendment	Apr. 2019	**Completed** Amendment was approved by MIDANPIRG/17
CONCLUSION 17/14: INTERREGIONAL WORKSHOP/SEMINAR ON AIM/SWIM That, an Interregional Workshop/Seminar on AIM/SWIM be organized in 2020-2021.	ICAO States, Organizations and Industry	State Letter Actively participate in the Seminar	2020-21 2020-21	**Ongoing**

CONCLUSIONS AND DECISIONS	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	STATUS/REMARKS
CONCLUSION 17/41: GUIDELINES FOR THE IMPLEMENTATION OF OPMET DATA EXCHANGE USING IWXXM				**Completed**
That, the Guidance for Implementation of OPMET data exchange using IWXXM at **Appendix 6.2Y** is endorsed as MID Doc 012.	MIDANPIRG/17	Guidelines for the implementation of OPMET data exchan using IWXXM (MID Doc 012)	Apr. 2019	
	ICAO	Publish on ICAO MID website	Apr. 2019	
DECISION 17/42: UPDATE THE BMG TERMS OF REFERENCE				**Completed**
That, the Terms of Reference (TORs) of the Bulletin Management Group (BMG) be amended as at **Appendix 6.2Z**.	MIDANPIRG/17	BMG TORs	Apr. 2019	
DECISION 17/44: DISSOLUTION OF ANSIG				**Ongoing**
That,				
a) the Air Navigation Systems Implementation Group (ANSIG) is dissolved, and the Terms of Reference of the MSG be updated, accordingly; and	MSG	MSG TORs	Apr. 2020/ Nov. 2020	
b) the revised MIDANPIRG Organizational Structure at **Appendix 6.4A** is endorsed.	MIDANPIRG/17	MIDANPIRG Org. Structure	Apr. 2019	
DECISION 17/45: CHAIRMANSHIP OF MIDANPIRG AND SUBSIDIARY BODIES				**Ongoing**
That, the MIDANPIRG Procedural Handbook be amended to reflect the following: *"In case of absence of the Chairperson for two consecutive meetings, unless otherwise determined by special circumstances, the election of Chairperson should be included in the agenda of the second meeting for the election of a new Chairperson, unless otherwise decided by the meeting."*	ICAO	MIDANPIRG Procedural Handbook	Dec. 2019	

CONCLUSIONS AND DECISIONS	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	STATUS/REMARKS
DECISION 17/46: NEW EDITION OF THE MIDANPIRG PROCEDURAL HANDBOOK That, the Secretariat consolidate a new Edition of the MIDANPIRG Procedural Handbook, for review by the MSG/7 meeting before the formal endorsement by the MIDANPIRG/18 meeting.	ICAO	MIDANPIRG Procedural Handbook	Apr. 2020/ Nov. 2020	**Ongoing**

APPENDIX 4.2A

(UPDATED 16 APRIL 2018)

Question/ State	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
1	Y	Y	N		Y	Y		N		Y		Y			N
2	Y	Y	Y		Y	Y		Y		Y		Y			N
3	OBBI	HECA	N		N	OKBK		N		OTHH		HSSS			N
3a	OBBI	HECA	N		N	OKBK		N		OTHH		HSSS			N
3b	Y	Y	N		N	Y		N		N 10 min		Y			N
3c	Y	Y	N		N	Y		N		Y		Y			N
4	N/A	N	Y*		N	N		N		N/A		Note 2			N
5	Y	Y	N		N	Y		N		N		Y			N
Systems	Wind & Temp Profile (2016) Aircraft observ Forecasting using sounding	No system/ mechanism in place to collect and disseminate information related to wind shear. But the detection equipment to detect wind shear is found only in Cairo international airport	*in a few airports in Iran, IRIMO (I.R. of Iran Met. Org.) has ground based Doppler weather radars that can be used to alert on WS, but it can be used just in times that there is an active weather system with meteors			Not provided		Due to the exceptional situation our country is experiencing, regulations and procedures concerning wind shear have not been established and promulgated by Aerodrome MET offices. We shall		Wind Profiler automated equipment updated every 10 minutes *Note that WS is considered a rare event*		Not provided			

Question/ State	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
		and MWO in Cairo is responsible of issuing wind shear warnings /alerts. (HEAR, HEBA, HEAX – Alexandria Airport Forecast Center) (HEAR, HESH, HEGN, HEMA – Hurghada Airport Forecast Center) (HEBL – Luxor Airport Forecast Center) (HECA, HEPS – Cairo Airport Forecast Center)	like rain and snow on the air in order to get back radar reflectivities. Otherwise, in clear air which sometimes has considerable WS due to surface temp/pressure differences or synoptic conditions without considerable particulate matter on the air, this is impossible					establish and promulgate such regulations and procedures when the situation improves							

Questionnaire on Low-Level Wind Shear

NAME OF STATE: ……...

1. Has your State established/promulgated Regulations and/or Procedures concerning wind shear by Aerodrome MET offices?

   Yes □ No □ In Progress □ Other (please specify) □

   ……
   ……

2. Has your State determined/identified those International Aerodromes for which wind shear is considered a safety factor for operation; and require the issuance of wind shear warnings/alerts? (Ref Annex 3, para. 7.4.1)? (**see end notes*)

   Yes □ No □

3. Which International Aerodromes in your State are issuing wind shear warnings/alerts?

   ……
   ……

   a) Which Aerodromes are equipped with automated, ground-based, wind shear remote-sensing or detection equipment to detect wind shear?

   ……
   ……

   b) Are the wind shear alerts updated at least every minute?

   Yes □ No □ Other (please specify) □

   ……
   ……

c) Are the wind shear alerts cancelled as soon as the headwind/tailwind change falls below 7.5 m/s (15 kt)?

Yes □ No □ Other (please specify) □

……
……

4. For the Aerodromes issuing wind shear warnings/alerts but not equipped with automated, ground-based, wind shear remote-sensing or detection equipment to detect wind shear; are there any other system/mechanism in place to collect and disseminate information related to wind shear? *(Please explain)*

……
……

5. Does your State ensure that the wind shear warnings and alerts are issued in accordance with Annex 3 requirements? (Ref Annex 3, para. 7.4.1, Appendix 6 para. 6.2 & Table A6-3)

Yes □ No □

**Notes:*

Note 1 - In determining whether or not wind shear is a factor to operations, the following can be used: ground-based, wind shear remote-sensing equipment (e.g. Doppler radar); ground-based, wind shear detection equipment (e.g. a system of surface wind and/or pressure sensors located in an array monitoring a specific runway or runways and associated approach and departure paths); aircraft observations during the climb-out or approach phases of flight to be made in accordance with Chapter 5 of Annex 3; other meteorological information (e.g. from appropriate sensors located on existing masts or towers in the vicinity of the aerodrome or nearby areas of high ground).

Note 2 - Wind shear conditions are normally associated with the following phenomena: thunderstorms, microbursts, funnel cloud (tornado or waterspout), gust fronts, frontal surfaces, strong surface winds coupled with local topography, sea breeze fronts, mountain waves (including low-level rotors in the terminal area), and low-level temperature inversions.

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APPENDIX A
IWXXM Implementation Survey Results

Question\ State	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
1 AFS COM ATSMHS includes FTBP		Yes			Yes			Plan when CAA upgrades their system	Plan No Date			No			
2 AMHS direct connect AFS COM-ROC Jeddah		Yes			Yes			Yes	Plan No Coord			Yes			
3 MET switch Suppose exchange IWXXM MET mssg Extended ATSMHS including FTBP		Plan 2018-2020			No			Plan Planning to connect the MET-Switch System with the COM-Centre	Plan End of 2018			No			
4 National OPMET data in IWXXM		Plan 2018-2020			Yes			Yes 2019	Plan No Date			No			
5 Rx OPMET data in IWXXM		Plan 2018-2020			Plan 2019			Plan When CAA upgrades their AFTN Circuit to the AMHS	Plan No Date			No			

Question\ State	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
6 Need of assistance in IWXXM impl		No			Yes Training			Yes Guidance	Yes Training			Yes Work-shop			
Comments								On how to implement the IWXXM with the RTH Centres	We are waiting for the dates from our software supplier			We need help to complete the transition to IWXXM Government stopped funding for this implementation			

Questions for reference:

1. Does your AFS COM-Centre plan to implement a subset of the extended Air Traffic Services Message Handling Services (ATSMHS) that includes File Transfer Body Parts (FTBP) which is required for the exchange of IWXXM messages?

2. Do you intend to establish a direct ATS Message Handling System (AMHS)-connection between your AFS COM-Centre and AFS COM-Centre of your associated Regional OPMET Centre (ROC Jeddah)?

3. Does your MET-Switch system support the exchange of IWXXM MET-messages by means of a sub-set of extended ATSMHS including File Transfer Body Parts?

4. Do you plan to provide your national OPMET data in IWXXM format?

5. Do you plan to receive OPMET data in IWXXM format?

6. Do you need any kind of assistance for IWXXM implementation?

APPENDIX 4.3B

Terms of Reference of the MID OPMET Bulletin Management Group

(OPMET BMG)

1. Terms of Reference

a. Support Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain in the exchange of routine and non-routine OPMET data; OPMET bulletin updates; monitoring and management procedures; and implementation of IWXXM.

b. Keep up-to-date the regional guidance material related to OPMET exchange;

c. Develop capabilities to support the ICAO Meteorological Exchange Model (IWXXM);

d. Develop key performance indicators for OPMET and keep under review;

e. Liaise with similar groups in the adjacent ICAO Regions in order to ensure harmonized and seamless OPMET exchange; and

f. The group will report to the MET Sub-Group of MIDANPIRG.

2. Work Programme

The work to be addressed by the MID OPMET BMG includes:

a. Supporting ROC Jeddah and back-up ROC Bahrain by:

i. Providing ROC Jeddah and back-up ROC Bahrain required routine OPMET data as per eANP, Volume II, Table MET II-2 for transmission to other Regions and to SADIS;

ii. Providing ROC Jeddah and back-up ROC Bahrain non-routine OPMET data: SIGMET as per eANP, Volume II, Table MET II-1 as well as special air-reports for transmission to other Regions and to SADIS;

iii. Requesting ROC Jeddah and back-up ROC Bahrain of necessary OPMET data from other Regions in order to support flight operations;

iv. Providing ROC Jeddah and back-up ROC Bahrain OPMET bulletin changes, when necessary, for implementation on AIRAC cycle;

v. Supporting ROC Jeddah and back-up ROC Bahrain on the development of monitoring and management procedures related to ROBEX exchange; and

vi. Coordinating with ROC Jeddah and back-up ROC Bahrain on the exchange of OPMET data using ICAO Meteorological Information Exchange Model (IWXXM).

b. Examine the existing requirements and any new requirements for the OPMET exchange in MID region and to assess the feasibility of satisfying these requirements, taking into account the availability of the data;

c. Review and amend the regional guidance materials on the OPMET exchange and include procedures for the exchange of all required OPMET message types: SA, SP, FC, FT WS, WC, WV, FK, FV, UA, WA, FN (IWXXM: LA, LP, LC, LT, LS, LY, LV, LK, LV, *special air-reports not defined yet*, LW, LN);

d. Develop procedures for monitoring and management of the OPMET information, based on similar procedures used in the EUR and APAC Regions; and

e. Support the Information Management Panel and MET Panel Working Group on Meteorological Information Exchange (WG-MIE) in Regional implementation of IWXXM within MID. The initial implementation emphasis will be placed on States hosting ROCs/RODBs. Progress report to be provided to MID MET SG;

f. Use results from monitoring to measure OPMET (METAR and TAF) availability in MID Region against the required data listed in Table MET II-2, *Aerodrome Meteorological Offices*, of the MID Air Navigation Plan to support key performance index for OPMET component of B0-AMET of the implementation methodology called Aviation System Block Upgrade (ASBU) and keep under review; and

g. Provide regular progress reports to MET SG meetings.

3. Composition

a. The OPMET/BMG is composed of Bahrain (Back-up ROC), Egypt, Iran, Kuwait (co-rapporteur), Libya, Oman, Qatar, Saudi Arabia (co-rapporteur, ROC) and United Arab Emirates; and

b. Experts from the EUR DMG, the VAAC Toulouse, APAC OPMET/M Task force and IATA are invited to participate in the work of the MID OPMET BMG.

4. Working Arrangements

It is expected that most of the work of the group will be conducted via correspondence by fax, e-mail or telephone. The group should establish a network of OPMET focal points at all MID COM/MET Centres dealing with OPMET data. When necessary, the Rapporteur, in coordination with the Regional Office, Cairo, will call teleconferences or meetings to discuss important issues.

APPENDIX 4.4A

PERFORMANCE FRAMEWORK FOR MET IMPLEMENTATION IN THE MID REGION

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety				
Elements	***Applicability***	***Performance Indicators/Supporting Metrics***	***Targets***	***Remarks***
SADIS FTP	***All** States*	Indicator: % of States having implemented SADIS FTP service Supporting metric: Number of States having implemented SADIS FTP service	100% By Dec. 2018	Current status 11 out of 15 States (73%)
QMS	***All** States*	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	80% by Dec. 2018	Current status 9 out of 15 States (60%)
SIGMET	***All** States with MWO*	Indicator: % of States having implemented SIGMET Supporting metric: number of States having implemented SIGMET	100% by Dec. 2018	Current status 12 out of 14 States (86%)
OPMET	***All** States*	Indicator: % States having implemented METAR and TAF Supporting metric: number of States having implemented METAR and TAF	95% by Dec. 2018	Current status 12 out of 15 States (80%) Note: 55 of 60 AOP aerodromes require METAR and TAF. The other 5 aerodromes only METAR will be counted.

APPENDIX 4.5A

State	Status	Implementation/Certification Date	Planned Implementation Date
MID Region			
Bahrain	QMS implemented	2008	
Egypt	QMS implemented	May 2018	
Iran, Islamic Republic of	QMS implemented	Oct 2015	
Iraq			Implementation plan not received
Jordan	QMS implemented	2 Apr 2014	
Kuwait	QMS implemented	23 Aug 2013	
Lebanon			Implementation plan not received
Libya			Implementation plan not received
Oman	Process of certification to begin in 2020		2020
Qatar	QMS implemented	Dec 2011	
Saudi Arabia	QMS implemented	Aug 2014	
Sudan	QMS implemented	5 Jun 2014	
Syrian Arab Republic			Implementation plan not received
United Arab Emirates	QMS implemented	19 Dec 2012	
Yemen			Implementation plan not received

APPENDIX 4.6A

MID AIR NAVIGATION PLAN

VOLUME II

MID AIR NAVIGATION PLAN

VOLUME II

RECORD OF AMENDMENTS

This version of the ICAO MID Air Navigation Plan (Doc 9708), MID eANP - Volume II includes the following approved amendment(s):

PfA Serial No.	Originator	Brief description	Date Approved	Date Entered
MID-II-16/01-ATM	Egypt and Jordan	Amendment of Table ATM II-MID-1	11 Oct 2016	28 Aug 2017
MID-II 17/01-AOP-CNS	Egypt, Jordan, Sudan, UAE and the CNS SG	Amendment of Tables AOP II-1 and CNS II-1	28 Aug 2017	28 Aug 2017

TABLE OF CONTENTS

MID ANP, VOLUME II

PART 0 – INTRODUCTION

1. GENERAL

1.1 The background to the publication of ANPs in three volumes is explained in the Introduction in Volume I. The procedure for amendment of Volume II is also described in Volume I.

1.2 Volume II contains dynamic plan elements related to:

a) the assignment of responsibilities to States for the provision of aerodrome and air navigation facilities and services; and

b) the mandatory requirements related to aerodrome and air navigation facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.3 Volume II does not list all facilities in the region but only those required for international civil aviation operations in accordance with regional air navigation agreements. A regional air navigation agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. Documents from the Integrated Aeronautical Information Package and other publications should be consulted for information on additional facilities and for operational information in general. Detailed guidance material or concepts, complementary to the material in Volumes I, II and III are contained in documents that are referenced as MID Documents.

2. MANAGEMENT OF REGIONAL AIR NAVIGATION PLANS

2.1 The elements in Volume II are reviewed by the MIDANPIRG in accordance with its schedule of meetings, in consultation with provider and user States, and with the assistance of the ICAO MID Regional Office.

2.2 The information on States' facilities and services included in Volume II, should be updated following the process of regional air navigation agreements.

2.3 The development and maintenance of region-specific documents that provide detailed guidance material or concepts that are complementary to the material in Volumes I, II and III is the responsibility of the MIDANPIRG.

MID ANP, VOLUME II

PART I – GENERAL PLANNING ASPECTS (GEN)

1. INTRODUCTION

1.1. The material in this part of Volume II of ANP is applicable to one or more parts of the ANP. It should be taken into consideration in the overall planning process for the MID Region.

2. GENERAL REGIONAL REQUIREMENTS

2.1. To facilitate air navigation systems planning and implementation, homogenous ATM areas and/or major traffic flows/routing areas have been defined for the Region. While these areas of routing do not encompass all movements in the Region, they include the major routes. This includes the domestic flights in that particular area of routing.

Homogeneous ATM area

2.2. A homogeneous ATM area is an airspace with a common ATM interest, based on similar characteristics of traffic density, complexity, air navigation system infrastructure requirements or other specified considerations. In such an ATM area a common detailed plan will foster the implementation of interoperable ATM systems. Homogeneous ATM areas may extend over States, specific portions of States, or groupings of States. They may also extend over large oceanic and continental areas. They are considered areas of shared interest and requirements.

2.3. The method of identifying homogeneous ATM areas involves consideration of the varying degrees of complexity and diversity of the worldwide air navigation infrastructure. Based on these considerations, planning could best be achieved at the global level if it was organized based on ATM areas of common requirements and interest, taking into account traffic density and the level of sophistication required.

Major traffic flows/routing areas

2.4. A major traffic flow refers to a concentration of significant volumes of air traffic on the same or proximate flight trajectories. Major traffic flows may cross several homogeneous ATM areas with different characteristics.

2.5. A routing area encompasses one or more major traffic flows, defined for the purpose of developing a detailed plan for the implementation of ATM systems and procedures. A routing area may cross several homogeneous ATM areas with different characteristics. A routing area specifies common interests and requirements of underlying homogeneous areas, for which a detailed plan for the implementation of ATM systems and procedures either for airspace or aircraft will be specified.

2.6. The homogeneous ATM areas and major traffic flows/routing areas identified are given in **Table GEN II-1**.

TABLE GEN II-1 - HOMOGENEOUS ATM AREAS AND/OR MAJOR TRAFFIC FLOWS IDENTIFIED IN THE MID REGION

EXPLANATION OF TABLE

Column

1	Area of routing (AR)	Sequential number of area of routing
2	Homogeneous Areas and/or Traffic flows/ routing areas	Brief description and/or name
3	FIRs involved	List of FIRs concerned
4	Type of area covered	Brief description of type of area, examples: Oceanic or Continental High or low density Oceanic en-route or Continental en-route
5	Remarks	Homogeneous ATM Area and/or Major Traffic Flow and Region(s) concerned

Area of routing (AR)	Homogeneous Areas and/or Traffic flows/ routing areas	FIRs involved	Type of area covered	Remarks
1	2	3	4	5
AR1	Asia and Europe, Asia and the Middle East, Europe and the Middle East, via the northern Arabian Peninsula and Eastern Mediterranean	Amman, Bahrain, Beirut, Damascus, Emirates, Jeddah, Kuwait, Muscat	Continental high density	Mainly intraregional and MID to/from ASIA and EUR. Some overflying EUR/ASIA traffic
AR2	Libya, Egypt and the southern Arabian Peninsula to/from Europe, Africa ,Asia and North Africa	Bahrain, Cairo, Emirates, Jeddah, Muscat, Sana'a, Tripoli	Remote continental and oceanic low density (but seasonally high density)	Major traffic flow mainly landing and departing the MID region. Some EUR/AFI traffic and North Africa
AR3	Asia and Europe, Asia and the Middle East, Europe and the Middle East, north of the Gulf	Emirates, Teheran	Continental high density	Major traffic flow ASIA/EUR
AR4	Gulf, Asia (Indian subcontinent) to/from North of Europe	Baghdad, Bahrain, Emirates, Kuwait, Muscat	Continental high density	MID to/from Asia and EUR
AR5	Gulf Area to/from Eastern, Central and West Africa	Bahrain, Emirates, Jeddah, Khartoum, Muscat	Continental low density (Seasonal high density)	Traffic flow Intraregional. Seasonal pilgrim flights to/from, East, Central, and West AFI

MID ANP, VOLUME II

PART II – AERODROMES / AERODROME OPERATIONS (AOP)

1. INTRODUCTION

1.1 This part of the MID ANP, Volume II, complements the provisions in ICAO SARPs and PANS related to aerodrome design and operations (AOP). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of AOP facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to AOP facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

2. GENERAL REGIONAL REQUIREMENTS

2.1 **Table AOP II-1** contains the list of facilities and services to be provided by the State concerned at each aerodrome that is listed in **Table AOP I-1** in Volume I. Table AOP II-1 shows the operational requirements at each aerodrome to be considered in planning the facilities and services for safe and efficient aircraft operations.

Visual aids for low visibility aerodrome operations

2.2 At aerodromes where there is a requirement to conduct low visibility operations, the appropriate visual and non-visual aids should be provided.

Non-precision approach aids

2.3 Where required by the topographic and/or environmental situation of an aerodrome, improved track guidance during departure and/or approach by specific non-visual and/or visual aids should be provided even if such aids would not normally be required in accordance with the SARPs.

Reduced runway declared distances for take-off

Note. — In the following operational requirements the term "intersection" is used to cover both intersection and junction concepts.

2.4 The reduced runway declared distances for take-off, as for those used for full runway declared distances, should consist of take-off run available (TORA), take-off distance available (TODA) and accelerate-stop distance available (ASDA).

2.5 The datum-line from which the reduced runway declared distances for take-off should be determined is defined by the intersection of the downwind edge of the specific taxiway with the runway edge. The loss, if any, of runway length due to alignment of the aircraft prior to take-off should be taken into account by the operators for the calculation of the aircraft's take-off weight.

2.6 Intersections used as intermediate take-off positions should be identified by the "taxiway designator" to which the datum-line of the associated reduced runway declared distance for take-off refers.

2.7 At each international aerodrome, specific minima visibility for take-off should be established, regulating the use of intersection take-off positions. These minima should permit the appropriate ATC unit to maintain a permanent surveillance of the ground movement operations, and the flight crews to constantly secure their position on the manoeuvring area, so as to exclude any potential risk of confusion as to the

identification of the aircraft and intersections used for take-off. The minima should be consistent with the surface movement guidance and control system (SMGCS) provided at the aerodrome concerned.

2.8 The provision of marking and lighting aids together with signs should ensure the safe control and guidance of aircraft towards and at take-off intersections appropriate to the minima visibility criteria retained. At the runway holding position of the associated intersection take-off position, such signs should indicate the runway heading and the remaining TORA in metres.

2.9 At aerodromes regularly used by international commercial air transport, take-offs from runway/taxiway intersections may be justified for the following reasons:

a) runway capacity improvement;
b) taxi routes distances reduction;
c) noise alleviation; and
d) air pollution reduction.

2.10 The appropriate authorities should, upon prior consultation with aircraft operators, agree on the selection of suitable intermediate intersection take-off positions along the runway(s). Accordingly, authorities should determine the reduced runway declared distances for take-off associated with each selected intersection take-off position and establish the specific ATC rules and operational procedures/limitations. Such provisions should be published in the State aeronautical information publications (AIP).

Aerodrome capacity management

2.11 As an integral part of the air navigation system, the aerodrome should provide the needed ground infrastructure including, *inter alia*, lighting; taxiways; runway, including exits; aprons and precise surface guidance to improve safety and to maximize aerodrome capacity in all weather conditions. An efficient aerodrome capacity planning and management should include:

a) reduction of runway occupancy time;
b) the capability to safely manoeuvre in all weather conditions whilst maintaining capacity;
c) precise surface guidance to and from a runway required in all conditions; and
d) availability of information on the position (to an appropriate level of accuracy) and intent of all vehicles and aircraft operating on the movement area for the appropriate ATM community members.

2.12 States should ensure that adequate consultation and, where appropriate, cooperation between airport authorities and users/other involved parties are implemented at all international aerodromes to satisfy the provisions of aerodrome capacity assessment and requirement.

2.13 When international aerodromes are reaching designed operational capacity, a better and more efficient utilization of existing runways, taxiways and aprons is required. Runway selection procedures and standard taxi routes at aerodromes should ensure an optimum flow of air traffic with a minimum of delay and a maximum use of available capacity. They should also, if possible, take account of the need to keep taxiing times for arriving and departing aircraft as well as apron occupancy time to a minimum. The airport collaborative decision making (A-CDM) concept should be implemented to improve airport capacity as early as possible.

Aerodrome capacity assessment and requirement

2.14 The declared capacity/demand condition at aerodromes should be periodically reviewed in terms of a qualitative analysis for each system component and, when applicable, the result of the qualitative assessment upon mutual agreement be used for information.

2.15 The future capacity/demand, based on a forecast for the next five years, should be agreed upon after close cooperation between aerodrome authorities and affected users.

2.16 Operators should consult with aerodrome authorities when future plans indicate a significant increased requirement for capacity resulting in one of the elements reaching a limiting condition.

2.17 Aerodrome capacity should be assessed by aerodrome authorities in consultation with the parties involved for each component (terminal/apron/aircraft operations) using agreed methods and criteria for level of delays.

2.18 Where restrictions in aerodrome capacity are identified, a full range of options for their reduction or removal should be evaluated by the aerodrome authority, in close cooperation with the operators and other involved parties. Such options should include technical/operational/procedural and environmental improvements and facility expansion.

2.19 At many aerodromes, airspace capacity has influence on the aerodrome capacity. If the declared capacity of a specified airspace has influence on aerodrome operations, this should be indicated and action undertaken to reach a capacity in this airspace corresponding to the aerodrome capacity.

2.20 The possibility of overcoming capacity limitations should also take the use of other aerodromes in the vicinity into consideration.

Closure of regular aerodromes

2.21 When a regular aerodrome is to be closed, States should ensure that sufficient alternate aerodromes remain open to provide for the safety and efficiency of aircraft approaching the regular aerodrome that may be required to divert to an alternate.

Scheduling aerodrome maintenance

2.22 States, when planning major aerodrome maintenance work that would affect the regularity of international aircraft operations, should consider the need to notify aircraft operators sufficiently in advance prior to undertaking the scheduled work.

3. SPECIFIC REGIONAL REQUIREMENTS

None.

Table AOP II-1 –REQUIREMENTS AND CAPACITY ASSESSMENT

EXPLANATION OF THE TABLE

Note: Columns 3 to 5 for physical characteristics relate to runways and taxiways. The physical characteristics of taxiways and aprons should be compatible with the aerodrome reference code (Column 3) and appropriate for the runways with which they are related.

Column

1 Name of the city and aerodrome, preceded by the location indicator.

Note 1— When the aerodrome is located on an island and no particular city or town is served by the aerodrome, the name of the island is included instead of a city.

Designation of the aerodrome as:
RS — international scheduled air transport, regular use;
RNS — international non-scheduled air transport, regular use;
AS — international scheduled air transport, alternate use; and
ANS — international non-scheduled air transport, alternate use.

2 Required rescue and firefighting service (RFF). The required level of protection expressed by means of an aerodrome RFF category number, in accordance with Annex 14, Volume I, 9.2.

3 Aerodrome reference code (RC). The aerodrome reference code for aerodrome characteristics expressed in accordance with Annex 14, Volume I, chapter 1. The code letter or number within an element selected for design purposes is related to the critical aeroplane characteristics for which the facilities are provided.

4 Runway Designation numbers

5 Type of each of the runways to be provided. The types of runways, as defined in Annex 14, Volume I, Chapter 1, are:
NINST — non-instrument runway;
NPA — non-precision approach runway;
PA1 — precision approach runway, Category I;
PA2 — precision approach runway, Category II;
PA3 — precision approach runway, Category III.

6 Remarks. Additional information including critical design aircraft selected for determining RC, critical aircraft selected for determining the RFF category and critical aircraft for pavement strength. Only one critical aircraft type is shown if it is used to determine all the above three elements: otherwise different critical aircraft types need to be shown for different elements.

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
BAHRAIN					
BAHRAIN/Bahrain Intl (OBBI) RS	10	4F	12 R 30 L 12 L 30 R	NPA NPA PA 1 PA 1	

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
EGYPT					
ALEXANDRIA/Borg El –Arab Intl (HEBA)	8	4E	14 32	NPA PA1	
RS					
ASWAN/Aswan Intl (HESN)	9	4E	17	NPA	
RS			35	PA1	
CAIRO/Cairo Intl (HECA)	9	4E	05L	PA1	
RS			23R	PA1	
		4F	05C	PA2	
			23C	PA2	
		4E	05R	PA2	
			23L	PA2	
		4D	16	NINST	
			34	NINST	
HURGADA/Hurghada Intl (HEGN)	9	4E	16L	NPA	
			34R	PA1	
RS		4E	16R	NPA	
			34L	NPA	
LUXOR/Luxor Intl (HELX)	9	4E	02	PA1	
RS			20	PA1	
MARSA ALAM/Marsa Alam Intl (HEMA)	7	4D	15	NPA	
			33	NPA	
RNS					
SHARM EL-SHEIKH/Sharm El Sheikh Intl (HESH)	9	4E	04L	PA1	
			22R	NPA	
RS					
			04R	NPA	
			22L	NPA	
IRAN, ISLAMIC REPUBLIC OF					
BANDAR ABBAS/Bandar Abbas Intl (OIKB)	8	4D	03R 21L	NPA PA1	
RS					
			03L	NINST	
			21R	NINST	

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
ESFAHAN/Shahid Beheshti Intl (OIFM) RS	9	4E	08L 26R 08R 26L	NPA PA1 NPA NPA	
MASHHAD/Shahid Hashemi Nejad Intl (OIMM) RS	9	4D	13L 31R 13R 31L	NPA PA1 NPA NPA	
SHIRAZ/Shiraz Intl (OISS) RS	9	4D	11R 29L 11L 29R	NINST PA1 NINST NPA	
TABRIZ/Tabriz Intl (OITT) RNS	9	4D	12L 30R 12R 30L	NPA PA1 NINST NINST	
TEHRAN/Imam Khomaini Intl (OIIE) RS	9	4E	11L 29R	NPA PA2	
TEHRAN/Mehrabad Intl (OIII) RS	9	4E	11R 29L 11L 29R	NPA PA1 NPA NPA	
YAZD/ Shahid Sadooghi Intl (OIYY) RS	8	4E	13 31	NPA PA1	
ZAHEDAN/ Zahedan Intl (OIZH) RS	8	4D	17 35	NINST PA1	
IRAQ					
Al Najaf/Al Najaf Intl (ORNI) RNS	8	4D	28 10	NP1	
BAGHDAD/Baghdad Intl (ORBI) RS	8	4E	15R 33L	PAI PA2	
BASRAH/Basrah Intl (ORMM) RS	8	4E	14 32	NINST PA2	
ERBIL/Erbil Intl (ORER) RS	7	4C	15 33	PA1 NINST	
MOUSL/Mousl Intl (ORBM) RS	7	4C	15 33	NINST NINST	

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
SULYMANIYAH/Sulaymaniyah Intl (ORSU) RS	9	4E	31 13	PA1 PA1	
JORDAN					
AMMAN/Marka Intl (OJAM) ANS	8	4C	06 24	NPA PA1	
AMMAN/Queen Alia Intl (OJAI) RS	10	4E	08R 26L 08L 26R	NPA PA2 PA 2 PA 2	
AQABA/ King Hussein Intl (OJAQ) RS	9	4E	01 19	PA1 PA1	
KUWAIT					
KUWAIT/Kuwait Intl (OKBK) RS	9	4E	15R 33L 15L 33R	PA2 PA2 PA2 PA2	
LEBANON					
BEIRUT/ Rafic Hariri Intl (OLBA) RS	9	4E	03 21 16 34 17 35	PA1 PA1 PA1 NINST PA1 NINST	
LIBYA					
BENGHAZI/Benina (HLLB) RS	8	4D 4C	15L 33R 15R 33L	PA1 NPA NPA PA1	
SEBHA/Sebha (HLLS) RS	7	4C	13 31 06 24	PA1 NPA	

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
TRIPOLI/Tripoli Intl (HLLT)	8	4E	09	PA1	
RS			27	PA2	
			18		
			36		
OMAN					
MUSCAT/Muscat Intl (OOMS)	9	4E	08	PA1	
RS			26	PA1	
SALALAH/Salalah (OOSA)	9	4E	07	NPA	
AS			25	PA1	
QATAR					
DOHA/Doha Intl (OTBD)	9	4E	15	PA1	
RS			33	PA3	
DOHA/Hamad Intl (OTHH)	10	4F	16L	PA3	
RS			34R	PA3	
			16R	PA3	
			34L	PA3	
SAUDI ARABIA					
DAMMAM/Kind Fahid Intl (OEDF)	9	4E	16L	PA2	
			34R	PA2	
RS			16R	PA2	
			34L	PA2	
JEDDAH/King Abdulaziz Intl (OEJN)	9	4E	16R	PA2	
			34L	PA2	
RS			16C	PA2	
			34C	PA2	
			16L	PA1	
			34R	PA1	
MADINAH/Prince Mohammad Bin Abdulaziz Intl (OEMA)	8	3D	17	PA1	
			35	PA1	
RS		4E			
			18	NPA	
			36	PA1	
RIYADH/King Khalid Intl (OERK)	9	4E	15L	PA1	
			33R	PA1	
RS					
			15R	PA1	
			33L	PA1	

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
SOUTH SUDAN					
JUBA/Juba (HSSJ)	6	4C	13	PA1	
RS			31	NINST	
SUDAN					
EL OBEID/El Obeid (HSOB)	7	4D	01	NPA	
AS			19	NPA	
KHARTOUM/Khartoum (HSSS)	9	4E	18	PA1	
RS			36	NPA	
NYALA/Nyala (HSNN)	7	4D	04	NPA	
AS			22	NPA	
PORT SUDAN/Port Sudan Intl (HSPN)	8	4D	17	NPA	
RS			35	PA1	
SYRIAN ARAB REPUBLIC					
ALEPPO/Aleppo Intl (OSAP)	7	4D	09	PA2	
RS			27	PA2	
DAMASCUS/ Damascus Intl (OSDI)	8	4E	05L	PA2	
			23R	PA2	
RS			05R	PA2	
			23L	PA2	
LATTAKIA /Bassel AL-Assad Intl (OSLK)	5	4D	17	NPA	
RS			35	NPA	
UNITED ARAB EMIRATES					
ABU DHABI/Abu Dhabi Intl (OMAA)	10	4F	13 R	PA1	
RS			31 L	PA3	
	10	4F	13 L	PA3	
			31 R	PA3	
ABU DHABI /Al Bateen Exclusive (OMAD)	7	4C	13	NPA	
RS			31	PA1	
AL AIN/Al Ain Intl (OMAL)	9	4E	01	PA1	
RS			19	NPA	
DUBAI/Al Maktoum Intl (OMDW)	10	4F	12	PA3	
RS			30	PA3	

City/Aerodrome/Designation	RFF category	Physical characteristics			Remarks
		RC	RWY No.	RWY type	
1	2	3	4	5	6
DUBAI/Dubai Intl (OMDB)	10	4F	12L	PA3	
RS			30R	PA3	
			12R	PA3	
			30L	PA3	
FUJAIRAH/Fujairah Intl (OMFJ)	9	4E	11	NPA	
RS			29	PA1	
RAS AL KHAIMAH /Ras Al Khaimah Intl (OMRK)	7	4E	16	NPA	
RS			34	PA1	
SHARJAH/Sharjah Intl (OMSJ)	9	4F	12	PA2	
RS			30	PA2	
YEMEN					
ADEN/Aden Intl (OYAA)	9	4E	08	NPA	
RS			26	PA1	
HODEIDAH/ Hodeidah Intl (OYHD)	9	4E	03	NPA	
RS			21	NPA	
MUKALLA/Riyan Intl (OYRN)	9	4E	06	NPA	
RS			24	NPA	
SANA'A/Sana'a Intl (OYSN)	9	4E	18	PA1	
RS			36	NPA	
TAIZ/ Taiz Intl (OYTZ)	9	4E	01	NPA	
RS			19	NPA	

MID ANP, VOLUME II

PART III – COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS)

1. INTRODUCTION

1.1 This part of the MID ANP, Volume II, complements the provisions in ICAO SARPs and PANS related to communication, navigation and surveillance (CNS). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of CNS facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to CNS facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

2. GENERAL REGIONAL REQUIREMENTS

Communications

Aeronautical Fixed Service (AFS)

2.1 The aeronautical fixed service should comprise the following systems and applications that are used for ground-ground (i.e. point-to-point and/or point-to-multipoint) communications in the international aeronautical telecommunication service:

a) ATS direct speech circuits and networks;

b) meteorological operational circuits, networks and broadcast systems, including World Area Forecast System – Internet File Service (WIFS) and/or Satellite Distribution System for Information Relating to Air Navigation (SADIS);

c) the aeronautical fixed telecommunications network (AFTN);

d) the common ICAO data interchange network (CIDIN);

e) the air traffic services (ATS) message handling services (AMHS); and

f) the inter-centre communications (ICC).

2.2 To meet the data communication requirements, a uniform high-grade aeronautical network should be provided, based on the aeronautical telecommunication network (ATN), taking into account the existence and continuation of current networks.

2.3 Contingency procedures should be in place to ensure that, in case of a communication centre breakdown, all the parties concerned are promptly informed of the prevailing situation. All possible arrangements should be made to ensure that, in case of breakdown of a communications centre or circuit, at least high-priority traffic continues to be handled by appropriate means.

2.4 AFS planning should permit flexibility in detailed development and implementation. The required AFTN Stations and Centres are listed in the AFTN Plan in **Table CNS II-1**.

The Aeronautical Telecommunication Network (ATN)

2.5 The ATN should be able to:

a) support applications carried by the existing networks;

b) support gateways enabling inter-operation with existing networks; and

c) support ground-ground communications traffic associated with air-ground data link applications.

2.6 The ATN should make optimum use of dedicated bilateral/multilateral aeronautical links and other communication means commensurate with the operational Quality of Service (QoS) requirements.

2.7 The implementation of the ATN should take into account the need for cost-effective evolution in terms of network capacity, requirements and time-frame and allow for a progressive transition from existing communication networks and services to a uniform, harmonised and integrated communications infrastructure, capable of supporting the implementation of future aeronautical services such as Flight and Flow Information in a Collaborative Environment (F-FICE), System-Wide Information Management (SWIM) applications, etc.

2.8 In case means other than dedicated bilateral links are used by the ATN, States should ensure that service level agreements (SLA) are met in terms of implementation priority, high availability, priority in restoration of service and appropriate levels of security.

2.9 The ATN should provide for interregional connections to support data exchange and mobile routing within the global ATN.

2.10 In planning the ATN, provisions should be made, where required, for interfacing with other international networks. The Required ATN Infrastructure Routing Plan is described under **Table CNS II-2**.

Network services

2.11 The Internet Society (ISOC) communications standards for the Internet Protocol Suite (IPS) should be used for the implementation of AMHS.

2.12 The migration from legacy bit-oriented protocols such as X.25 Protocol suite to IPS should be planned.

2.13 The migration of international or sub-regional ground networks to the ATN based on Internet Protocol (IP) to support AFS communication requirements, while reducing costs, should be planned.

2.14 States should ensure that the solutions provided for the implementation of the ATN meet the air traffic management and aeronautical fixed service requirements. Such requirements should consist of:

a) Performance requirements: availability, continuity, integrity, monitoring and alerting criteria per data flow. In the case where a required communication performance (RCP) is globally prescribed, requirements derived from RCP should be stated;
b) Interoperability requirements;
c) Safety and security requirements, duly derived after the identification of operational hazards and threats, and allocation of objectives; and
d) Implementation process requirements (creation, test, migration, upgrades, priority in restoration of service, termination).

Network management

2.15 An ICAO centralised off-line network management service is provided to participating AFTN/ AMHS centres in the MID Region under the ATS Messaging Centre (AMC).

2.16 In the case of integrated communications services procured and shared by several States, organizational provisions should allow for the planning and performing of the management of technical performance, network configuration, fault, security, cost division/allocation, contract, orders and payment.

Specific air traffic management (ATM) requirements

2.17 Where ATS speech and data communication links between any two points are provided, the engineering arrangements should be such as to avoid the simultaneous loss of both circuits. The required ATS direct speech circuits plan is detailed under **Table CNS II-3**.

2.18 Special provisions should be made to ensure a rapid restoration of ATS speech circuits in case of outage, as derived from the performance and safety requirements.

2.19 Data circuits between ATS systems should provide for both high capacity and message integrity.

2.20 The Inter-Centre Communication (ICC), consisting of ATS Inter-facility Data Communication (AIDC) application and the Online Data Interchange (OLDI) application, should be used for automated

exchange of flight data between ATS units to enhance the overall safety of the ATM operation and increase airspace capacity.

2.21 Where Voice over IP is planned or implemented between ATS units for voice communications, it should meet the ATS requirements. When data and voice are multiplexed, particular attention should be paid to the achievement of the ATM performance and safety requirements.

Specific meteorological (MET) requirements

2.22 The increasing use of the GRIB (Gridded Binary or General Regularly-distributed Information in Binary form) and BUFR (Binary Universal Form for the Representation of meteorological data) code forms for the dissemination of the upper wind and temperature and significant weather forecasts and the planned transition to digital form using extensible markup language (XML)/geography markup language (GML) for the dissemination of OPMET data should be taken into account in the planning process of the ATN.

2.23 In planning the ATN, account should be taken of changes in the current pattern of distribution of meteorological information resulting from the increasing number of long-range direct flights and the trend towards centralized flight planning.

Specific aeronautical information management (AIM) requirements

2.24 The aeronautical fixed service should meet the requirements to support efficient provision of aeronautical information services through appropriate connections to area control centres (ACCs), flight information centres (FICs), aerodromes and heliports at which an information service is established.

Aeronautical Mobile Service (AMS)

2.25 To meet the air-ground data communication requirements, a high-grade aeronautical network should be provided based on the ATN, recognising that other technologies may be used as part of the transition. The network needs to integrate the various data links in a seamless fashion and provide for end-to-end communications between airborne and ground-based facilities.

2.26 Whenever required, use of suitable techniques on VHF or higher frequencies should be made. The required HF network designators applicable for the MID Region are listed in **Table CNS II-4**.

2.27 Aerodromes having a significant volume of International General Aviation (IGA) traffic should also be provided with appropriate air-ground communication channels.

Air-Ground Data Link Communications

2.28 A Strategy for the harmonised implementation of the data link communications in the MID Region should be developed based on the Global Operational Data Link Document (GOLD) adopted by ICAO Regions and the Aviation System Block Upgrade (ASBU) methodology.

2.29 Where applicable, controller-pilot data link communications (CPDLC), based on ATN VDL data link Mode 2 (VDL2) and/or FANS-1/A, should be implemented for air-ground data link communications.

2.30 Partial or divergent aircraft data link evolutions that result in excluding messages from aircraft systems should not be pursued. Interim steps or phases toward full implementation of the common technical definition in ground systems should only be pursued on a regional basis, after coordination between all States concerned.

2.31 Harmonization of operational procedures for implementation of the above packages is essential. States, Planning and Implementation Regional Groups (PIRGs) and air navigation services providers should adopt common procedures to support seamless ATS provision across FIR boundaries, rather than each State or Region developing and promulgating unique procedures for common functions.

Required Communication Performance (RCP)

2.32 The Required Communication Performance (RCP) concept characterizing the performance required for communication capabilities that support ATM functions without reference to any specific technology should be applied wherever possible.

2.33 States should determine, prescribe and monitor the implementation of the RCP in line with the provisions laid down in the *ICAO Manual on Required Communication Performance* (Doc 9869).

Navigation

Navigation Infrastructure

2.34 The navigation infrastructure should meet the requirements for all phases of flight from take-off to final approach and landing.

Note: Annex 10 to the Convention on International Civil Aviation—Aeronautical Telecommunications, Volume I — Radio Navigation Aids, Attachment B, provides the strategy for introduction and application of non-visual aids to approach and landing.

2.35 The *MID Region PBN Implementation Plan* provides guidance to air navigation service providers, airspace operators and users, regulators, and international organizations, on the expected evolution of the regional air navigation system in order to allow planning of airspace changes, enabling ATM systems and aircraft equipage. It takes due account of the operational environment of the MID Region.

PBN Transition Strategy

2.36 During transition to performance-based navigation (PBN), sufficient ground infrastructure for conventional navigation systems should remain available. Before existing ground infrastructure is considered for removal, users should be given reasonable transition time to allow them to equip appropriately to attain a performance level equivalent to PBN. States should approach removal of existing ground infrastructure with caution to ensure that safety is not compromised. This should be guaranteed by conducting safety assessments and consultations with the users.

Use of specific navigation aids

2.37 Where, within a given airspace, specific groups of users have been authorized by the competent authorities to use special aids for navigation. The respective ground facilities should be located and aligned so as to provide for full compatibility of navigational guidance with that derived from the SARPs.

2.38 States should ensure and oversee that service providers take appropriate corrective measures promptly whenever required by a significant degradation in the accuracy of navigation aids (either space based or ground based or both) is detected.

Surveillance

2.40 An important element of modern air navigation infrastructure required to manage safely increasing levels and complexity of air traffic is aeronautical surveillance systems.

2.41 When operating Mode S radars, States should coordinate with their respective ICAO Regional Office the assignment of their corresponding interrogator identifier (II) codes and surveillance identifier (SI) codes, particularly where areas of overlapping coverage will occur.

Frequency Management

Aeronautical Mobile Service (AMS)

2.42 Frequencies should be assigned to all VHF aeronautical mobile service (AMS) facilities in accordance with the principles laid out in Annex 10, Volume V and *ICAO Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* (Doc 9718) Volumes I and II, and take into account:

a) agreed geographical separation criteria based on 25 kHz or 8.33 kHz interleaving between channels;
b) agreed geographical separation criteria for the implementation of VDL services;
c) the need for maximum economy in frequency demands and in radio spectrum utilization; and
d) a deployment of frequencies which ensures that international services are planned to be free of interference from other services using the same band.

2.43 The priority order to be followed in the assignment of frequencies to service is:

a) ATS channels serving international services (ACC, APP, TWR, FIS);
b) ATS channels serving national purposes;
c) channels serving international VOLMET services;
d) channels serving ATIS and PAR; and
e) channels used for other than ATS purposes.

2.44 The criteria used for frequency assignment planning for VHF AMS facilities serving international requirements should, to the extent practicable, also be used to satisfy the need for national VHF AMS facilities.

2.45 Special provisions should be made, by agreement between the States concerned, for the sharing and the application of reduced protection of non-ATS frequencies in the national sub-bands, so as to obtain a more economical use of the available frequency spectrum consistent with operational requirements.

2.46 States should ensure that no air/ground frequency is utilized outside its designated operational coverage and that the stated operational requirements for coverage of a given frequency can be met for the transmission sites concerned, taking into account terrain configuration.

Radio navigation aids for Aeronautical Radio Navigation Services (ARNS)

2.47 Frequencies should be assigned to all radio navigation facilities taking into account agreed geographical separation criteria to ILS localizer, VOR and GBAS, X and Y channels to DME, in accordance with the principles laid out in Annex 10, Volume V and *ICAO Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* (Doc 9718) Volumes I and II. Also, the need for maximum economy in frequency demands and in radio spectrum utilization and a deployment of frequencies which ensures that international services are planned to be free of interference from other services using the same band, need to be considered.

2.48 The principles used for frequency assignment planning for radio navigation aids serving international requirements should, to the extent possible, also be used to satisfy the needs for national radio aids to navigation.

Support to ICAO Positions for ITU World Radiocommunication Conferences (WRCs)

2.49 Considering the importance and continuous demand of the radio frequency spectrum and for the protection of the current aeronautical spectrum and the allocation of new spectrum for the new services and system to be implemented in civil air navigation, States and international organizations are to support ICAO's position at ITU World Radiocommunication Conferences (WRCs) and in regional and other international activities conducted in preparation for ITU WRCs.

Note: The Handbook on Radio Frequency Spectrum Requirements for Civil Aviation *(Doc 9718) Volume I, contains ICAO policy statements relevant to the aviation requirements for radio frequency spectrum. The handbook is intended to assist States and ICAO in preparing for ITU WRCs.*

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 The MIDAMC application available at: http://www.midamc.jo should be used for all AMHS address coordination and other AMHS and Network related matters.

3.2 The EUROCONTROL MICA application available at: https://extranet.eurocontrol.int/http://webprisme.cfmu.eurocontrol.int/mica/Index.action should be used for the Mode S SSR IC allocation and coordination.

TABLE CNS II-1 - AERONAUTICAL FIXED TELECOMMUNICATIONS NETWORK (AFTN) PLAN

EXPLANATION OF THE TABLE

Column

1 The AFTN Centres/Stations of each State are listed alphabetically. Each circuit appears twice in the table. The categories of these facilities are as follows:
M - Main AFTN COM Centre
T - Tributary AFTN COM Centre
S - AFTN Station

2 Category of circuit:
M - Main trunk circuit connecting Main AFTN communication centres.
T - Tributary circuit connecting Main AFTN communication centre and Tributary AFTN Communications Centre.
S - AFTN circuit connecting an AFTN Station to an AFTN Communication Centre.

3 Type of circuit provided:
LTT/a - Landline teletypewriter, analogue (e.g. cable, microwave)
LTT/d - Landline teletypewriter, digital (e.g. cable, microwave)
LDD/a - Landline data circuit, analogue (e.g. cable, microwave)
LDD/d - Landline data circuit, digital (e.g. cable, microwave)
SAT/a/d - Satellite link, with /a for analogue or /d for digital

4 Circuit signalling speed in bits/s.

5 Circuit protocols

6 Data transfer code (syntax):
ITA-2 - International Telegraph Alphabet No. 2 (5-unit code).
IA-5 - International Alphabet No. 5 (ICAO 7-unit code).
CBI - Code and Byte Independency (ATN compliant).

7 Remarks

State/Station	Category	Requirement				Remarks
		Type	Signalling Speed	Protocol	Code	
1	2	3	4	5	6	
BAHRAIN						
BAHRAIN						
ABU DHABI	M		64 – 9.6Kbps	CIDIN	IA-5	
ANKARA	M		64Kbps	AFTN	IA-5	
BEIRUT	M		64 – 9.6Kbps	AMHS	IA-5	All: AMHS by 2017
DOHA	T		64 – 9.6Kbps	AMHS	IA-5	
JEDDAH	M		64 – 9.6Kbps	AMHS	IA-5	
KUWAIT	M		64 – 9.6Kbps	CIDIN	IA-5	
MUSCAT	M		64 – 9.6Kbps	None	IA-5	
NICOSIA	M		9.6Kbps	CIDIN	IA-5	
SINGAPORE	M		64 – 9.6Kbps	None	IA-5	
TEHRAN	M		64 – 9.6Kbps	None	IA-5	

State/Station	Category	Requirement				Remarks
		Type	Signalling Speed	Protocol	Code	
1	2	3	4	5	6	
EGYPT						
CAIRO	M					
AMMAN	M		64-9.6Kbps	AMHS		
ATHENS	M		64-9.6Kbps	CIDIN	IA-5	
BEN GURION	M		64-9.6Kbps	None	IA-5	
BEIRUT	M		9.6 Kbps	CIDIN	IA-5	
JEDDAH	M		128-9.6Kbps	AMHS		
KHARTOUM	T		9.6Kbps	None	IA-5	
NAIROBI	M		9.6Kbps	None	IA-5	
TUNIS	M		64-9.6Kbps	AMHS	IA-5	
TRIPOLI	T		64-9.6Kbps	None	IA-5	
TRIPOLI	T		9.6Kbps	None	IA-5	STNDBY
DAMASCUS	T		64-9.6Kbps	None	IA-5	
ASMARA	T		9.6Kbps	None	IA-5	
IRAN						
TEHRAN	M					
BAHRAIN	M		64 Kbps	None	IA-5	
KUWAIT	M		64 Kbps	None	IA-5	
ABU-DHABI	M		9.6 Kbps	None	IA-5	
KARACHI	M		64Kbps	None	IA-5	
ANKARA	M		64Kbps	AFTN	IA-5	
MUSCAT	M		64Kbps	None	IA-5	
DAMASCUS	T		50 BD	None	ITA-2	
BAGHDAD	T		64Kbps	None	IA-5	Planned
IRAQ						
BAGHDAD	T		-			
AMMAN	T		2MBps	None	IA-5	VPN
BEIRUT	T		2MBps	None	IA-5	VPN Planed
KUWAIT	T	SAT	9.6Kbps	None	IA-5	
ANKARA	T					
JORDAN						
AMMAN						
ABU DHABI	T		2MBps	AMHS		VPN
ANKARA	M		64Kpbs	AFTN		Land Line
BAGHDAD	T		2MBps	AMHS	-	VPN Planed
BEIRUT	T		2MBps	AMHS	-	VPN Planed
BEN GURION	M		9.6 Kbps	None	IA-5	
CAIRO	T		64 – 9.6Kbps	AMHS		
DAMASCUS	T		64 – 9.6Kbps	None	IA-5	
JEDDAH	M		64Kbps	AMHS	X400	
NICOSIA	T		64Kbps	AFTN	IA-5	

State/Station	Category	Requirement				Remarks
		Type	Signalling Speed	Protocol	Code	
1	2	3	4	5	6	
KUWAIT	T					
KUWAIT	M	LDD/d	64 – 9.6Kbps	None	IA-5	
BAHRAIN	M	LDD/a	64- 9.6 Kbps	None	IA-5	
DAMASCUS	T	LDD/a	64-9.6 Kbps	None	IA-5	
BEIRUT	T	LDD/a	64 – 9.6Kbps	None	IA-5	Back-up
DOHA	M		256Kbps	None	IA-5	
Hamad-Airport	M	LDD/d	64-9.6 Kbps	None	IA-5	
KARACHI	T	LDD/d	64 – 9.6Kbps	None	IA-5	
TEHRAN		SAT/ad	9.6Kbps	None	IA-5	
BAGHDAD						
LEBANON						
BEIRUT	M					
AMMAN	M		2Mbps	AMHS		VPN in process
BAGHDAD	T		2Mbps	CIDIN	IA-	VPN planed
BAHRAIN	M		64-9.6Kbps	CIDIN	5IA-5	
CAIRO	M		9.6Kbps	None	IA-5	
DAMASCUS	T		64-9.6Kbps	None	IA-5	
JEDDAH	M		64-9.6Kbps	None CIDIN	IA-5	
KUWAIT	M		64-9.6Kbps		IA-5	
NICOSIA	M		9.6 Kbps		IA-5	
LIBYA						
TRIPOLI	T					
MALTA	T					
TUNIS	M		9.6Kbps	None		
BENGHAZI	T					
CAIRO	M		64 – 9.6Kbps	None	IA-5	
KHARTOUM	T		9.6Kps	None	IA-5	
OMAN						
MUSCAT						
ABU DHABI	T		64Kbps	AMHS		
BAHRAIN	M		64Kbps	None	IA-5	
MUMBAI	M		64Kbps	None	IA-5	
JEDDAH	M		64Kbps	None	IA-5	
SANA'A	T		100 BD	None	ITA-2	
KARACHI	M		64Kbps	None	IA-5	
TEHRAN	M		64Kbps	None	IA-5	
QATAR						
DOHA						
BAHRAIN	M		2Mbps	AFTN	IA-5 (TCP)	
KUWAIT	M		2Mbps	AMHS	X400(TCP)	
ABU DHABI	T		2Mbps	AMHS	X400(TCP)	

State/Station	Category	Requirement				Remarks
		Type	Signalling Speed	Protocol	Code	
1	2	3	4	5	6	
SAUDI ARABIA						
JEDDAH	M					
ADDIS-ABABA	M	SAT	9.6Kbps	None	IA-5	
BAHRAIN	M		64 – 9.6Kbps	CIDIN	IA-5	AMHS (2015
BEIRUT	M		64-9.6Kbps	None	IA-5	AMHS (2015
CAIRO	M		128–9.6Kbps	AMHS	X400	
MUSCAT	M		64 Kbps	None	IA-5	AMHS (2015
SANA'A	T	SAT	9.6Kbps	None	IA-5	
AMMAN	M		64Kbps	AMHS	X400	
KHARTOUM	T		64Kbps	AMHS	X400	
ABUDHABI	T	SAT	64Kbps	AMHS	X400	
NICOSIA	M		64Kbps	CIDIN	IA-5	AMHS EUR/ MID OPMET
SUDAN						
KHARTOUM	T					
ADDIS ABABA	M		9.6Kbps	None	IA-5	
ASMARA	T		9.6Kbps	None	IA-5	
CAIRO	M		9.6Kbps	None	IA-5	
JEDDAH	M		64Kbps	AMHS		
TRIPOLI	T		9.6Kbps	None	IA-5	
NDJAMENA	M		9.6Kbps	None	IA-5	
SYRIA						
DAMASCUS						
ATHENS	M		2 X 50 BD	None	ITA-2	
AMMAN	T		64 – 9.6Kbps	None	IA-5	
BEIRUT	M		64-9.6Kbps	None	IA-5	
CAIRO	M		9.6Kbps	None	IA-5	
KUWAIT	M		64-9.6Kbps	None	IA-5	
TEHRAN	T		50 BD	None	ITA-2	
UAE						
ABU DHABI						
BAHRAIN	M		9.6Kbps	CIDIN	IA-5	
AMMAN	T	VPN	2 Mbps	AMHS		VPN
MUSCAT	M		64Kbps	AMHS		
DOHA	T		128Kbps	AMHS		
TEHRAN	M		9.6Kbps	None	IA-5	
JEDDAH	T	SAT	64Kbps	AMHS		
YEMEN						
SANA'A						
JEDDAH	T		9.6Kbps	None	IA-5	
MUSCAT	T		100Kbps	None	IA-5	

TABLE CNS II-2 - REQUIRED ATN INFRASTRUCTURE ROUTING PLAN

EXPLANATION OF THE TABLE

Column

1 Name of the Administration and Location of the ATN Router
2 Type of Router (in end systems (ES) of the Administration shown in column 1)
3 Type of Interconnection:
Inter Regional: Connection between different Regions/ domains
Intra Regional: Connection within a Region/ domain.
4 Connected Router: List of the Administration and location of the ATN routers to be connected with the router shown in column 1.
5 Bandwidth: Link Speed expressed in bits per second (bps)
6 Network Protocol: If Internet Protocol Suite is used, indicate version of IP (IPv4 or IPv6)
7 Via: The media used to implement the interconnection of the routers. (in case of IP service bought from a service provider, indicate VPN)
8 Remarks

Administration and Location	Type of Router	Type of Interconnection	Connected Router	Bandwidth	Network Protocol	Via	Remarks
1	2	3	4	5	6	7	8
BAHRAIN, Bahrain	BIS	Inter-Regional Intra Regional	ASIA/PAC Oman, Saudi Arabia Kuwait, Lebanon Iran, Qatar, UAE		IPv4		
EGYPT, Cairo	BIS	Inter-Regional Intra Regional	AFI, EUR Israel, Jordan, Lebanon, Athena Saudi Arabia		IPv4		
IRAN, Tehran	BIS	Intra Regional	ASIA/PAC Kuwait, Bahrain Afganistan		IPv4		
IRAQ, Baghdad	IS	Intra Regional	Jordan, Lebanon		IPv4		
JORDAN, Amman	BIS	Intra Regional	Egypt,Israel Lebanon,Iraq,Syria		IPv4 VPN	JT	
KUWAIT,Kuwait	BIS	Inter-Regional Intra Regional	EUR, Pakistan, Iran,Qatar,Bahrain, Lebanon		IPv4		
LEBANON, Beirut	BIS	Inter-Regional Intra Regional	EUR Jordan,Syria Iraq,Kuwait,Bahrain Saudi Arabia,Egypt		IPv4		
LIBYA	IS	Intra Regional			IPv4		
OMAN, Muscat	BIS	Inter-Regional Intra Regional	ASIA/PAC Yemen, Bahrain, UAE, Saudi Arabia		IPv4 VPN	OT	
QATAR, Doha	IS	Intra Regional	Kuwait, Bahrain Abu Dhabi		IPv4		
SAUDI ARABIA, Jeddah	BIS	Inter-Regional Intra Regional	AFI Egypt, Lebanon Bahrain,Oman Yemen		IPv4		
SUDAN	IS	Intra Regional			IPv4		
SYRIA, Damascus	IS	Intra Regional	Jordan, Lebanon		IPv4 VPN		
U.A.E, Abu Dhabi	BIS	Intra Regional	Bahrain, Oman Qatar		IPv4 VPN		
YEMEN, Sana'a	IS	Intra Regional	Oman, Saudi Arabia		IPv4	YT	

TABLE CNS II-3 - ATS DIRECT SPEECH CIRCUITS PLAN

EXPLANATION OF THE TABLE

Column

1 and 2 Circuit terminal stations are listed alphabetically by the Terminal I.

3 A — indicates ATS requirement for the establishment of voice communication within 15 seconds.
D — indicates requirements for instantaneous communications.

4 Type of service specified:
LTF — landline telephone (landline, cable, UHF, VHF, satellite).
RTF — radiotelephone.

5 Type of circuits; Direct (DIR) or Switched (SW).
D — indicates a direct circuit connecting Terminals I and II.
S — indicates that a direct circuit does not exist and that the connection is established via switching at the switching centre(s) indicated in column 6.
IDD — International direct dialling by public switch telephone network

Note 1.— Number of D and/or S circuits between Terminals I and II are indicated by numerical prefix, i.e. 2 D/S means 2 direct circuits and one switched circuit.

Note 2.— Pending the implementation of proper ATS voice circuits, and provided that aeronautical operational requirements are met, IDD services may be used for the ATS voice communications in low traffic areas.

6 Location of switching centre(s). Alternate routing location, if available, is indicated in brackets.

7 Remarks

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA	
1	2	3	4	5	6	7
BAHRAIN						
Bahrain	Emirates ACC	A	LTF	DIR		4 LINES
	Dammam	A	LTF	DIR		2 LINES
	Doha	A	LTF	DIR		4 LINES
	Jeddah	A	LTF	DIR		2 LINES
	Kuwait	A	LTF	DIR		1 LINES
	Riyadh	A	LTF	DIR		1 LINES
	Tehran	A	LTF	DIR		1 LINES
EGYPT						
Cairo	Amman	A	LTF	DIR		1LINE
	Athens	A	LTF	DIR		2LINES
	Jeddah	A	LTF	DIR		2LINES
	Khartoum	A	LTF			1LINE
	Nicosia	A	LTF	DIR		1LINE
	Tel Aviv	A	LTF	DIR		1LINE
	Tripoli	A	LTF	DIR		1LINE
IRAN (ISLAMIC REPUBLIC OF)						
Abadan	Basrah	A	LTF			
	Shiraz	A	LTF	DIR		

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA	
1	2	3	4	5	6	7
Shiraz	Abadan	A	LTF	DIR		
	Basrah	A	LTF			
	Doha	A	LTF	DIR		
	Karachi	A	LTF	DIR		
	Kuwait	A	LTF	DIR		
	Tehran	A	LTF	DIR		
Tehran	Emirates ACC	A	LTF	DIR		1I
	Ankara	A	LTF	DIR		
	Ashgabat	A	LTF	DIR		
	Baghdad	A	LTF			
	Bahrain	A	LTF	DIR		
	Baku	A	LTF	DIR		
	Basrah	A	LTF			
	Doha	A	LTF	DIR		
	Kabul	A	LTF			
	Karachi	A	LTF	DIR		
	Kuwait	A	LTF	DIR		
	Muscat	A	LTF	DIR		
	Shiraz	A	LTF	DIR		
	Yerevan/Zvartnots	A	LTF	DIR		
IRAQ						
Baghdad	Amman	A	LTF			
	Ankara	A	SAT			
	Basrah	A	LTF			
	Damascus	A	LTF			
	Jeddah	A	LTF			
	Kuwait	A	LTF			
	Mosul	A	LTF			
	Tehran	A				
Basrah	Abadan	A	LTF			
	Baghdad	A	LTF			
	Kuwait	A	LTF			
	Shiraz	A	LTF			
	Tehran	A	LTF			
Mosul	Baghdad	A	LTF			
JORDAN						
Amman	Baghdad	A	LTF			
	Cairo	A	LTF			
	Damascus	A	LTF			
	Jeddah	A	LTF			
	Tel Aviv	A	LTF			

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA	
1	2	3	4	5	6	7
KUWAIT						
	Baghdad	A	LTF			
Kuwait	Bahrain	A	LTF	DIR		
	Basrah	A	LTF			
	Jeddah	A	LTF	DIR		
	Shiraz	A	LTF	DIR		
	Tehran	A	LTF	DIR		
LEBANON						
Beirut	Ankara	A	LTF	DIR		
	Damascus	A	LTF	DIR		
	Nicosia	A	LTF	DIR		
LIBYA						
Tripoli	Cairo					
	Malta					
	Khartoum					
OMAN						
Muscat	Emirates ACC	A	LTF	DIR		
	Mumbai	A	LTF	DIR		
	Jeddah	A	LTF	DIR		
	Karachi	A	LTF	DIR		
	Salalah	A	LTF	DIR		
	Sana'a	A	LTF	DIR		
	Tehran	A	LTF	DIR		
Salalah	Muscat	A	LTF			
QATAR						
Doha	Emirates ACC	A	LTF	DIR		1I + 1
	Bahrain	A	LTF	DIR		
	Jeddah	A	LTF	DIR		
	Riyadh	A	LTF	DIR		
	Dammam	A			Via Bahrain	
SAUDI ARABIA						
Dammam	Bahrain	A	LTF	DIR		
	Jeddah	A	LTF	DIR		
	Riyadh	A	LTF	DIR		

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA	
1	2	3	4	5	6	7
Jeddah	Addis Ababa	A	LTF			
	Amman	A	LTF	DIR		
	Asmara	A	LTF			
	Baghdad	A	LTF			
	Bahrain	A	LTF	DIR		
	Cairo	A	LTF	DIR		
	Dammam	A	LTF	DIR		
	Khartoum	A	LTF			
	Kuwait	A	LTF	DIR		
	Muscat	A	LTF	DIR		
	Riyadh	A	LTF	DIR		
	Sana'a	A	LTF	SW	Via Bahrain	
Riyadh	Bahrain	A	LTF	DIR		
	Jeddah	A	LTF	DIR		
	Dammam	A	LTF	DIR		
SUDAN						
Khartoum	Cairo	A	LTF			
	Jeddah	A	LTF			
SYRIAN ARAB REPUBLIC						
Damascus	Amman	A	LTF			
	Ankara	A	LTF			
	Baghdad	A	LTF			
	Beirut	A	LTF	DIR		
	Nicosia	A	LTF			
UNITED ARAB EMIRATES						
Emirates ACC	Abu Dhabi	A	LTF	DIR		21
	Al Ain	A	LTF	SW		
	Bahrain	A	LTF	DIR		
	Doha	A	LTF	DIR		
	Dubai	A	LTF	DIR		
	Muscat	A	LTF	DIR		
	Tehran	A	LTF	DIR		
Abu Dhabi	Emirates ACC	A	LTF	SW		21
	Al Ain	A	LTF	DIR		21
	Dubai	A	LTF	SW		21
Al Ain	Emirates ACC	A	LTF	SW		21
	Abu Dhabi	A	LTF	DIR		21
	Dubai	A	LTF	SW		21

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA	
1	2	3	4	5	6	7
Dubai	Emirates ACC	A	LTF	DIR		2I + 1
	Abu Dhabi	A	LTF	DIR		2I
	Al Ain	A	LTF	SW		1I
	Fujairah	A	LTF	DIR		1I
	Ras Al KhaimahSharjah	A	LTF	DIR		1I
	Sharjah	A	LTF	DIR		3I
Fujairah	Ras Al Khaimah	A	LTF	DIR		1I
	Emirates ACC	A	LTF	DIR		1I
Ras Al Khaimah	Dubai	A	LTF	DIR		1I
Sharjah	Dubai	A	LTF	DIR		31
YEMEN						
Aden	Djibouti	A	LTF			
	Sana'a	A	LTF			
Mukalla	Aden	A	LTF			
	Sana'a	A	LTF			
Sana'a	Aden	A	LTF			
	Addis Ababa	A	LTF			
	Asmara	A	LTF			
	Mumbai	A	LTF			
	Djibouti	A	LTF			
	Jeddah	A	LTF		Via	
	Mogadishu	A	LTF	DIR	Bahrain	
	Muscat	A	LTF			
	Riyan	A	LTF			

TABLE CNS II-4 - HF NETWORK DESIGNATORS

EXPLANATION OF THE TABLE

Column

1 Name of station, preceded by its location indicator.

2 Network designators assigned to the facility providing HF radiotelephony en-route communications (selected from the provisions of the allotment plan in Appendix S27 to the ITU Radio Regulations).

NOTES

The ICAO designators for HF MWARA and VOLMET networks in the MID region are derived from the ITU allotment area abbreviations as contained in Appendix S27 to the ITU Radio Regulations.

ITU allotment area:

Two- and three-letter alpha entries indicate major world air route areas (MWARA):

Four-letter alpha entries indicate VOLMET areas:

Location Indicator and Name of location	HF en-route family
1	2
Aden	MID-1, AFI-3
Cairo	AFI-3
Jeddah	AFI-3
Khartoum	AFI-3
Riyan	MID-1, AFI-3
Sanaa	MID-1, AFI-3
Shiraz	MID-1, MID-2
Tehran	MID-1, MID-2
Tripoli	AFI-3

HF FREQUENCIES AND THEIR ICAO NETWORK DESIGNATORS BASED ON ITU APPENDIX S27 ALLOTMENT AREAS

Frequency (kHz)	ITU allotment area	AFI-3	MID-1	MID-2	MID-3	V MID	Remarks
1	2	3	4	5	6	7	8
2944	MID				X		
2956	V MID					X	
2992	MID		X				
3467	MID, AFI	X		X			
3473	MID (1)						
4669	MID				X		
5517	AFI	X					
5589	V MID					X	
5658	MID, AFI	X		X			
5667	MID		X				
6625	MID (1)						
6631	MID			X			
8918	MID		X				
8945	V MID					X	
8951	MID				X		
10018	MID			X			
11300	AFI	X					
11375	MID				X		
11393	V MID (2)					X	
13288	MID, AFI	X		X			
13312	MID		X				
17961	AFI, MID	X			X		

MID ANP, VOLUME II

PART IV - AIR TRAFFIC MANAGEMENT (ATM)

1. INTRODUCTION

1.1 This part of the MID ANP, Volume II, complements the provisions in ICAO SARPs and PANS related to Air Traffic Management (ATM). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of ATM facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to ATM facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

2. GENERAL REGIONAL REQUIREMENTS

Optimization of traffic flows

2.1 The Planning and Implementation Regional Groups (PIRGs), through regional air navigation agreement, are responsible for the optimization of the traffic flows through the continuous improvement of the regional ATS route network and organized track systems and implementation of random routing areas and free route airspace in the Regions through the set-up of appropriate mechanisms for regional and inter-regional planning and coordination.

2.2 Whenever practicable, States should, in close coordination with operators, establish the most efficient routings.

2.3 The requirements for regional ATS route network, in particular, for ATS routes over the high seas and airspace of undetermined sovereignty, should be agreed upon through regional air navigation agreement.

Note: States' AIPs and other States publications should be consulted for information on the implemented ATS routes.

Aircraft Identification-SSR Code Management

2.4 Within the context of air traffic management (ATM) and the provision of air traffic services (ATS), SSR code management is a key element of ATM to ensure continuous, unambiguous aircraft identification. The number of secondary surveillance radar (SSR) codes is limited and poor management of the assignment of SSR codes results in capacity constraints and aircraft delays. States and air navigation service providers (ANSP) should apply the SSR Code Management Plan approved by MIDANPIRG. The SSR Codes Management Plan of the MID Region is addressed in the Specific Regional Requirements of Volume II.

3. SPECIFIC REGIONAL REQUIREMENTS

Working Principles for the Construction of Air Routes

3.1. The ATS routes agreed through regional air navigation agreement are listed in **Table ATM II-MID-1**. The routes should be developed based on the ICAO SARPS and PANS-OPS and PANS-ATM criteria and parameters, the following should be taking into consideration for the management of MID Region ATS route Network:

a) Where possible, routes should be established to increase efficiency, reduce complexity and provide additional benefits to users;

b) separation assurance principles should apply;

c) routes should be established with sufficient separation to operate independently;

d) where possible, routes in a radar environment should be procedurally (laterally) separated;

e) segregated tracks should be established on medium/high density routes and be determined by set criteria;

f) where required, routes should be constructed to support terminal area management procedures, e.g. SID s/STARs and flow management techniques, as applicable;

g) holding patterns should be laterally separated from other tracks, and tolerances captured within a single sector;

h) a maximum of two routes containing high traffic density should be blended at a single point. Inbound tracks should be blended at <90 degrees. Up to three low traffic density routes may be blended at a single point;

i) multiple crossing points involving major traffic flows should be avoided.

j) en-route crossings should be minimized. Where crossings are inevitable, they should, where possible, be established for cruise configuration. Such crossings should occur, wherever possible, within radar coverage;

k) airspace sectorization should take account of the route structure, and workload considerations. If necessary, airspace should be re-sectorized to accommodate changes to air route configuration;

l) routes should be constructed so as to reflect the optimum navigation capabilities of the principle users (e.g. RNAV or conventional);

m) the prime determinant should not be the number of track miles. A small increase in track miles may optimize traffic flows, avoid unpredicted delays or avoid holding requirements. Consideration should also be given to the provision of a range of routes which will permit operators to choose cost-efficient routes over the range of expected seasonal wind patterns;

n) due allowance should be given to existing and future flight data processing (FDP) and radar data processing (RDP) capability (i.e. notification of messages for auto hand-off etc.);

o) periodic safety audit and review process of routes should be conducted to test demand against capacity criteria, and the principles. This should ideally be done in parallel with the annual sectorization review; and

p) routes that can no longer be justified should be deleted.

Allocation and Assignment of Secondary Surveillance Radar (SSR) Codes in the MID Region

3.2. The Middle East SSR Code Management Plan (MID SSR CMP), endorsed by MIDANPIRG as MID Doc 005, provides States in the ICAO MID Region with means to coordinate the use of SSR codes based on the provisions of the ICAO Doc 4444 and the principles of the Originating Region Code Assignment Method (ORCAM).

3.3. Certain codes are reserved for special purposes on a world-wide scale. The remaining codes series for use in the Region are divided into two distinct categories: Transit codes (T) for international use and Domestic codes (D) for national use

3.4. The MID Code Allocation List (CAL) at **Table ATM II-MID-2** reflects the assignment of SSR codes to the MID States among the series of codes allocated to the MID Region, based on the number of aircraft to be handled simultaneously within a specified area and for a determined period of protection during traffic peaks.

3.5. The MID Doc 005-*MID SSR CMP*, is available on the ICAO MID website, under eDocuments (https://portal.icao.int/RO_MID/Pages/MIDDocs.aspx), should be managed and maintained up-to-date by the ICAO MID Regional Office.

3.6. States should inform the ICAO MID Regional Office promptly of any deviation from the Plan or proposed changes considered necessary with respect to their code allocations, relevant to ATS infrastructure developments and/or the guidance material provided in the MID SSR CMP.

Special purpose codes

Series 00	Code 0000 is available as a general purpose code for domestic use by any of the MID States.
Series 10	Code 1000 reserved for use as a conspicuity code for Mode S
Series 20	Code 2000 shall be used by flight crews in the absence of any Air Traffic Control (ATC) instructions or regional agreements unless the conditions for the use of codes: 7000, 7500, 7600 and 7700 apply.
Series 70	Code 7000 shall be used by flight crews not receiving ATS service in order to improve detection of suitably equipped aircraft in areas specified by States, unless otherwise instructed by ATS.
Series 75	Code 7500 is reserved for use in the event of unlawful interference.
Series 76	Code 7600 is reserved for use in the event of radio communications failure.
Series 77	Code 7700 is reserved for use in the event of emergencies and interception*. Code 7776 and Code 7777 are reserved for SSR ground transponder monitoring.
Codes 7601-7612	Are reserved for humanitarian flights.

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 navaids 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*

AS OF JUNE 2015

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
A1	METRU 340000N 0250900E SOKAL 323601N 0273706E KATEX 320701N 0282436E BOPED 312939N 0292655E ALEXANDRIA (NOZ) 311113N 0295701E MENKU 310531N 0301806E CAIRO (CVO) 300532N 0312318E	UA1	METRU 340000N 0250900E SOKAL 323601N 0273706E KATEX 320701N 0282436E BOPED 312939N 0292655E ALEXANDRIA (NOZ) 311113N 0295701E MENKU 310531N 0301806E CAIRO (CVO) 300532N 0312318E
A16	RASDA 330600N 0305700E MELDO 320201N 03104406E BALTIM (BLT) 313144N 0311035E DEGDI 311429N 0311035E CAIRO (CVO) 300532N 0312318E	UA16	RASDA 330600N 0305700E MELDO 320201N 03104406E BALTIM (BLT) 313144N 0311035E DEGDI 311429N 0311035E CAIRO (CVO) 300532N 0312318E
A408	(ADDIS ABABA) GWZ SALEH 140000N 0420000E ORNIS 1416.2N04236.9E HODEIDAH 1446.4N 04259.2E	UA408	(ADDIS ABABA) GWZ SALEH 140000N 0420000E ORNIS 1416.2N04236.9E HODEIDAH 1446.4N 04259.2E
A411	BNINA (BNA) 3207.28N 0201513E NASER 3151.2N 2355.3E LOSUL 314100N 250800E SIDI BARANI (BRN) 313532N 260020E	UA411	BNINA (BNA) 3207.28N 0201513E NASER 3151.2N 2355.3E LOSUL 314100N 250800E SIDI BARANI (BRN) 313532N 260020E
A412	TANF ZELAF 325656N 0371121E DAXEN 324444N 0374105E ASLON 321211N 0365111E NADEK 322728N 0371429E KUPRI 320825N 0364530E LUDAN 320256N 0363713E QAA 314423N 0360926E	UA412	TANF ZELAF 325656N 0371121E DAXEN 324444N 0374105E ASLON 321211N 0365111E NADEK 322728N 0371429E KUPRI 320825N 0364530E LUDAN 320256N 0363713E QAA 314423N 0360926E
A416	TABRIZ (TBZ) ARDABIL (ARB) RASHT (RST) RAMSAR (RSR) NOSHAHR (NSR) DASHTE NAZ (DNZ) SABZEVAR (SBZ) MASHHAD (MSD) SOKAM 331316N 0603754E	UA416	TABRIZ (TBZ) ARDABIL (ARB) RASHT (RST) RAMSAR (RSR) NOSHAHR (NSR) DASHTE NAZ (DNZ) SABZEVAR (SBZ) MASHHAD (MSD) SOKAM 331316N 0603754E
A418	KUMUN 254000N 0551515E PAPAR 2640N 05427E * Note 7 Segment KUMUN-PAPAR (OI and OM) SHIRAZ (SYZ)	UA418	KUMUN 254000N 0551515E PAPAR 2640N 05427E * Note 7 Segment KUMUN-PAPAR (OI and OM) SHIRAZ (SYZ)
A422	UROMIYEH (UMH) SETNA 3756.3N 04555.4E TABRIZ PARSABAD (PAD) PARSU 3937.8N 04804.8E KARAD 4014.3N 04929.5E (BAKU)	UA422	UROMIYEH (UMH) SETNA 3756.3N 04555.4E TABRIZ PARSABAD (PAD) PARSU 3937.8N 04804.8E KARAD 4014.3N 04929.5E (BAKU)
A424	LOVEK 322208N 04440 01E LOTAN 2959.7N 04338.8E RAFHA HAIL MADINAH (PMA) ASTOL 2255.0N 03935.2E KING ABDULAZIZ (JDW)	UA424	LOVEK 322208N 04440 01E LOTAN 2959.7N 04338.8E RAFHA HAIL MADINAH (PMA) ASTOL 2255.0N 03935.2E KING ABDULAZIZ (JDW)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
A453	PIRAN 293406N 0612806E ZAHEDAN (ZDN) BANDAR ABBAS (BND) GHESHM (KHM) BANDAR LENGEH (LEN) KISH MIDSI 2641.7N05152.5E BOTOB 263350N 0514505E ALMOK 262832N 0513840E SOLOB 262241N 0513132E TOBLI 262134N0512301E SOGAT 262029N 0511443E ASTAD 261811N 0505646E BAHRAIN * Note 7 (OB, OI) ELOSO 262409N 0503550E EGMOR 264210N 0502906E LOTOR 264854N 0502200E RAMSI 270249N 0500714E ORNAK 272853N 0493248E SOLEM 275229N 0491136E KUMBO 281705N 0495526E AWADI 283430N 0484354E DEBTI 284406N 0482924E KUA 291306N 0475906E	UA453	PIRAN 293406N 0612806E ZAHEDAN (ZDN) BANDAR ABBAS (BND) GHESHM (KHM) BANDAR LENGEH (LEN) KISH MIDSI 2641.7N05152.5E BOTOB 263350N 0514505E ALMOK 262832N 0513840E SOLOB 262241N 0513132E TOBLI 262134N0512301E SOGAT 262029N 0511443E ASTAD 261811N 0505646E BAHRAIN * Note 7 (OB, OI) ELOSO 262409N 0503550E EGMOR 264210N 0502906E LOTOR 264854N 0502200E RAMSI 270249N 0500714E ORNAK 272853N 0493248E SOLEM 275229N 0491136E KUMBO 281705N 0495526E AWADI 283430N 0484354E DEBTI 284406N 0482924E KUA 291306N 0475906E
A454	(KC) 2454.6N 06710.6E BEGIM 2443.0N 06700.0E * Note 7 (OO, OP) MELOM 2505.0N 06632.0E PUNEL 2520.0N 06523.0E PARET 2527.2N 06451.5E TAPDO 242400N 0612000E VUSET 235540N 0590812E PASOV 243841N 0565037E	UA454	(KC) 2454.6N 06710.6E BEGIM 2443.0N 06700.0E * Note 7 (OO, OP) MELOM 2505.0N 06632.0E PUNEL 2520.0N 06523.0E PARET 2527.2N 06451.5E TAPDO 242400N 0612000E VUSET 235540N 0590812E PASOV 243841N 0565037E
A727	(PAXIS 3357.1N 02720.0E OTIKO 3134.3N 02936.6E ALEXANDRIA (NOZ) MENKU 3105.5N 03018.1E CAIRO (CVO) LUXOR (LXR) ABU SIMBLE (SML) NUBAR 220000N 03118.1E MEROWE (MRW) KHARTOUM (KTM) KENANA (KNA) LODWAR (LOV) NAKURU (NAK) NAIROBI (NV) KILIMANJARO (KV)	UA727	(PAXIS 3357.1N 02720.0E OTIKO 3134.3N 02936.6E ALEXANDRIA (NOZ) MENKU 3105.5N 03018.1E CAIRO (CVO) LUXOR (LXR) ABU SIMBLE (SML) NUBAR 220000N 03118.1E MEROWE (MRW) KHARTOUM (KTM) KENANA (KNA) LODWAR (LOV) NAKURU (NAK) NAIROBI (NV) KILIMANJARO (KV)
		UA775	REXOD 211230N 0613830E TUMET 222307N 0595702E IMDEK 224647N 0592217E OBTIN 230216N 0585920E KUSRA 231726N 0585102E
A777	TONVO 250500N 0563200E BUBAS 245938N 05700 03E * Note 7 (OO) NADSO 244957N 0574926E MUNGA 242516N 0584533E		

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	MIXOL 240618N 0592739E VAXIM 231900N 0611100E		
A788	HALAIFAH HAIL HAFR AL BATIN (HFR) *Note 7 WAFRA 2837. 3N 04757. 5E PATIR 285606N 0492923E KHARK (KHG) SHIRAZ	UA788	HALAIFAH HAIL HAFR AL BATIN (HFR) *Note 7 WAFRA 2837. 3N 04757. 5E PATIR 285606N 0492923E KHARK (KHG) SHIRAZ
B12	TANSA 340000N 0264900E SOKAL 323601N 0273706E EL DABA (DBA) 310041N 0282801E KATAB 292501N 0290506E BOPOS 264318N 0300722E DEPNO 262438N 0301413E EL KHARGA (KHG) 252654N 0303527E ABU SIMBEL (SML) 222118N 0313719E	UB12	TANSA 340000N 0264900E SOKAL 323601N 0273706E EL DABA (DBA) 310041N 0282801E KATAB 292501N 0290506E BOPOS 264318N 0300722E DEPNO 262438N 0301413E EL KHARGA (KHG) 252654N 0303527E ABU SIMBEL (SML) 222118N 0313719E
B121	RUDESHUR (RUS) RASHT (RST) MAGRI 385408N 0462300E	UB121	RUDESHUR (RUS) RASHT (RST) MAGRI 385408N 0462300E
B400	MUSCAT (MCT) ITURA 232351N 0580720E IZKI (IZK) HAIMA (HAI) ASTUN 180832N0551040E DAXAM 171612N 0544715E MUTVA 165325N 0543201E IMKAD 155245N 0535147E NODMA 152603N 0533358E RIGAM 143932N 0530414E RAPDO 132317N 0521532E VEDET 120134N 0512410E (MOGADISHU)	UB400	MUSCAT (MCT) ITURA 232351N 0580720E IZKI (IZK) HAIMA (HAI) ASTUN 180832N0551040E DAXAM 171612N 0544715E MUTVA 165325N 0543201E IMKAD 155245N 0535147E NODMA 152603N 0533358E RIGAM 143932N 0530414E RAPDO 132317N 0521532E VEDET 120134N 0512410E (MOGADISHU)
		UB403	MANDERA BOMIX 121002N 0502757E ODBEN 123747N 0505648E KAVAN 133250N 0515431E RIGAM 143932N 0530414E
B404	HARGA (HARGEISA) DEMGO 120258N 0483040E PURKA 131208N 0503042E GESIX 134440N 0512823E RIGAM 143932N 0530414E	UB404	HARGA (HARGEISA) DEMGO 120258N 0483040E PURKA 131208N 0503042E GESIX 134440N 0512823E RIGAM 143932N 0530414E
B407	KING ABDULAZIZ (JDW) KAROX 205717N 0381547E MAHDI 2026.0N 03739.3E (PORT SUDAN) PSD	UB407	KING ABDULAZIZ (JDW) KAROX 205717N 0381547E MAHDI 2026.0N 03739.3E (PORT SUDAN) PSD
B411	TAKSU 293625N 0343623E *Note 7 TAKSU-ULINA KARIK 292733N 0344641E ULINA 292451N 0345817E ELETA 293201N 0352900E LORIK 293640N 0354840E DEESA 294509N 0364102E AL SHIGAR (ASH)	UB411	TAKSU 293625N 0343623E *Note 7 TAKSU-ULINA KARIK 292733N 0344641E ULINA 292451N 0345817E ELETA 293201N 0352900E LORIK 293640N 0354840E DEESA 294509N 0364102E AL SHIGAR (ASH)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	ARAR (AAR) MURIB 311337N 0415136E LOVEK 3222.1N 04440.0E NOLDO 3249.5N 04521.5E PAXAT 332056N 0460519E ILAM (ILM) KERMANSHAH(KMS) SAVEH (SAV) [TEHRAN] (TRN) * Note 1 DEHNAMAK (DHN) SABZEVAR (SBZ) MASHHAD (MSD)		ARAR (AAR) MURIB 311337N 0415136E LOVEK 3222.1N 04440.0E NOLDO 3249.5N 04521.5E PAXAT 332056N 0460519E ILAM (ILM) KERMANSHAH(KMS) SAVEH (SAV) [TEHRAN] (TRN) * Note 1 DEHNAMAK (DHN) SABZEVAR (SBZ) MASHHAD (MSD)
B412	HALAIFA (HLF) RABIGH (RBG) [KING ABDULAZIZ] (JDW	UB412	HALAIFA (HLF) RABIGH (RBG) [KING ABDULAZIZ] (JDW
B413	LADEN 1853.7N 03805.1E DANAK 1608.0N 04129.0E HODEIDAH TAIZ ADEN ZIZAN 1151.6N 04539.2E AVIMO 0332.9N 05052.6E	UB413	LADEN 1853.7N 03805.1E DANAK 1608.0N 04129.0E HODEIDAH TAIZ ADEN ZIZAN 1151.6N 04539.2E AVIMO 0332.9N 05052.6E
B415	DOHA HAMAD INT (DOH) 251500N 0513635E *Note 8 (DOH-BUNDU) KUPSA 250445N 0521151E BUNDU 250024N 0522924E *Note 7 (BUNDU-ADV) LAGMI 245709N 0524148E GADVO 2441264N 0534300E KUNGU 243754N 05356.274E ABU DHABI ADV 242508N 0544024E	UB415	DOHA HAMAD INT (DOH) 251500N 0513635E *Note 8 (DOH-BUNDU) KUPSA 250445N 0521151E BUNDU 250024N 0522924E *Note 7 (BUNDU-ADV) LAGMI 245709N 0524148E GADVO 2441264N 0534300E KUNGU 243754N 05356.274E ABU DHABI ADV 242508N 0544024E
B416	KUWAIT (KUA) AMBIK 283222N 0492025E *Note 8 (AMBIK-KUVER) TESSO 282852N0492723E GEVAL 282101N 0494300E GOGMA 281421N 0495612E KUVER 280924N 0500600E IMDAT 274100N 0511100E ORSAR 260430N 0535730E PEBAT 255153N 0542357E DESDI 253603N 0544230E	UB416	KUWAIT (KUA) AMBIK 283222N 0492025E *Note 8 (AMBIK-KUVER) TESSO 282852N0492723E GEVAL 282101N 0494300E GOGMA 281421N 0495612E KUVER 280924N 0500600E IMDAT 274100N 0511100E ORSAR 260430N 0535730E PEBAT 255153N 0542357E DESDI 253603N 0544230E
B417	MAHSHAHR (MAH) TULAX 2938 53N 04903 01E DESLU 2928.0N 04901.8E ALVIX 2919.3N04824.2E KUWAIT (KUA) *See Note 3 HAFR AL BATIN (HFR) KMC GASSIM (GAS) BIR-DARB (BDB) TAGNA 231652N 0403851E KING ABDULAZIZ (JDW)	UB417	MAHSHAHR (MAH) TULAX 2938 53N 04903 01E DESLU 2928.0N 04901.8E ALVIX 2919.3N04824.2E KUWAIT (KUA) *See Note 3 HAFR AL BATIN (HFR) KMC GASSIM (GAS) BIR-DARB (BDB) TAGNA 231652N 0403851E KING ABDULAZIZ (JDW)
B419	(DHA) 261538N 0500824E	UB419	(DHA) 261538N 0500824E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	* Note 8 (DHA-RAMSI) KING FAHD (KFA) * Note 7 (KFA-RAMSI) METLA 265645N 0500432E RAMSI 270249N 0500714E		* Note 8 (DHA-RAMSI) KING FAHD (KFA) * Note 7 (KFA-RAMSI) METLA 265645N 0500432E RAMSI 270249N 0500714E
B424	ITOLI 152825N 0450927E SABEL 185200N 05203.7E OTISA 201000N 0554556E GISKA 213503N 0574014E	UB424	ITOLI 152825N 0450927E SABEL 185200N 05203.7E OTISA 201000N 0554556E GISKA 213503N 0574014E
B441	MASHHAD (MSD) OTRUZ 363108N 0610956E MARAD 3637.6N 06127.8E	UB441	MASHHAD (MSD) OTRUZ 363108N 0610956E MARAD 3637.6N 06127.8E
B451	DEHNAMAK (DHN) BOJNORD (BRD) DOLOS 375006N 0580200E (ASHGABAT) (ASB	UB451	DEHNAMAK (DHN) BOJNORD (BRD) DOLOS 375006N 0580200E (ASHGABAT) (ASB
B457	NARMI 261802N 0501939E BAH 261551N 0503855E DENVO 260452N 0510509E PATOM 255822N 0511836E EMISA 254658N 0514206E	UB457	NARMI 261802N 0501939E BAH 261551N 0503855E DENVO 260452N 0510509E PATOM 255822N 0511836E EMISA 254658N 0514206E
B505	LALDO 251806N 0563600E * Note 7/8 (OO) NADSO 244957N 0574926E ITLOB 244325N 0590701E EGTAL 2434 58N 06037 24E APELO 2434.9N 0612000E PASNI (PI) 2517.3N 06320.9E		
B524	NADSO 244957N 0574926E * Note 7 DAMUM 243236N 0591307E VEKAN 241235N 0604454E ALPOR 2404 42N 06120E		
B526	(ASMARA) ASM HODEIDAH (HDH) MUKALLA (RIN) RIGAM 143932N 0530414E	UB526	(ASMARA) ASM HODEIDAH (HDH) MUKALLA (RIN) RIGAM 143932N 0530414E
B535	(DJIBOUTI) DTI ADEN (KRA) MUKALLA (RIN) KAPET 1633 22N 0530614E SALALAH (SLL) ASTUN 180832N0551040E	UB535	(DJIBOUTI) DTI ADEN (KRA) MUKALLA (RIN) KAPET 1633 22N 0530614E SALALAH (SLL) ASTUN 180832N0551040E
B538	ALEPPO KARIATAIN	UB538	ALEPPO KARIATAIN
B540	GERAR 240600N 0573616 PASOV 243841N 0565037E KUPMA 245148N 0562648E BUBIN 245742N 0560642E		
B544	(GAZIANTEP) GAZ ALEPPO (ALE) TANF (TAN)	UB544	(GAZIANTEP) GAZ ALEPPO (ALE) TANF (TAN)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	NAMBO 331826N0383939E SODAR 315532N0384317E TURAIF (TRF) AL SHIGAR (ASH) HALAIFA (HLF) MADINAH (PMA) RABIGH (RBG) KING ABDULAZIZ (JDW) QUNFIDAH (QUN) ABHA (ABH) NOBSU KRA		NAMBO 331826N0383939E SODAR 315532N0384317E TURAIF (TRF) AL SHIGAR (ASH) HALAIFA (HLF) MADINAH (PMA) RABIGH (RBG) KING ABDULAZIZ (JDW) QUNFIDAH (QUN) ABHA (ABH) NOBSU KRA
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	UB549	THAMUD 171700N 0495500E ITELI 171310N 0502605E GOGRI 170752N 0510857E TONRO 165850N 0522235E PUTRA 165432N 0525631E LADAR 165324N 0534655E MUTVA 165325N 0543201E KIVEL 165306N 0553633E
G183	(KAROL 3252.0N 03229.0E) PASOS EL ARISH (ARH) TABA (TBA)		
G202	(VELOX 3349.0N 03405.0E) SILKO 3347.9N 03435.0E KHALDEH (KAD) * Note 4 (OS) DAKWE 3338.9N 03555.0E DAMASCUS (DAM) TANF (TAN) MODIK 3328.1N 03901.0E RAPLU 3323.0N 04145.5E PUSTO 3321.0N 04245.0E DELMI 331918.31N 0431327.59E LAGLO 331538N 0441457E ITOVA 331950.91N 0444128.97E RAGET 3330.8N 04553.8E ILAM (ILM) KHORAM ABAD (KRD) ESFAHAN (ISN) NODLA BIRJAND (BJD) (KAMAR 3239.0N 06044.0E)	UG202	(VELOX 3349.0N 03405.0E) SILKO 3347.9N 03435.0E KHALDEH (KAD) * Note 4 (OS) DAKWE 3338.9N 03555.0E DAMASCUS (DAM) TANF (TAN) MODIK 3328.1N 03901.0E RAPLU 3323.0N 04145.5E PUSTO 3321.0N 04245.0E DELMI 331918.31N 0431327.59E LAGLO 331538N 0441457E ITOVA 331950.91N 0444128.97E RAGET 3330.8N 04553.8E ILAM (ILM) KHORAM ABAD (KRD) ESFAHAN (ISN) NODLA BIRJAND (BJD) (KAMAR 3239.0N 06044.0E)
G208	(PANJGUR) PG KEBUD 2735.9N 06250.4E ZAHEDAN (ZDN) DARBAND (DAR) NODLA 325330N 0545850E ANARAK (ANK) TEHRAN (TRN) ZANJAN (ZAJ) UROMIYEH (UMH) ALRAM 3743.0N 04437.0E (SIIRT)		
G216	LAKLU 232235N 0570401E *Note 7 (OO/OP) Muscat (MCT) ITILA 234055N 0584817E	UG216	LAKLU 232235N 0570401E *Note 7 (OO/OP) Muscat (MCT) ITILA 234055N 0584817E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	SODEB 234747N 0593023E DORAB 235033N 0594746E ALPOR 240441N 0612000E LATEM (KC)		SODEB 234747N 0593023E DORAB 235033N 0594746E ALPOR 240441N 0612000E LATEM (KC)
G452	SHIRAZ (SYZ) KERMAN (KER) ZAHEDAN (ZDN) DERBO 2925.7N 06117.0E (RAHIMYAR KHAN) RK	UG452	SHIRAZ (SYZ) KERMAN (KER) ZAHEDAN (ZDN) DERBO 2925.7N 06117.0E (RAHIMYAR KHAN) RK
G462	ROVOS 241825N 0552143E Note 7 to ITROK NIBAX 245748N 0541437E RAGTA 250850N 0535840E ALSOK 252607N 0533904E ITROK 253557N 0532751E TUMAK 255031N 0531108E	UG462	ROVOS 241825N 0552143E Note 7 to ITROK NIBAX 245748N 0541437E RAGTA 250850N 0535840E ALSOK 252607N 0533904E ITROK 253557N 0532751E TUMAK 255031N 0531108E
G650	KING ABDULAZIZ (JDW) RASKA 190732N 0390329E ASMARA (ASM)	UG650	KING ABDULAZIZ (JDW) RASKA 190732N 0390329E ASMARA (ASM)
G652	ADEN (KRA) IMPOS 183136N 0511848E DUDRI 190000N 0520000E *Note 8 (DUDRI-TOKRA) TOKRA 220925N 0553350E TAPDO 2424N 06120 E	UG652	ADEN (KRA) IMPOS 183136N 0511848E DUDRI 190000N 0520000E *Note 8 (DUDRI-TOKRA) TOKRA 220925N 0553350E TAPDO 2424N 06120 E
G660	(PORT SUDAN) PSD BOGUM 2006.6N 03803.0E MIPOL 203322N 0382145E KING ABDULAZIZ (JDW)	UG660	(PORT SUDAN) PSD BOGUM 2006.6N 03803.0E MIPOL 203322N 0382145E KING ABDULAZIZ (JDW)
G662	BUSRA 322000N 0363700E KUPRI 320825.87N 0364530.21E ALKOT 313254.22N 0371121.51E GRY 3124.8N 3717.2E AL SHIGAR (ASH) HAIL (HIL) GASSIM (GAS) KING KHALID (KIA)	UG662	BUSRA 322000N 0363700E KUPRI 320825.87N 0364530.21E ALKOT 313254.22N 0371121.51E GRY 3124.8N 3717.2E AL SHIGAR (ASH) HAIL (HIL) GASSIM (GAS) KING KHALID (KIA)
G663	KING KHALID (KIA) SILNO 264024N 0475742E *Note 7 (KIA-KFA) GIBUS 255724N 0472829E *Note 8 (GIBUS-ALSER) KING FAHD (KFA) ULADA 264526N 0501623E LOTOR 264854N 0502200E RAKAK 265221N 0502618E TOLMO 265504N 0502927E KOBOK 265839N 0503349E ITIXA 270141N 0503735E GETAL 270409N 0504039E VEDOR 270855N 0504630E ALSER 271100N 0504900E SHIRAZ (SYZ) YAZD (YZD) NODLA 325318N 0545848E TABAS (TBS)	UG663	KING KHALID (KIA) SILNO 264024N 0475742E *Note 7 (KIA-KFA) GIBUS 255724N 0472829E *Note 8 (GIBUS-ALSER) KING FAHD (KFA) ULADA 264526N 0501623E LOTOR 264854N 0502200E RAKAK 265221N 0502618E TOLMO 265504N 0502927E KOBOK 265839N 0503349E ITIXA 270141N 0503735E GETAL 270409N 0504039E VEDOR 270855N 0504630E ALSER 271100N 0504900E SHIRAZ (SYZ) YAZD (YZD) NODLA 325318N 0545848E TABAS (TBS)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	MASHAD (MSD)		MASHAD (MSD)
G665	ARAR (AAR) ABADAN (ABD) SHIRAZ (SYZ) * Note 5 (OI) NABOD 2816.1N 05825.8E LOXOL 2745.9N 06045.6E ASVIB 265724N 0631812E (PANJGUR) PG	UG665	ARAR (AAR) ABADAN (ABD) SHIRAZ (SYZ) * Note 5 (OI) NABOD 2816.1N 05825.8E LOXOL 2745.9N 06045.6E ASVIB 265724N 0631812E (PANJGUR) PG
G666	SHIRAZ (SYZ) LAMERD (LAM) LAVAN (LVA) * Note 7 (OI) ORSAR 2604 .5N 05357.5E ITITA 254410N 0541839E SINBI 250842N 0543741E ABU DHABI (ADV)	UG666	SHIRAZ (SYZ) LAMERD (LAM) LAVAN (LVA) * Note 7 (OI) ORSAR 2604 .5N 05357.5E ITITA 254410N 0541839E SINBI 250842N 0543741E ABU DHABI (ADV)
G667	PUTMA 3748.0N 05157.6E NOSHAHR (NSR) TEHRAN (TRN) SAVEH (SAV) MIS AHWAZ (AWZ) ABADAN (ABD) ALSAN 295707N 0481456E FALKA KUWAIT (KUA) WAFRA (KFR) *Note 7 (KFR-MGA) COPPI 275033N 0474359E *Note 8 (COPPI-AVOBO) EMENI 273232N 0473849E MUSKO 272640N 0473708E ALSAT 270611N 0473118E LUGAL 264533N 0472528E MAGALA (MGA) AVOBO 260334N 0470719E KING KHALID (KIA) WADI AL DAWASIR (WDR) NEJRAN (NEJ) SANA'A (SAA) PARIM 123142.7N 0432712E DJIBOUTI (DTI)	UG667	PUTMA 3748.0N 05157.6E NOSHAHR (NSR) TEHRAN (TRN) SAVEH (SAV) MIS AHWAZ (AWZ) ABADAN (ABD) ALSAN 295707N 0481456E FALKA KUWAIT (KUA) WAFRA (KFR) *Note 7 (KFR-MGA) COPPI 275033N 0474359E *Note 8 (COPPI-AVOBO) EMENI 273232N 0473849E MUSKO 272640N 0473708E ALSAT 270611N 0473118E LUGAL 264533N 0472528E MAGALA (MGA) AVOBO 260334N 0470719E KING KHALID (KIA) WADI AL DAWASIR (WDR) NEJRAN (NEJ) SANA'A (SAA) PARIM 123142.7N 0432712E DJIBOUTI (DTI)
G669	AL SHIGAR (ASH) AL JOU (AJF) RAFHA (RAF) NISER 2930.5N 04418.4E *Note 3 (OK) SOLAT 290942N 0463810E KUWAIT (KUA) SESRA 290803N 0485453E NANPI 290457N 0493157E KHARK(KHG) SHIRAZ (SYZ)	UG669	AL SHIGAR (ASH) AL JOU (AJF) RAFHA (RAF) NISER 2930.5N 04418.4E *Note 3 (OK) SOLAT 290942N 0463810E KUWAIT (KUA) SESRA 290803N 0485453E NANPI 290457N 0493157E KHARK(KHG) SHIRAZ (SYZ)
G670	RASHT (RST) LALDA 3817.1N 04943.0E (BAKU) GYD	UG670	RASHT (RST) LALDA 3817.1N 04943.0E (BAKU) GYD
G674	MADINAH (PMA)	UG674	MADINAH (PMA)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	GASSIM (GAS) 2617.9N 04346.8E BOPAN (BPN)		GASSIM (GAS) 2617.9N 04346.8E BOPAN (BPN)
G775	(ASHGHABAT) (ASB) ORPAB 3742N 05834.5E MASHHAD (MSD) [BIRJAND] (BJD) * Note 1 ZAHEDAN (ZDN)	UG775	(ASHGHABAT) (ASB) ORPAB 3742N 05834.5E MASHHAD (MSD) [BIRJAND] (BJD) * Note 1 ZAHEDAN (ZDN)
G781	(VAN) BONAM 3802.9N 04418.0E UROMIYEH (UMH) ROVON 3716 01N 0455322E ZANJAN (ZAJ) NOSHAHR(NSR)	UG781	(VAN) BONAM 3802.9N 04418.0E UROMIYEH (UMH) ROVON 3716 01N 0455322E ZANJAN (ZAJ) NOSHAHR(NSR)
G782	KING ABDULAZIZ (JDW) DAFINAH (DFN) RAGA\HBA (RGB) KING KHALID (KIA) MAGALA (MGA) *Note 7 (MGA-KFR) LUGAL 264533N 0472528E WAFRA (KFR) 283715N 0475729E KUWAIT (KUA)	UG782	KING ABDULAZIZ (JDW) DAFINAH (DFN) RAGA\HBA (RGB) KING KHALID (KIA) MAGALA (MGA) *Note 7 (MGA-KFR) LUGAL 264533N 0472528E WAFRA (KFR) 283715N 0475729E KUWAIT (KUA)
G783	PURDA 210805N 0510329E TANSU 224136N 0542828E RIGIL 230146N 0551430E ELUDA 235107N 0552905E ALN 241535N 0553623E GIDIS 243600N 055600E BUBIN 245742N 0560642E	UG783	PURDA 210805N 0510329E TANSU 224136N 0542828E RIGIL 230146N 0551430E ELUDA 235107N 0552905E ALN 241535N 0553623E GIDIS 243600N 055600E BUBIN 245742N 0560642E
G792	BODKA 3939.0N 05130.0E GIRUN 3806.2N 05620.3E BOJNORD (BRD) MASHAD (MSD)	UG792	BODKA 3939.0N 05130.0E GIRUN 3806.2N 05620.3E BOJNORD (BRD) MASHAD (MSD)
G795	FALKA 2926.2N 04818.3E TASMI 300120N 0475505E BSR 303132.4N 0472112E RAFHA (RAF)	UG795	FALKA 2926.2N 04818.3E TASMI 300120N 0475505E BSR 303132.4N 0472112E RAFHA (RAF)
G799	PMA DAFINAH (DFN)	UG799	PMA DAFINAH (DFN)
		UL124	(VAN) BONAM URUMIYEH (UMH) ZANJAN (ZAJ) SAVEH (SAV) DISEL 332904N 0510118E YAZD (YZD) (R654) KERMAN (KER) KEBUD 273558N 0625028E (PANJGUR) PG
		UL125	DULAV 3857N 04537.9E TABRIZ (TBZ) ZANJAN (ZAJ) PAROT 360940N 0495756E TEHRAN (TRN)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
			ANARAK (ANK) DARBAND (DAR) ZAHEDAN (ZDN) DANIB 290706N 0611717E KEBUD 273558N 0625028E
L126	PUSTO 3321.0N 04245.0E SOGUM 3412.2N 04354.9E SIGNI 3400.1N 04442.2E MIGMI 3345.9N 04527.4E ILAM (ILM)	UL126	PUSTO 3321.0N 04245.0E SOGUM 3412.2N 04354.9E SIGNI 3400.1N 04442.2E MIGMI 3345.9N 04527.4E ILAM (ILM)
L200	LOXER 320256N 362500E LUDAN 320256N 0363713 E KUPRI 320825N 0364530 E ASLON 321211N 0365111E NADEK 322728N 0371429E DAXEN 324444N 0374105E ORNAL 324755N0375153E KAREM 325110N 0380324 E KUMLO 325811N 0382807 E DAPUK 330139N 0384026 E PASIP 330600N 0385600E GIBUX 330715N 0411625E SIGBI 330200N 0422000E SILBO 325900N 0432900E	UL200	LOXER 320256N 362500E LUDAN 320256N 0363713 E KUPRI 320825N 0364530 E ASLON 321211N 0365111E NADEK 322728N 0371429E DAXEN 324444N 0374105E ORNAL 324755N0375153E KAREM 325110N 0380324 E KUMLO 325811N 0382807 E DAPUK 330139N 0384026 E PASIP 330600N 0385600E GIBUX 330715N 0411625E SIGBI 330200N 0422000E SILBO 325900N 0432900E
L223	SIRRI (SIR) NALTA 250242N 0553955E * Note 7 (OI-OM-OO) TARDI 243418N 0560915E LAKLU 232235N 05704 01E	UL223	DASIS 385430N 0441230E UROMIYEH (UMH) SANANDAJ (SNJ) KHORAM ABAD (KRD) MESVI 312920N 0495701E LAMERD (LAM) SIRRI (SIR) * Note 7 (OI-OM-OO) NALTA 250242N 0553955E TARDI 243418N 0560915E LAKLU 232235N 05704 01E
L300	LUXOR (LXR) MEMPO 252518N 0335457E GIBAL2437.2N03634.7E YENBO (YEN) 2408.8N 03803.9E	UL300	LUXOR (LXR) MEMPO 252518N 0335457E GIBAL2437.2N03634.7E YENBO (YEN) 2408.8N 03803.9E
L301	RASKI 230330N 0635200E VAXIM 231900N 0611100E RAGMA 232301N 0603846E	UL301	AAU 5153N 07523 38.6E NOBAT 210902.5N 0880000.1E LADOT 220502N 0660001 RASKI 230330N 0635200E VAXIM 231900N 0611100E RAGMA 232301N 0603846E
L305	DOHA HAMAD INTL (DOH) 251500N 0513635E ORMAL 252304N 0522201E ENANO 252348N 0522559E ALSEM 252703N 0524322E ASTOG 252822N 0525025E *Note 7 (DOH-ITITA) *Note 8 (DOH-ASTOG) ITITA 254410N 0541839E	UL305	DOHA HAMAD INTL (DOH) 251500N 0513635E ORMAL 252304N 0522201E ENANO 252348N 0522559E ALSEM 252703N 0524322E ASTOG 252822N 0525025E *Note 7 (DOH-ITITA) *Note 8 (DOH-ASTOG) ITITA 254410N 0541839E
L306	TOKRA 220925N 0553350E * Note- 7 (OO) DEMKI 224941N 0562308E	UL306	TOKRA 220925N 0553350E * Note- 7 (OO) DEMKI 224941N 0562308E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	LAKLU 232235N 0570401E		LAKLU 232235N 0570401E
L308	EGNOV 270301N 0474713E *Note 7 (EGNOV- SERSA) *Note 8 (EGNOV- OBNET) (JBL) 270220N 0492427E RAMSI 270249N 0500714E GASSI 2702.9N 05022.5E TOSDA 270005N 0505629E TORBO 265223N 0511024E SOGAN 263915N 0515408E DEGSO 261054N 0531946E OBNET 260032N 0534514E ITITA 254410N 0541839E DESDI 253603N 0544230E RAGOL 252743N 0550739E SERSA 251945N 0553118E TUKLA 251936N 0554010E NADNI 251915N 0555658E LALDO 251806N 0563600E IMLOT 2517.1N 05708.1E KATUS 2515.9N 05747.0E DIVAB 2510.7N 05952.1E EGPIC 2508.6N 06029.5E (JIWANI) LATEM 2431.7N 06449.7E	UL308	EGNOV 270301N 0474713E *Note 7 (EGNOV- SERSA) *Note 8 (EGNOV- OBNET) (JBL) 270220N 0492427E RAMSI 270249N 0500714E GASSI 2702.9N 05022.5E TOSDA 270005N 0505629E TORBO 265223N 0511024E SOGAN 263915N 0515408E DEGSO 261054N 0531946E OBNET 260032N 0534514E ITITA 254410N 0541839E DESDI 253603N 0544230E RAGOL 252743N 0550739E SERSA 251945N 0553118E TUKLA 251936N 0554010E NADNI 251915N 0555658E LALDO 251806N 0563600E IMLOT 2517.1N 05708.1E KATUS 2515.9N 05747.0E DIVAB 2510.7N 05952.1E EGPIC 2508.6N 06029.5E (JIWANI) LATEM 2431.7N 06449.7E
L310	BOXAK 244536N 0540032E *Note 7 & 8 to LALDO SIGBO 2455.4N 05456.9E NALTA 2502.7N 05539.8E AVAMI 2505.9N 05556.8E LALDO 251806N 0563600E	UL310	BOXAK 244536N 0540032E *Note 7 & 8 to LALDO SIGBO 2455.4N 05456.9E NALTA 2502.7N 05539.8E AVAMI 2505.9N 05556.8E LALDO 251806N 0563600E
L314	NABAN 163124N 0430148E GOMRI 131816N 0443224E	UL314	NABAN 163124N 0430148E GOMRI 131816N 0443224E
L315	CAIRO(CVO) HURGHADA (HGD) GIBAL 2437.2N 03634.7E	UL315	CAIRO(CVO) HURGHADA (HGD) GIBAL 2437.2N 03634.7E
L319	BAH 261551N 0503855E DAVRI 264936N 0505731E OBTAR 265934N 0510309E	UL319	BAH 261551N 0503855E DAVRI 264936N 0505731E OBTAR 265934N 0510309E
L321	KATAB 292501N 0290506E KUNKI 290726N 0291949E KUNAK 2527.7N 03041.2E LUGAV 224205N 0313722E SML 222118N 0313719E	UL321	KATAB 292501N 0290506E KUNKI 290726N 0291949E KUNAK 2527.7N 03041.2E LUGAV 224205N 0313722E SML 222118N 0313719E
		UL322	MUMBAI (BBB) * Note 7&1 SUGID 1933.1N 06921.0E BOLIS 2033.5N 065 00.0E REXOD 2112.5N 06138.5E
		UL333	DASIS TABRIZ (TBZ) RASHT (RST) GIBAB 3537.0N 05430.9E ALRAS 3511.3N 05541.6E TASLU 342632N 0574234E SOKAM 331316N 0603752E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
L417	VUSEB 361637N 0434800E UMESA 351741N 0434307E MUTAG 343003N 0433834 E LAGLO 3515.6 04414.0E ELOSI 330800N 0441800E LOVEK 3222.1N 04440.0E ELIBA 320915N 0444645E NADOX 310505N 0451851E	UL417	VUSEB 361637N 0434800E UMESA 351741N 0434307E MUTAG 343003N 0433834 E LAGLO 3515.6 04414.0E ELOSI 330800N 0441800E LOVEK 3222.1N 04440.0E ELIBA 320915N 0444645E NADOX 310505N 0451851E
		UL425	KING ABDULAZIZ (JDW) TONBO 205502N 0394911E AL BAHA (BHA) BISHA (BSH) WADI AL DAWASIR (WDR) EGREN 202236N 0464422E ASTIN 200410N 0495320E DIRAS 195235N 0513704E GOBRO 193622N 0534741E NOVNO 193313N 0535858E ITUVO 190315N 0554328E DEDSO 185811N 0560041E BOVOS 182230N 0575844E ASPUX 174406N 0600006E (TRIVANDRUM)
L430	VAXIM 231900N 0611100E MESPO 244936N 0593411E MELMI 264625N 0572300E TAVNO 281112N 0563252E ASMET 284827N 0560806E SRJ 2933.4N 05539.6E	UL430	VAXIM 231900N 0611100E MESPO 244936N 0593411E MELMI 264625N 0572300E TAVNO 281112N 0563252E ASMET 284827N 0560806E SRJ 2933.4N 05539.6E
L438	LONOS 283027N 0491713E LOPOL 281849N 0492845E ATBAG 280842N 0493844E GODRI 280256N 0494307E RAKSO 275326N 0495032E GOGRA 274918N 0495344E OBNAX 272650N 0501103E DEKTA 271605N 0501946E VELOG 270215N 0503055E KOBOK 265839N 0503349E MOGAS 264759N 0503909E TOSTA 262746N 0504912E ASTAD 261811N 0505646E	UL438	LONOS 283027N 0491713E LOPOL 281849N 0492845E ATBAG 280842N 0493844E GODRI 280256N 0494307E RAKSO 275326N 0495032E GOGRA 274918N 0495344E OBNAX 272650N 0501103E DEKTA 271605N 0501946E VELOG 270215N 0503055E KOBOK 265839N 0503349E MOGAS 264759N 0503909E TOSTA 262746N 0504912E ASTAD 261811N 0505646E
L440	KANIP 2410.7N 05520.7E *Note 7 RETAS 235754N 0553423E	UL440	KANIP 2410.7N 05520.7E *Note 7 RETAS 235754N 0553423E
L443	RABAP 283625N 0492722 TESSO 282852N 0492723E LOPOL 281849N 0492845E ENAVI 275552N 0493151E GIRSI 274126N 0493310E ORDAN 271706N 0495442E RAMSI 270249N 0500714E GASSI 270257N 0502229E	UL443	RABAP 283625N 0492722 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 (OO) VUSIN 225940N 0605510E MIBSA 225400N 0601338E	UL444	KIPOL 230410N 0612903E *Note 7 (OO) VUSIN 225940N 0605510E MIBSA 225400N 0601338E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	KAXEM 225103N 0595243E IMDEK 224647N 0592217E TOLDA 224008N 0583624E		KAXEM 225103N 0595243E IMDEK 224647N 0592217E TOLDA 224008N 0583624E
L513	MURAK 3459.4N 03642.1E LEBOR 3415.9N 03635.0E DAMASCUS (DAM) * Note 3 (OS) BUSRA 3220.0 N 03637.0 E QUEEN ALIA (QAA) QATRANEH (QTR) MAZAR 3048.0N 03610.0E	UL513	MURAK 3459.4N 03642.1E LEBOR 3415.9N 03635.0E DAMASCUS (DAM) * Note 3 (OS) BUSRA 3220.0 N 03637.0 E QUEEN ALIA (QAA) QATRANEH (QTR) MAZAR 3048.0N 03610.0E
		UL516	KITAL 2003.0N 06018.0E ELKEL 0149.0N 06911.0E DIEGO GARCIA (NDG
L519	ABU DHABI (ADV) *Note 7 (OM) NAMSI 2437.5N 05456.8E EMERU 244829N 0550303 LUDER 2457.5N 05505.2E	UL519	ABU DHABI (ADV) *Note 7 (OM) NAMSI 2437.5N 05456.8E EMERU 244829N 0550303 LUDER 2457.5N 05505.2E
		UL550	WAFRA (KFR) NIDAP 283850N 0473656E BOSID 2842.4N 04652.6E VATIM 2851.6N 04444.7E RASMO 2857.2N 04331.3E ORSAL2902.8N 04210.8E NIMAR 2906.6N 03954.4E KITOT 2902.1N 03450.8E NUWEIBAA (NWB) KARIK 292733N 0344641E TAKSU 293625N 0343623E DATOK 293624N 0341400E SERMA 312200N 0330834E PASOS 321300N 0330600E (KAROL 3252.0N 03229.0E)
L551	ANTAR 334800N 0281600E EL DABA (DBA) 310041N 0282801E	UL551	ANTAR 334800N 0281600E EL DABA (DBA) 310041N 0282801E
L555	TOTOX 215030N 0622230E TUMET 222307N 0595702E TOLDA 224008N 0583624E	UL555	TOTOX 215030N 0622230E TUMET 222307N 0595702E TOLDA 224008N 0583624E
		UL556	EGREN 202236N 0464422E NONGA 205048N 0492014E PURDA 210805N 0510329E Note:- 7 (OO, OB) IMDAM 202416N 0550801E OTISA 201000N 0554556E HAIMA (HAI) 195813N 0561651E GIVNO 195011N 0563059E KUTVI 184306N 0582642E
		UL560	ARDABIL (ARB) 3819.9N 04824.9E * Note 3&4 (OI) SEVAN (SVN) 4032.0N 04456.9E
L564	DOHA/HAMAD INTL (DOH) 251500N 0513635E LADEM 245545N 0513714E	UL564	DOHA/HAMAD INTL (DOH) 251500N 0513635E LADEM 245545N 0513714E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	DATRI 244239N 0513407E DENSI 242519N 0512959E *Note 8 (DOH-PURDA) BATHA (BAT) 241257N 0512707E MIGMA 225035N 0512749E LOTOS 220000N 0503912E ALNUG 213009N 0500453E NONGA 205048N 0492012E DENKU 201123N 0484331E GERUG 185530N 0473402E ASKET 181905N 0470113E PATOG 180241N 0464631E VUVOD 173941N 0463200E TULIS 173033N 0462616E ULBON 171425N 0461515E RAGNI 163454N 0454815E LOPAD 161651N 0453738E ITOLI 152825N 0450927E OBNAM 144541N 0444448E GEVEL 141229N 0442547E NOPVO 135436N 0441536E TAZ 134150N 0440819E PARIM 123142N 0432712E		DATRI 244239N 0513407E DENSI 242519N 0512959E *Note 8 (DOH-PURDA) BATHA (BAT) 241257N 0512707E MIGMA 225035N 0512749E LOTOS 220000N 0503912E ALNUG 213009N 0500453E NONGA 205048N 0492012E DENKU 201123N 0484331E GERUG 185530N 0473402E ASKET 181905N 0470113E PATOG 180241N 0464631E VUVOD 173941N 0463200E TULIS 173033N 0462616E ULBON 171425N 0461515E RAGNI 163454N 0454815E LOPAD 161651N 0453738E ITOLI 152825N 0450927E OBNAM 144541N 0444448E GEVEL 141229N 0442547E NOPVO 135436N 0441536E TAZ 134150N 0440819E PARIM 123142N 0432712E
		UL566	ASMAK 162327N 0524634E UKNEN 160542N 0522012E PURUG 151204N 0510142E KUSOL 144009N 0501534E NOTBO 142609N 0495530E EMABI 141627N 0494139E SOKEM 134235N 0485329E DATEG 123549N 0471627E
		UL572	KAMISHLY (KML) LESRI 3704.3N 04113.8E HASSAKEH (HAS) 3629N 04045.3E DIER ZZOR (DRZ) TANF (TAN)
		UL573	DAFINAH (DFN) 231658N 0414310E PMA WEJH (WEJ) 261045N 0362917E
		UL601	BAGLUM (BAG) 04004.2 03248.6) * Note 7 ADANA 3656.4N 03512.6E (ADA) TUNLA 3553.0N 0360200E) KARIATAIN 3412.8N 03715.9E
L602	TUMAK 255031N 0531108E VEDOM 260109N 0524456E VELAK 261307N 0521821E LABOP 261907N 0520429E ALTOM 262230N 0515639E DASOS 262429N 0515043E ALMOK 262832N 0513840E VEDOS 264105N 0510044E NABOS 264354N 0505145E MEMKO 264611N 0504427E MOGAS 264759N 0503909E TOLMO 265504N 0502927E EGLIT 270255N 0502005E TOKMA 270938N 0501159E ORSOL 272135N 0500207E	UL602	TUMAK 255031N 0531108E VEDOM 260109N 0524456E VELAK 261307N 0521821E LABOP 261907N 0520429E ALTOM 262230N 0515639E DASOS 262429N 0515043E ALMOK 262832N 0513840E VEDOS 264105N 0510044E NABOS 264354N 0505145E MEMKO 264611N 0504427E MOGAS 264759N 0503909E TOLMO 265504N 0502927E EGLIT 270255N 0502005E TOKMA 270938N 0501159E ORSOL 272135N 0500207E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	ITNAS 274643N 0493957E ENAVI 275552N 0493151E DAMUR 280137N 0492637E DAVUS 282346N 0490622E		ITNAS 274643N 0493957E ENAVI 275552N 0493151E DAMUR 280137N 0492637E DAVUS 282346N 0490622E DARVA 284814N 0484734E ALVIX 291918N0482412E FALKA 292611N 0481819E TASMI 300120N 0475505E LOVEK322206N 0444000E DELMI331911N 0431731E ELEXI 344237N 0411054E DRZ 351724N 0401124E KUKSI 364508N 0374910E GAZ 365701N 0372824E
L604	PLH 351339N 0234051E SALUN 340000N 0242700E BRN 313430N 0260018E KHG 252654N 0303524E LUXOR (LXR) 254458 N 0324607E IMRAD 260506N 0354444E WEJH(WEJ) 261048N 0362918E HLF 262600N 03916.06E GASSIM (GAS) 261754N 0434648E *Note 7 (GAS-KFA) PUSLA 261758N 0461706E *Note 8 to TOSNA MGA 261718N 0471224E ALMAL 261554N 0482106E KING FAHD (KFA) 262154N 0494912E NARMI 261802N 0501939E BAHRAIN (BAH) 261551N 0503855E DENVO 260452N 0510509E PATOM 255821N 0511836E EMISA 254658N 0514207E KAPAX 254218N 0515118E ORSIS 252801N 0521636E ENANO 252348N 0522559E TOSNA 251612N 0524116E	UL604	PLH 351339N 0234051E SALUN 340000N 0242700E BRN 313430N 0260018E KHG 252654N 0303524E LUXOR (LXR) 254458 N 0324607E IMRAD 260506N 0354444E WEJH(WEJ) 261048N 0362918E HLF 262600N 03916.06E GASSIM (GAS) 261754N 0434648E *Note 7 (GAS-KFA) PUSLA 261758N 0461706E *Note 8 to TOSNA MGA 261718N 0471224E ALMAL 261554N 0482106E KING FAHD (KFA) 262154N 0494912E NARMI 261802N 0501939E BAHRAIN (BAH) 261551N 0503855E DENVO 260452N 0510509E PATOM 255821N 0511836E EMISA 254658N 0514207E KAPAX 254218N 0515118E ORSIS 252801N 0521636E ENANO 252348N 0522559E TOSNA 251612N 0524116E
		UL607	SITIA (SIT) * Note 7 PAXIS 3357.1N02720.0E OTIKO 3134.4N 02936.6E ALEXANDRIA (NOZ)
L612	KUMBI 334250N 0284500E LABNA 321956N 0301612E BALTIM (BLT) 313144N 0310721E	UL612	KUMBI 334250N 0284500E LABNA 321956N 0301612E BALTIM (BLT) 313144N 0310721E
		UL613	EL – DABA (DBA) * Note 7 SOKAL 3236.0N 02720.0E TANSA 3400.0N 02649.0E
L617	ALEXANDRIA NOZ IMRUT 313259N 0293346E ASNIR 323849N 0282144E TANSA 340000N 0264900E	UL617	ALEXANDRIA NOZ IMRUT 313259N 0293346E ASNIR 323849N 0282144E TANSA 340000N 0264900E
L620	BALMA 342856N 0350302E KAD 334827N 0352910E	UL620	BALMA 342856N 0350302E KAD 334827N 0352910E
L631	TOTOX 215030N0622230E	UL631	TOTOX 215030N0622230E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	IVOMA 223408N 0605430E * Note 7 (OO) MIBSA 225400N 0601338E AMBOS 230324N 0595405E ELIGO 232458N 0590848E KARAR 233042N 0585438E MCT 233528.01N 0581536.47		IVOMA 223408N 0605430E * Note 7 (OO) MIBSA 225400N 0601338E AMBOS 230324N 0595405E ELIGO 232458N 0590848E KARAR 233042N 0585438E MCT 233528.01N 0581536.47
L677	(CAIRO) 3005.5N 03123.3E MENLI 2947.0N 03152.1E KAPIT 2917.0N 03236.1E SHARM EL SHEIKH PASAM 2730.8N 03455.7E *Note 7(OE) WEJH 2610.8N 03629.3E MUVAT 2537.9N 03654.8E YEN 2409.0N 03802.3E JDW 2140.7N 03910.0E QUN 1922.2N 04104.5E TALIB 1838.9N 04131.2E GIZ 1654.5N 04234.7E NABAN 1631.4N 04301.8E IMSIL 1557.6N 04313.2E SAA 1530.0N 04413.2E	UL677	(CAIRO) 3005.5N 03123.3E MENLI 2947.0N 03152.1E KAPIT 2917.0N 03236.1E SHARM EL SHEIKH PASAM 2730.8N 03455.7E *Note 7(OE) WEJH 2610.8N 03629.3E MUVAT 2537.9N 03654.8E YEN 2409.0N 03802.3E JDW 2140.7N 03910.0E QUN 1922.2N 04104.5E TALIB 1838.9N 04131.2E GIZ 1654.5N 04234.7E NABAN 1631.4N 04301.8E IMSIL 1557.6N 04313.2E SAA 1530.0N 04413.2E
L681	EGNOV 270301N 0474713E * Note 5 & 7 & 8 to SALWA GEPAK 2633.0N 04843.5E RADMA 2623.0N 04857.5E DELMU 2618.9N 04903.4E ROSEM 2607.7N 04919.0E SALWA 251538N 0503048E	UL681	EGNOV 270301N 0474713E * Note 5 & 7 & 8 to SALWA GEPAK 2633.0N 04843.5E RADMA 2623.0N 04857.5E DELMU 2618.9N 04903.4E ROSEM 2607.7N 04919.0E SALWA 251538N 0503048E
L695	PAROK 231030N 0590245E *Note 7 (OO) ITURA 232351N 0580720E	UL695	PAROK 231030N 0590245E *Note 7 (OO) ITURA 232351N 0580720E
L764	MUSCAT (MCT) ALMOG 233524N 0574940E IVETO 233520N 0570704E PAXIM 240245N 0561631E	UL764	MUSCAT (MCT) ALMOG 233524N 0574940E IVETO 233520N 0570704E PAXIM 240245N 0561631E
L768	ALPOB 254218N 0530055E * Note 7 to FIRAS * Note 8 (ALPOB-COPPI) ROTAG 255353N 0523621E SOLEG 260159N 0521756E MODOG 261012N 0515935E RAMKI 261138N 0515625E RABLA 261506N 0514834E SOLOB 262241N 0513132E MEDMA 263421N 0505454E TOTLA 263806N 0504301E EGMOR 264211N 0502907E ULADA 264527N 0501624E JBL 270222N 0492426E COPPI 275033N 0474359E	UL768	ALPOB 254218N 0530055E * Note 7 to FIRAS * Note 8 (ALPOB-COPPI) ROTAG 255353N 0523621E SOLEG 260159N 0521756E MODOG 261012N 0515935E RAMKI 261138N 0515625E RABLA 261506N 0514834E SOLOB 262241N 0513132E MEDMA 263421N 0505454E TOTLA 263806N 0504301E EGMOR 264211N 0502907E ULADA 264527N 0501624E JBL 270222N 0492426E COPPI 275033N 0474359E HFR 281950N 0460746E VATIM 285136N 0444442E RAFHA (RAF) 281950N 0460746E ARAR (AAR) 305429N 0410832E OVANO 314801N 0390951E OTILA 320131N 0390153E MODAD 323542N 0384136E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
			SOKAN 330806N 0382206E RAFIF 331248N 0381918E SULAF 332718N 0381024E FIRAS 335218N 0375512E
		UL883	REXOD 211230N 0613830E GADMA 211439N 0600938E TAVKO 211519N 0593147E UMILA 211555N 0584738E MEVLI 211632N 0565606E KUROV 211627N 0561853E ALNUN 211625N 0561041E SITOL 211604N 0552514E PURDA 210805N 0510329E ALRIK 220631N 0482535E UMRAN 2315.1N 04520.4E TUKVU 2346.4N 04353.3E BIR DARB (BDB) PMA N243251N 0394219E
		UL894	KITAL 2003.0N 06018.0E (MALE (MLE) (SUNAN 0028.7N 07800.0E) (DADAR 0200.0S 07927.1E) (PERTH (PH)
M203	PUSTO 3321.0N 04245.0E LOVEK 3222.1N 04440.0E ILMAP 312133N 0465702E	UM203	PUSTO 3321.0N 04245.0E LOVEK 3222.1N 04440.0E ILMAP 312133N 0465702E
M300	LOTAV 2037N 0605700E EMURU 221535N 0584950E	UM300	(CALICUT) CLC LOTAV 2037N 0605700E EMURU 221535N 0584950E
M301	PURAD 145500N 0415354E SANA'A (SAA) ITOLI 152825N 0450927E ASMAK162327N 0524634E	M301	PURAD 145500N 0415354E SANA'A (SAA) ITOLI 152825N 0450927E ASMAK162327N 0524634E
M303	MCT 233528.01N 0581536.47E *Note 7 (OO) SEVLA 233321N 0591122E KIPOL230410N 0612903E	UM303	MCT 233528.01N 0581536.47E *Note 7 (OO) SEVLA 233321N 0591122E KIPOL230410N 0612903E
M305	BRN 3134.5N 02600.3E ATMUL 200000N 2905.4E *Note 3	UM305	BRN 3134.5N 02600.3E ATMUL 200000N 2905.4E *Note 3
		UM309	KIND KHALED (KIA) RAGHBA (RGB) RABTO 221608N 0400326E
M312	DBA 3100.7N 02828.0E AMIBO 3456.7N 2136.4E *Note 3 (HE)	UM312	DBA 3100.7N 02828.0E AMIBO 3456.7N 2136.4E *Note 3 (HE)
M316	KANAS 251552N 0574700E GOKSO 265542N 0604012E	UM316	KANAS 251552N 0574700E GOKSO 265542N 0604012E
M318	GABKO 260404N 0554755E GITSA 254132N 0553926E *Note 7 (SERSA-GABKO) Eastbound SERSA 251945N 0553118E MIADA 245112N 0545736E	UM318	

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	ABU DHABI (ADV) 242508N 0544024E ATUDO 241708N 0543532E MUSEN 241429N 0543336E GOLGU 231051N 0523109E MUXIT 230229N 0523024E KITAP 224928N 0522923E PURDA 210805N 0510329E SHARURAH (SHA) NADKI 171418N 0464706E SAA 153100N 0441311E HDH 144622N 0425911E		KITAP 224928N 0522923E PURDA 210805N 0510329E SHARURAH (SHA) NADKI 171418N 0464706E SAA 153100N 0441311E HDH 144622N 0425911E
M319	ULINA 292451N 0345817E SESMO 293458N 0351159E LOXUS 301301N 0352601E LOSIL 304951N 0354841E QATRANEH (QTR)	UM319	ULINA 292451N 0345817E SESMO 293458N 0351159E LOXUS 301301N 0352601E LOSIL 304951N 0354841E QATRANEH (QTR)
M320	KING FAHD (KFA) KODAG 2703.3N 04920.4E RAS ASVIR 283220N 0482220E KUWAIT (KUA)	UM320	KING FAHD (KFA) KODAG 2703.3N 04920.4E RAS ASVIR 283220N 0482220E KUWAIT (KUA)
M321	HALAIFA 262602N 0391609E (HLF) ROSUL 2539.7N 04215.3E OVEKU 2509.9 04457.0E KING KHALED (KIA) RESAL 240649N 0470427E AMBAG 230529N 0474611E ALRIK 220631N 0482525E NONGA 205048N 0492014E ASTIN 200410N 0495320E SILPA 184953N 0510158E IMPOS 183136N 0511848E LOTEL 180926N 0514103E PUTRA 165432N 0525631E	UM321	HALAIFA 262602N 0391609E (HLF) ROSUL 2539.7N 04215.3E OVEKU 2509.9 04457.0E KING KHALED (KIA) RESAL 240649N 0470427E AMBAG 230529N 0474611E ALRIK 220631N 0482525E NONGA 205048N 0492014E ASTIN 200410N 0495320E SILPA 184953N 0510158E IMPOS 183136N 0511848E LOTEL 180926N 0514103E PUTRA 165432N 0525631E
M425	SILKO 3347.9N 03435.0E CAK	UM425	SILKO 3347.9N 03435.0E CAK
M428	RIKET 251859N 0560200E *Note 7/8 (OO/OM) GOMTA 251115N 0563447E TARBO 244351N 0574637E MUNGA 242516N 0584533E	UM428	RIKET 251859N 0560200E *Note 7/8 (OO/OM) GOMTA 251115N 0563447E TARBO 244351N 0574637E MUNGA 242516N 0584533E
M430	*Note 5 (KIA-DOH) KING KHALID (KIA) 245310N 0464534E KOBOX 250716N 0475046E KIREN 251447N 0490724E *Note 8 (KIREN-TOSNA) HSA 251645N 0492903E SALWA 251538N 0503048E ULIKA 251545N 0503849E GINTO 251606N 0510416E LAGNO 251613N 0511518E DOHA HAMAD INTL (DOH) 251500N 0513635E BOVIP 251555N 0523135E TOSNA 251612N 0524116E *Note 7 (DOH-KISAG) KISAG 251834N 0541408E	UM430	*Note 5 (KIA-DOH) KING KHALID (KIA) 245310N 0464534E KOBOX 250716N 0475046E KIREN 251447N 0490724E *Note 8 (KIREN-TOSNA) HSA 251645N 0492903E SALWA 251538N 0503048E ULIKA 251545N 0503849E GINTO 251606N 0510416E LAGNO 251613N 0511518E DOHA HAMAD INTL (DOH) 251500N 0513635E BOVIP 251555N 0523135E TOSNA 251612N 0524116E *Note 7 (DOH-KISAG) KISAG 251834N 0541408E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
M434	UMESA 351741N 0434307E OTALO 351700N 0441900E IVANO 351724N 0451235E BOXIX 351724N 0460921E ALSAX 351607N 0463118E SANANDAJ (SNJ) HAMDAN(HAM) SAVEH(SAV)	UM434	UMESA 351741N 0434307E OTALO 351700N 0441900E IVANO 351724N 0451235E BOXIX 351724N 0460921E ALSAX 351607N 0463118E SANANDAJ (SNJ) HAMDAN(HAM) SAVEH(SAV)
		UM440	KING KHALED (KIA) OTAMA 235148N 0494707E KUTNA 231341N 0512730E KITAP 224928N 0522923E TOKRA 220925N 0553350E
M444	DOHA/HAMAD INTL (DOH) 251500N0513635E EMISA 254658N 0514207E PATOM 255821N 0511836E DENVO 260452N 0510509E BAHRAIN (BAH) 261551N 0503855E ELOSO 262409N 0503550E EGMOR 264210N 0502906E LOTOR 264854N 0502200E RAMSI 270249N 0500714E ORDAN 271706N 0495442E GIRSI 274126N 0493310E ENASO 275706N 0491911E DAVUS 282346N 0490622E	UM444	DOHA/HAMAD INTL (DOH) 251500N0513635E EMISA 254658N 0514207E PATOM 255821N 0511836E DENVO 260452N 0510509E BAHRAIN (BAH) 261551N 0503855E ELOSO 262409N 0503550E EGMOR 264210N 0502906E LOTOR 264854N 0502200E RAMSI 270249N 0500714E ORDAN 271706N 0495442E GIRSI 274126N 0493310E ENASO 275706N 0491911E DAVUS 282346N 0490622E
M449	BUSRA 322000N 0363700E MAZAR 3048.0N 03610.0E GIBET 2926.3N 03625.0E TABUK (TBK) WEJH (WEJ)	UM449	BUSRA 322000N 0363700E MAZAR 3048.0N 03610.0E GIBET 2926.3N 03625.0E TABUK (TBK) WEJH (WEJ)
M551	KIVEL 165306N 0553633E DAXAM 171612N 0544715E	UM551	DONSA1435.3N06344.0E ANGAL1614.1N 06000.1E OTOTO 164004N 0570435E KIVEL 165306N 0553633E DAXAM 171612N 0544715E
M557	ATBOR 251007N 0551947E *Note7 & 8 to MIDSI NADIL 252252N 0544717E NABOP 252607N 0540405E EMAGO 253456N 0535751E VUVOK 254408N 0533024E	UM557	ATBOR 251007N 0551947E *Note7 & 8 to MIDSI NADIL 252252N 0544717E NABOP 252607N 0540405E EMAGO 253456N 0535751E VUVOK 254408N 0533024E
M559	LABNI 165620N 0410921E NISMI 162415N 0421838E ITOLI 152825N 0450927E MUKALLA (RIN) VEDET 120134N 0512410E	UM559	LABNI 165620N 0410921E NISMI 162415N 0421838E ITOLI 152825N 0450927E MUKALLA (RIN) VEDET 120134N 0512410E
M561	KISH (KIS) MOBET 2645.3N 05609.8E ASVIB 265724N 0631812E PANJGUR (PG)	UM561	KISH (KIS) MOBET 2645.3N 05609.8E ASVIB 265724N 0631812E PANJGUR (PG)
		UM573	TEHERAN (TRN) TABRIZ (TBZ) 3808.3N 04613.9E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
		UM574	MALE) (MLE) (POPET) 0713.7N06813.6E NABIL 1222.0E0600.0E RIGAM 143932N 0530414E NOBSU 171554N 0431318E
M600	RANBI 251908N 0544500E KISAG 251834N 0541408E TUMAK 255031N 0531108E VEDOM 260109N 0524456E VELAK 261307N 0521821E LABOP 261907N 0520429E ALTOM 262230N 0515639E DASOS 262429N 0515043E ALMOK 262832N 0513840E VEDOS 264105N 0510044E NABOS 264354N 0505145E MOGAS 264759N 0503909E RAKAK 265221N 0502618E RAMSI 270249N 0500714E ORNAK 272853N 0493248E SOLEM 275229N 0491136E KUMBO 281705N 0485526E	UM600	RANBI 251908N 0544500E KISAG 251834N 0541408E TUMAK 255031N 0531108E VEDOM 260109N 0524456E VELAK 261307N 0521821E LABOP 261907N 0520429E ALTOM 262230N 0515639E DASOS 262429N 0515043E ALMOK 262832N 0513840E VEDOS 264105N 0510044E NABOS 264354N 0505145E MOGAS 264759N 0503909E RAKAK 265221N 0502618E RAMSI 270249N 0500714E ORNAK 272853N 0493248E SOLEM 275229N 0491136E KUMBO 281705N 0485526E
M628	LUDID 230227N 0551800E LABSA 230153N 0555505E EGVAN 230127N 0561907E TULBU 230005N 0571827E IZK 225318.60N 0574542.73E TOLDA 224008N 0583624E LOXOP 223722N 0594548E LADAP 223513N 0603238E IVOMA 223408N 0605430E PARAR 222630N 0630700E	UM628	DAFINAH (DFN) 231700N 0414312E KIPOM 225316N 0501518E MIGMA 225035N 0512749E KITAP 224928N 0522923E ALPEK 224648N 0535942E LUDID 230227N 0551800E LABSA 230153N 0555505E EGVAN 230127N 0561907E TULBU 230005N 0571827E IZK 225318.60N 0574542.73E TOLDA 224008N 0583624E LOXOP 223722N 0594548E LOSIM 223513N 0603238E IVOMA 223408N 0605430E PARAR 222630N 0630700E
M634	ANGAL 161406N 0600006E VEDET 120134N 0512410E DAROT 0911.4N 04721.2E	UM634	ANGAL 161406N 0600006E VEDET 120134N 0512410E DAROT 0911.4N 04721.2E
M651	ATBOT 171418N 0464706E ADEN (KRA) (HARGEISA) HARGA	UM651	ATBOT 171418N 0464706E ADEN (KRA) (HARGEISA) HARGA
M677	SESRA 290800N 0485454E RABAP 283625N 0492722E PASAK 282459N 0494846E GOGMA 281421N 0495612E IVIVI 273734N 0502437E VEDOR 270855N 0504630E TOSDA 270004N 0505629E TORBO 265222N 0511024E SOGAN 263915N 0515408E DEGSO 261054N 0531946E OBNET 260032N 0534514E ITITA 254410N 0541839E SERSA 251945N 0553118E LALDO 251806N 0563600E	UM677	SESRA 290800N 0485454E RABAP 283625N 0492722E PASAK 282459N 0494846E GOGMA 281421N 0495612E IVIVI 273734N 0502437E VEDOR 270855N 0504630E TOSDA 270004N 0505629E TORBO 265222N 0511024E SOGAN 263915N 0515408E DEGSO 261054N 0531946E OBNET 260032N 0534514E ITITA 254410N 0541839E SERSA 251945N 0553118E LALDO 251806N 0563600E
M681	TARBO 244351N 0574637E	UM681	TARBO 244351N 0574637E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	*Note 7/8 (OO) DAMUM 243236N 0591307E		*Note 7/8 (OO) DAMUM 243236N 0591307E
M686	LUXOR (LXR) MEMPO 252518N 0335457E GIBAL 243712N 0363442E KING ABDULAZIZ (JDW)	UM686	LUXOR (LXR) MEMPO 252518N 0335457E GIBAL 243712N 0363442E KING ABDULAZIZ (JDW)
		UM688	CRM GULRA ERN EVSAS BAYIR 383541N 0412414 E ULTED OTKEP NINVA 372100N 0431300E ROXOP 364917N 0433100E VUSEB 3616 37N E0434800E OTALO 351700N 0441900E RIDIP 343012N 0444027E UKMUG 334300N 0450329E VAXEN 3318 00N 0451500E PAPUS 325334N 0452706E KATUT 323737N 0453439E DENKI 322228.46N 0455121.58E ILMAP 31 21 33N 0465702E PEBAD 305023.09N 0472958.49E SIDAD 295231N 0482944E
		UM690	ZELAF325656N 0375959E ORNAL 324755N0375153E KODER 323300N 0373800E DESLI 314900N 03659091E ELOXI 313401N 036453E KULDI 311847N 0363214E MUNRA 304944N 0360835E LONOL 300801N 0353500E SESMO 293458N 0351159E ULINA 292451N 0345817E NWB 290256N 0344016E
M691	DEDAS 2630.2N 05014.4E KING FAHAD KUSAR 264741N 0490218E KEDAT 2721.8N 04759.0E ITIXI 275031N 0470435E	UM691	DEDAS 2630.2N 05014.4E KING FAHAD KUSAR 264741N 0490218E KEDAT 2721.8N 04759.0E ITIXI 275031N 0470435E
M762	REXOD 211230N 0613830E SUR 223159N 0592829E ITURA 232351N 0580720E ALMOG 233524N0574940E TAPRA 242607N 0563803E VAXAS 244308N 0561807E * Note 7 (OM, OO) BUBIN 245742N 0560642E		
M860	KUGOS 4246.8N 03405.3E SINOP (SIN) CARSAMBA (CRM) SRT 3754.6N 04152.9E KABAN N371456N 0423859E EMIDO 364411.33N 042 56 00E SEVKU 360548.02N 0431715.84E UMESA 351741.49N 0434306.89E	UM860	KUGOS 4246.8N 03405.3E SINOP (SIN) CARSAMBA (CRM) SRT 3754.6N 04152.9E KABAN N371456N 0423859E EMIDO 364411.33N 042 56 00E SEVKU 360548.02N 0431715.84E UMESA 351741.49N 0434306.89E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	TAGRU 342958.95N 0440816.67E PUTSI 333200N E044 3700E ITOVA 331950.91N 0444 28.97E SEPTU 331300N 0444400E LONOR 323838.63N 0450458.48E ULIMA 321500N 0451600E ITBIT 314735.20N 045 2916.57E RUGIR 303219.06N 046 0618.20E MOBIS 295108.84N 047 0457.39E		TAGRU 342958.95N 0440816.67E PUTSI 333200N E044 3700E ITOVA 331950.91N 0444 28.97E SEPTU 331300N 0444400E LONOR 323838.63N 0450458.48E ULIMA 321500N 0451600E ITBIT 314735.20N 045 2916.57E RUGIR 303219.06N 046 0618.20E MOBIS 295108.84N 047 0457.39E
		UM861	ELEXI 3441.5N 04109.0E DIER-ZZOR (DRZ) ALEPPO (ALE) NISAP 364724N 0363830E
M863	KING ABDUL AZIZ (JDW 214237N 0390948E GIBAP 212218N 0380931E TOMRU 204411N 0361950E ASKOL 1548.9N 02400.1E KITOB 1521.7N 02258.8E IPONO 150621 N 0222436 E N'DJAMENA (FL) 1208.5N 01502.3E	UM863	KING ABDUL AZIZ (JDW 214237N 0390948E GIBAP 212218N 0380931E TOMRU 204411N 0361950E ASKOL 1548.9N 02400.1E KITOB 1521.7N 02258.8E IPONO 150621 N 0222436 E N'DJAMENA (FL) 1208.5N 01502.3E
M872	PLH 3513.7N 02340.9E *Note 7 (PLH-DBA) METRU 340000N 0250900E KANAR 322727N 0265330E EL DABA (DBA) 310041N 0282801E FYM 2923.8N 03023.6E *Note 7 (FYM-SEMRU) SEMRU 280200N 0320306E HURGHADA (HGD) SILKA 263400N 0352900E WEJH (WEJ) 261046N 0362917E KODIN 2517.9N 03836.2E MADINAH (PMA) *Note 7 (PMA-MIDSI) BIR DARB (BDB) AL DAWADMI (DAW) KING KHALID (KIA) AKRAM 255036N 0475133E *Note 8 to MIDSI ALMAL 261553N 0482108E DAVRI 264936N 0505732E MIDSI 264142N0515442E	UM872	PLH 3513.7N 02340.9E *Note 7 (PLH-DBA) METRU 340000N 0250900E KANAR 322727N 0265330E EL DABA (DBA) 310041N 0282801E FYM 2923.8N 03023.6E *Note 7 (FYM-SEMRU) SEMRU 280200N 0320306E HURGHADA (HGD) SILKA 263400N 0352900E WEJH (WEJ) 261046N 0362917E KODIN 2517.9N 03836.2E MADINAH (PMA) *Note 7 (PMA-MIDSI) BIR DARB (BDB) AL DAWADMI (DAW) KING KHALID (KIA) AKRAM 255036N 0475133E *Note 8 to MIDSI ALMAL 261553N 0482108E DAVRI 264936N 0505732E MIDSI 264142N0515442E
		UM877	VUSET 235540N 0590812E ITILA 234015N 0584817E KUSRA 232426N 0582611E
M999	GS DITAR 265903N 0250000E KHG KUNAK (LUXOR) LXR DEDLI 2242 32N 03737 19E IMLER 221706N 0381653E KING ABDULAZIZ (JDW) TOKTO 194421N 00395945E DANAK 1608.0N 04129.0E (ASSAB) SB	UM999	GS DITAR 265903N 0250000E KHG KUNAK (LUXOR) LXR DEDLI 2242 32N 03737 19E IMLER 221706N 0381653E KING ABDULAZIZ (JDW) TOKTO 194421N 00395945E DANAK 1608.0N 04129.0E (ASSAB) SB
N300	DOHA/HAMAD INTL	UN300	DOH 2514.0N 05134.6E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	(DOH) 251500N0513635E *Note 7 & 8 to TONVO ELOBI 250753N 0521722E NAMLA 250532N 0523318E BOXAK 244536N 0540032E MIADA 245112N 0545736E TONVO 250500N 0563200E		(DOH) 251500N0513635E *Note 7 & 8 to TONVO ELOBI 250753N 0521722E NAMLA 250532N 0523318E BOXAK 244536N 0540032E MIADA 245112N 0545736E TONVO 250500N 0563200E
N302	SIDAD 295231N 0482944E ALVIX 291915N 0482944E	UN302	SIDAD 295231N 0482944E ALVIX 291915N 0482944E
N303	(HARGEISA) HARGA PARIM 1231.7N 04327.2E RIBOK1547N 04152.5E LABNI 1656.3N 04109.4E	UN303	(HARGEISA) HARGA PARIM 1231.7N 04327.2E RIBOK1547N 04152.5E LABNI 1656.3N 04109.4E
N307	MELDO 320201N 0310406E LAKTO 323800N 0320500E	UN307	MELDO 320201N 0310406E LAKTO 323800N 0320500E
N310	BALMA 342856N 0350302E CAK 341802N 0354200E LATEB 3401.9N 03624.1E BASEM 3333.6N 03739.1E	UN310	BALMA 342856N 0350302E CAK 341802N 0354200E LATEB 3401.9N 03624.1E BASEM 3333.6N 03739.1E
		UN315	ASPUX 174406N 0600006E KUTVI 184306N 0582642E Note:- 7 (OO/OB) SITOL 211604N 0552514E LOTOS 220000N 0503912E RAPMA 232256N 0482028E RESAL 240649N 0470427E KING KHALED (KIA)
		UN316	HALAIFA (HLF) 262603N 0391609E PASAM 273045N 0345542E
N318	QAA 314423N 0360926E ALNOR 313955N 0362507E KINUR 313626N 0363714E ELOXI 313359N 0364536E GENEX 312935N 370052E GURIAT (GRY) 312445N 0371712E ORKAS 3047254N 0384617 E NEVOL 302446N 0393841E VELAL 294602N 04038214E TAMRO 283838N 0424047E * Note7 (OE, OB, OM, OO) MOGON 273848N 0444554E TAGSO 272744N 0454510E *Note 8 (OB, OO) EGNOV 270301N 0474713E KUSAR 264741N 0490218E ASPAN 263255N 0494903E DEDAS 263011N 0501427E LADNA 262749N 0502245E ELOSO 262409N 0503551E DAVOV 262255N 0504013E GOLKO 262149N 0504404E ASTAD 261812N 0505646E TOTIS 261119N 0511027E RASDI 260425N 0512407E VELAM 255426N 0514347E VUTAN 255016N 0515218E RESAR 253707N 0522328E	UN318	QAA 314423N 0360926E ALNOR 313955N 0362507E KINUR 313626N 0363714E ELOXI 313359N 0364536E GENEX 312935N 370052E GURIAT (GRY) 312445N 0371712E ORKAS 3047254N 0384617 E NEVOL 302446N 0393841E VELAL 294602N 04038214E TAMRO 283838N 0424047E * Note7 (OE, OB, OM, OO) MOGON 273848N 0444554E TAGSO 272744N 0454510E *Note 8 (OB, OO) EGNOV 270301N 0474713E KUSAR 264741N 0490218E ASPAN 263255N 0494903E DEDAS 263011N 0501427E LADNA 262749N 0502245E ELOSO 262409N 0503551E DAVOV 262255N 0504013E GOLKO 262149N 0504404E ASTAD 261812N 0505646E TOTIS 261119N 0511027E RASDI 260425N 0512407E VELAM 255426N 0514347E VUTAN 255016N 0515218E RESAR 253707N 0522328E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	ALSEM 252703N 0524322E OVONA 252443N 0524739E (LOXAT – REXOD) KATIK 251709N 0531515E KANIP 241042N 0552042E LABRI 240344N 0553842E EGROK 235253N 0560126E LAKLU 232235N 0570401E GEVED 230105N 0575111E TOLDA 223720N 0583503E REXOD211230N 0613830E		ALSEM 252703N 0524322E OVONA 252443N 0524739E (LOXAT-REXOD) KATIK 251709N 0531515E KANIP 241042N 0552042E LABRI 240344N 0553842E EGROK 235253N 0560126E LAKLU 232235N 0570401E GEVED 230105N 0575111E TOLDA 223720N 0583503E REXOD211230N 0613830E
		UN319	ZAHEDAN (ZDN) TABAS (TBS) DASHT-E-NAZ (DNZ) ULDUS- 3800.0N 05101.0E LUSAL 4035.0N 04757.0E ADEKI 4117.8N 04645.0E TBILIS (TBS) MUKHARANI (DF) ALI (BT) LOBIN 4210.9N 04306.4E IBERI 4209.6N 04143.3E
N324	PURDA 210805N 0510329E GOBRO 193622N 0534741E ASTUN 180832N 0551040E	UN324	PURDA 210805N 0510329E GOBRO 193622N 0534741E ASTUN 180832N 0551040E
N430	TARBO 244351N 0574637E *Note 7/8 (OO) ITLOB 244325N 0590701E	UN430	TARBO 244351N 0574637E *Note 7/8 (OO) ITLOB 244325N 0590701E
N438	LITAN 333456N 0343758E KAD 334827N 0352910E CAK 341802N 0354200E RA 343510N 0360010E	UN438	LITAN 333456N 0343758E KAD 334827N 0352910E CAK 341802N 0354200E RA 343510N 0360010E
N440	MOBON 274414N 0552513E DARAX 260916N 0555307E	UN440	MOBON 274414N 0552513E DARAX 260916N 0555307E
		UN555	BELGAUM (BBM) BISET 1823.4N 06918.1E KATBI 1931.6N 06500.0E LOTAV 2037.0N 06057.0E
N563	REXOD 211230N 0613830E *Note 8 (OB, OM) *Note 7 (OB, OO, OM) EMURU 221357N 0585338E TULBU 230005N 0571827E MEKNA 223309N 0560815E SODEX 234954N 0553202E NOBTO 235525N 0551840E ADV MEMBI 243705N 0542631E ATBEX 250739N 0535019E ITROK 253557N 0532751E ALPOB 254218N 0530055E ROTAG 255353N 0523621E SOLEG 260159N 0521756E SOLOB 262241N 0513132E MEDMA 263412N 0505454E TOTLA 263806N 0504301E RULEX 264529N 0501745E	UN563	(BANGALORE) BBG *Note 8 (OB, OM) REXOD 211230N 0613830E *Note 7 (OB, OO,OM) EMURU 221357N 0585338E TULBU 230005N 0571827E MEKNA 223309N 0560815E SODEX 234954N 0553202E NOBTO 235525N 0551840E MEMBI 243705N 0542631E ATBEX 250739N 0535019E ITROK 253557N 0532751E ALPOB 254218N 0530055E ROTAG 255353N 0523621E SOLEG 260159N 0521756E SOLOB 262241N 0513132E MEDMA 263412N 0505454E TOTLA 263806N 0504301E RULEX 264529N 0501745E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	SILNO 264026N 0475745E GIBUS 255724N 0472829E		SILNO 264026N 0475745E GIBUS 255724N 0472829E
		UN569	BONUM 221252N 0393805E RABTO 221608N 0400326E LOTOS *Note:- 7 (LOTOS-GOLNI) TOKRA 220925N 0553350E TOPSO 215653N 0562043E MOGOK 215057N 0564236E KEBAS 214330N 0570948E GISKA 213503N 0574014E UMILA 211555N 0584738E GOLNI 210014N 0594130E LOTAV 203700N 0605700E
N571	PARAR 2226.5 N 06307E *Note 7 & 8 (OB, OM, OO) KIPOL 230410N 0612903E RAGMA 230600N 0610539E SODEB 234747N 0593023E VUSET 235540N 0590812E KIROP 243000N 0574700E MENSA 245750N 0563249E AVAMI 250554N 0555647E ATBOR 251007N 0551947E MUVLA 251716N 0544500E SENTO 251908N 0544500E ELUKU 252910N 0535610E ITROK 253557N 0532751E ALPOB 254218N 0530055E SOLOB 262241N 0513132E MEDMA 263412N 0505454E TOTLA 263806N 0504301E RULEX 264529N 0501745E SILNO 264026N 0475745E KUTEM 264359N 0473521E BOPAN (BPN) 270314N 0452642E	UN571	(GUNIP 0429.9N 09931.8E) (VAMPI 0610.9N 09735.1E) (MEKAR 0630.2N 06929.5E) (SUGID- 1933.1 N 06921.0E) PARAR 2226.5 N 06307E *Note 7 & 8 (OB, OM, OO) KIPOL 230410N 0612903E RAGMA 230600N 0610539E SODEB 234747N 0593023E VUSET 235540N 0590812E KIROP 243000N 0574700E MENSA 245750N 0563249E AVAMI 250554N 0555647E ATBOR 251007N 0551947E MUVLA 251716N 0544500E SENTO 251908N 0544500E ELUKU 252910N 0535610E ITROK 253557N 0532751E ALPOB 254218N 0530055E SOLOB 262241N 0513132E MEDMA 263412N 0505454E TOTLA 263806N 0504301E RULEX 264529N 0501745E SILNO 264026N 0475745E KUTEM 264359N 0473521E BOPAN (BPN) 270314N 0452642E
N629	TARDI 243418N 0560915E *Note 7 (OO) NOSMI 241757N 0563002E MUSUK 234320N 0572148E GEPOT 231446N 0580053E GIDAN 230104N 0582232E TOTOX 215030N 0622230E	UN629	TARDI 243418N 0560915E *Note 7 (OO) NOSMI 241757N 0563002E MUSUK 234320N 0572148E GEPOT 231446N 0580053E GIDAN 230104N 0582232E TOTOX 215030N 0622230E
N638	KING KHALED (KIA) OVEKU 250955N 0445701E MADINAH (PMA)	UN638	KING KHALED (KIA) OVEKU 250955N 0445701E MADINAH (PMA)
N685	TAGSO 272744N 0454510E *Note 7 (TAGSO-KUSAR) *Note 8 (TAGSO-TOSNA) DEBOL 272116N 0461843E TORTA 271906N 0462911E ALSAT 270611N 0473118E EGNOV 270301N 0474713E KUSAR 264741N 0490218E KING FAHAD (KFA) 262153N 0494910E	UN685	TAGSO 272744N 0454510E *Note 7 (TAGSO-KUSAR) *Note 8 (TAGSO-TOSNA) DEBOL 272116N 0461843E TORTA 271906N 0462911E ALSAT 270611N 0473118E EGNOV 270301N 0474713E KUSAR 264741N 0490218E KING FAHAD (KFA) 262153N 0494910E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	NARMI 261802N 0501939E BAHRAIN (BAH) 261551N 0503856E DENVO 260452N 0510509E PATOM 255821N 0511836E EMISA 254658N 0514207E *Note 7 to LAKLU KAPAX 254218N 0515118E ORSIS 252801N 0521636E ENANO 252348N 0522559E TOSNA 251612N 0524116E TOPSI 250910N 0531200E BOXAK 244536N 0540032E ADV 242508N 0544024 RETAS 235754N 0553423E *Note 8 (OO) PUTSO 232037N 0565322E LAKLU 232235N 0570401E		NARMI 261802N 0501939E BAHRAIN (BAH) 261551N 0503856E DENVO 260452N 0510509E PATOM 255821N 0511836E EMISA 254658N 0514207E *Note 7 to LAKLU KAPAX 254218N 0515118E ORSIS 252801N 0521636E ENANO 252348N 0522559E TOSNA 251612N 0524116E TOPSI 250910N 0531200E BOXAK 244536N 0540032E ADV 242508N 0544024 RETAS 235754N 0553423E *Note 8 (OO) PUTSO 232037N 0565322E LAKLU 232235N 0570401E
N687	KING KHALID (KIA) 245310N 0464534E KINIB 254108N 0482317E *Note 5 & 7 & 8 KING FAHAD (KFA) 262153N 0494910E EMOLO 263559N 0500526E ROTEL 264015N 0502149E EGMOR 264210N 0502906E DAVRI 264936N 0505732E TORBO 265223N 0511024E	UN687	KING KHALID (KIA) 245310N 0464534E KINIB 254108N 0482317E *Note 5 & 7 & 8 KING FAHAD (KFA) 262153N 0494910E EMOLO 263559N 0500526E ROTEL 264015N 0502149E EGMOR 264210N 0502906E DAVRI 264936N 0505732E TORBO 265223N 0511024E
N694	KING KHALD (KIA) TORKI 261400N 0463103E SIBLI 265459N 0462334E AKODI 275012N 0461320E HAFR AL BATIN 281949N 0460746E (HFR)	UN694	KING KHALD (KIA) TORKI 261400N 0463103E SIBLI 265459N 0462334E AKODI 275012N 0461320E HAFR AL BATIN 281949N 0460746E (HFR)
N697	MENLI 294700N 0315206E SISIK 293600N 0324100E NUWEIBAA * Note 7 (NWB-KITOT above FL350) KITOT 290205N 0345050E SOBAS 275600N 0390454E HAIL (HIL) 272530N 0414058E *Note 7 (HIL–KFA) BPN 270312N 0452642E *Note 8 (BPN-TORBO) KING FAHD (KFA) 262153N 04949 NARMI 261802N 0501939E BAHRAIN (BAH) 261551N 0503855E *Note 7 GOLKO 262149N 0504404E TOSTA 262746N 0504912E MEDMA 263421N 0505454E VEDOS 264105N 0510044E SODAK 264634N 0510530E TORBO 265223N 0511024E	UN687	MENLI 294700N 0315206E SISIK 293600N 0324100E NUWEIBAA * Note 7 (NWB-KITOT above FL350) KITOT 290205N 0345050E SOBAS 275600N 0390454E HAIL (HIL) 272530N 0414058E *Note 7 (HIL–KFA) BPN 270312N 0452642E *Note 8 (BPN-TORBO) KING FAHD (KFA) 262153N 04949 NARMI 261802N 0501939E BAHRAIN (BAH) 261551N 0503855E *Note 7 GOLKO 262149N 0504404E TOSTA 262746N 0504912E MEDMA 263421N 0505454E VEDOS 264105N 0510044E SODAK 264634N 0510530E TORBO 265223N 0511024E
N764	NOBSU 171554N 0431318E MUKALLAH (RIN) 144015N 0492329E SOCOTRA (SOC) 123749N 0535429E SUHIL 120000N 0550000E NABAM 101112N 0581424E	UN764	NOBSU 171554N 0431318E MUKALLAH (RIN) 144015N 0492329E SOCOTRA (SOC) 123749N 0535429E SUHIL 120000N 0550000E NABAM 101112N 0581424E
N767	PARAR 222630N 0630700E VUSIN 225940N 0605510E * Note 7 (OO)	UN767	PARAR 222630N 0630700E VUSIN 225940N 0605510E * Note 7 (OO)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	ATBED 230352N 0603752E ELIGO 232458N 0590848		ATBED 230352N 0603752E ELIGO 232458N 0590848
		UN881	RASKI 230330N 0635200E SETSI 230412N 0614410E KIPOL 230410N 0612903E ATBED 230352N 0603752E AMBOS 230324N 0595405 MUSRU 230256N 0592223E *Note 7 (OO) OBTIN 230216N 0585920E GIDAN 230104N 0582232E GEVED 230105N 0575111E TULBU 230005N 0571827E
N929	DASLO 254537N 0523029E *Note 7 & 8 to GIBUS NAGOG 255214N 0521615E BONAN 260201N 0515505E 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	UN929	DASLO 254537N 0523029E *Note 7 & 8 to GIBUS NAGOG 255214N 0521615E BONAN 260201N 0515505E 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
		UP146	RASHT (RST) AGINA 3919.4N 04405.2E (AGRI) (ARI) (YAVUZ 4002.7N 04226.0E) (TRABZON (TBN)
P300	KAD 334827N 0352910E LATEB 3401.9N 03624.1E	UP300	KAD 334827N 0352910E LATEB 3401.9N 03624.1E
P304	EGROK 235253N 0560126E *Note 7 (OO) MEKNA 233309N 0560815E EGVAN 230127N 0561907E DEMKI 224941N 0562308E NAMVA 223309N 0562223E TOPSO 215653N 0562043E KUROV 211627N 0561853E VELIK 203322N 0561656E	UP304	EGROK 235253N 0560126E *Note 7 (OO) MEKNA 233309N 0560815E EGVAN 230127N 0561907E DEMKI 224941N 0562308E NAMVA 223309N 0562223E TOPSO 215653N 0562043E KUROV 211627N 0561853E VELIK 203322N 0561656E
P307	(SHJ) 251944.9N 0553118.1E Note 7 (OM,OO) 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	UP307	(SHJ) 251944.9N 0553118.1E Note 7 (OM,OO) 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
P312	MUKALLA (RIN) PAKER 1155.0N0463500E (HARGEISA) HARGA	UP312	MUKALLA (RIN) PAKER 1155.0N0463500E (HARGEISA) HARGA

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
P316	SALALLAH (SLL) * Note 7 (OO) DAXAM 171612N 0544715E GAGLA 180505N 0552410E GIVNO 195011N 0563059E MOBAB 201032N 0564415E GISKA 213503N 0574014E RADAX 220809N 0580230E MUSCAT (MCT)	UP316	SALALLAH (SLL) * Note 7 (OO) DAXAM 171612N 0544715E GAGLA 180505N 0552410E GIVNO 195011N 0563059E MOBAB 201032N 0564415E GISKA 213503N 0574014E RADAX 220809N 0580230E MUSCAT (MCT)
		UP323	DONSA 1435.3N06511.6E GIDAS 142004N0600000E NODMA 1526.0N05334.0E THAMD 1717.0N 04955.0E WDR
P425	DAHRAN (DHA) *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	UP425	DAHRAN (DHA) *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) 251500N 0513635E *Note 8 to MIDSI BAYAN 252926N 0514849E *Note 7 to MIDSI KAPAX 254218N 0515118E VUTAN 255016N 0515218E ALVEN 255418N 0515315E BONAN 260201N 0515505E RAMKI 261138N 0515625E ALTOM 262230N 0515639E	UP430	DOHA/HAMAD INTL (DOH) 251500N 0513635E *Note 8 to MIDSI BAYAN 252926N 0514849E *Note 7 to MIDSI KAPAX 254218N 0515118E VUTAN 255016N 0515218E ALVEN 255418N 0515315E BONAN 260201N 0515505E RAMKI 261138N 0515625E ALTOM 262230N 0515639E
P513	BUBAS 245938N 0570003E GERAR 240600N 0573616E MIXAM 234139N 0575523E * Note 7 (OO) MUSCAT (MCT)		
		UP517	WAFRA (KFR) GOVAL KMC
		UP552	DATEG 123549N 0471627E ULAXI 141524N 0482317E GINBO 160349N 0494017E IMPOS 183137N 0511848E
P557	NUBAR 220000N 0313806E *See Note 6&7 MISUK 290507N 0290621E KATAB 292501N0290506E	UP557	NUBAR 220000N 0313806E *See Note 6&7 MISUK 290507N 0290621E KATAB 292501N0290506E
P559	RASLI 315424N 0383648E TURAIF (TRF) 314136N 0384405E *Note 7 to DESDI KAVID 303552N 0401147E TOKLU 294213N 04202204E RASMO 285713N 0433119E	UP559	RASLI 315424N 0383648E TURAIF (TRF) 314136N 0384405E *Note 7 to DESDI KAVID 303552N 0401147E TOKLU 294213N 04202204E RASMO 285713N 0433119E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	KMC 275250N 0453321E ULOVO 274830N 0455420E *Note 8 (ULOVO-NAPLO) MUSKO 272640N 0473708E KEDAT 272149N 0475901E JUBAIL (JBL) 270222N 0492426E DAROR 270244N 0495815E RAMSI 270249N 0500714E GASSI 2702.9N 05022.5E KOBOK 265839N 0503349E BOXOG 265403N 0504553E DAVRI 264936N 0505731E SODAK 264634N 0510530E DANOB 263946N 0512640E BOTOB 263350N 0514505E ROSAN 263129N 0515220E KUMLA 262609N 0520822E ASPAK 262115N 0522257E TOMSO 260611N 0530214E NALPO 255602N 0532945E RAPSA 253700N 0541700E DESDI 253603N 0544230E		KMC 275250N 0453321E ULOVO 274830N 0455420E *Note 8 (ULOVO-NAPLO) MUSKO 272640N 0473708E KEDAT 272149N 0475901E JUBAIL (JBL) 270222N 0492426E DAROR 270244N 0495815E RAMSI 270249N 0500714E GASSI 2702.9N 05022.5E KOBOK 265839N 0503349E BOXOG 265403N 0504553E DAVRI 264936N 0505731E SODAK 264634N 0510530E DANOB 263946N 0512640E BOTOB 263350N 0514505E ROSAN 263129N 0515220E KUMLA 262609N 0520822E ASPAK 262115N 0522257E TOMSO 260611N 0530214E NALPO 255602N 0532945E RAPSA 253700N 0541700E DESDI 253603N 0544230E
P560	PORT SUDAN (PSD) 311743N 0321416E BOGUM 200736N 0380360E AL BAH (BHA) 201833N 0413845E KITAP 224928N 05229 PORT SUDAN (PSD) 311743N 0321416E	UP560	PORT SUDAN (PSD) 311743N 0321416E BOGUM 200736N 0380360E AL BAH (BHA) 201833N 0413845E KITAP 224928N 05229 PORT SUDAN (PSD) 311743N 0321416E
P561	BENINA (BNA) 320728N 0201513E KATAB 292501N 0290506E	UP561	BENINA (BNA) 320728N 0201513E KATAB 292501N 0290506E
P562	DEESA 294509N 0364102E ENABI 290739N 0385650E TAMRO 283938N 0424147E LOTOK 280857N 0450512E	UP562	DEESA 294509N 0364102E ENABI 290739N 0385650E TAMRO 283938N 0424147E LOTOK 280857N 0450512E
P563	HAIL (HIL) 272630N 0414158E PASAM 273145N 0345642E HURGHADA (HGD) 271140N 0334847E	UP563	HAIL (HIL) 272630N 0414158E PASAM 273145N 0345642E HURGHADA (HGD) 271140N 0334847E
		UP567	BIRJAND (BJD) ODKAT 3540.6N 05457.2E DASHT-E-NAZ (DNZ) 3638.7N 05311.4E (ULDUS -3800.0N 05101.0E) NETON 3945.7N 04811.7E BARUS 4154.2N 04250.5E
P570	KITAL 2003N 06018E MIXAM 234139N 0575523E	UP570	TRIVENDRUM (TVM) POMAN 1156.1N 07200.0E LATEB 1717.1N 06422.0E KITAL 2003N 06018E MIXAM 234139N 0575523E
		UP574	(BELGAUM) BBM (BISET- 1823.4N 06918.1E) TOTOX 215030N 0622230E * Note 7 (OM, OO) KUSRA 231726N 0585102E MIXAM 234138N 0575525E SOLUD 243223N 0564421E GISMO 244743N 0562236E BUBIN 245742N 0560642E TUKLA 2519.6N 05540.2E

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
			KUMUN 254000N 0551512E PAPAR 264000N 0542700E SHIRAZ SAVEH (SAV) ULDUS
		UP634	LALDO 251806N 0563600E *Note 7 ATBOR 251007N 0551947E
		UP693	AL AHSA (HSA) 251644N 0492902E *Note 8 to BUNDU BATHA (BAT) 241257N 0512707E BUNDU 250024N 0522924E
P699	ATBOR 251007N 0551947E *Note 7 (ATBOR-BAH) SITAT 251105N 0544500E KISAG 251834N 0541408E ITMUS 252322N 0535429E ALSOK 252607N 0533904E RUBAL 252957N 0531723E ORMID 253354N 0525434E *Note 8 (ORMID-KFA) DASLO 254537N 0523029E NAGOG 255214N 0521614E BONAN 260200N 0515505E VEDED 260558N 0514627E KUNDO 261631N 0512325E SOGAT 262029N 0511443E ASTAD 261812N 0505646E BAHRAIN (BAH) 261551N 0503856E NARMI 261802N 0501939E KING FHAD (KFA) 262153N 0494910E	UP699	ATBOR 251007N 0551947E *Note 7 (ATBOR-BAH) SITAT 251105N 0544500E KISAG 251834N 0541408E ITMUS 252322N 0535429E ALSOK 252607N 0533904E RUBAL 252957N 0531723E ORMID 253354N 0525434E *Note 8 (ORMID-KFA) DASLO 254537N 0523029E NAGOG 255214N 0521614E BONAN 260200N 0515505E VEDED 260558N 0514627E KUNDO 261631N 0512325E SOGAT 262029N 0511443E ASTAD 261812N 0505646E BAHRAIN (BAH) 261551N 0503856E NARMI 261802N 0501939E KING FHAD (KFA) 262153N 0494910E
P751	AMIBO 3456.7N 2136.4E BRN 3134.5N 02600.3E KATAB 2925.0N 2905.1E AST 2701.9N 03101.9E LUXOR (LXR) ALEBA 2200.0N 03527.0E PORT SUDAN [ASMARA] * Note 1 TOKAR 1304.0N 04238.8E PARIM 1231.7N 04327.2E ADEN (KRA) ANGAL 1614.0N 06000.0E MUMBAI (BBB)	UP751	AMIBO 3456.7N 2136.4E BRN 3134.5N 02600.3E KATAB 2925.0N 2905.1E AST 2701.9N 03101.9E LUXOR (LXR) ALEBA 2200.0N 03527.0E PORT SUDAN [ASMARA] * Note 1 TOKAR 1304.0N 04238.8E PARIM 1231.7N 04327.2E ADEN (KRA) ANGAL 1614.0N 06000.0E MUMBAI (BBB)
P891	MAGALA (MGA) *Note 7 to KUA KUTEM 264359N 0473521E EGNOV EMILU KUNRU 283220N 0481050E KUWAIT (KUA)	UP891	MAGALA (MGA) *Note 7 to KUA KUTEM 264359N 0473521E EGNOV EMILU KUNRU 283220N 0481050E KUWAIT (KUA)
P899	MIXAM 234139N 0575523E *Note 7 to KUPSA PAXIM 240245N 05617631E ITRAX 241248N 0554749E AL AIN (ALN)	UP899	MIXAM 234139N 0575523E *Note 7 to KUPSA PAXIM 240245N 05617631E ITRAX 241248N 0554749E AL AIN (ALN)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	ABU DHABI DASLA N2437.8 E05332.8 VEBAT N2448.5 E05251.0 MEKMA N245430 E0522506 *Note 8 (OB) KUPSA N250445 E0521151		ABU DHABI DASLA N2437.8 E05332.8 VEBAT N2448.5 E05251.0 MEKMA N245430 E0522506 *Note 8 (OB) KUPSA N250445 E0521151
		UP975	(ELAZIG) EZS *Note7 (DYB) 384225N 0391328E LESRI 370420N 0411348E SIDNA 3634.0N 04141.0E TUBEN 351724N 0425434E MUTAG 343003N 0433834E SOGUM 341212N 0435454E SINKA 332137N 0444753E
P975	NOLDO 324932N 0452129E *Note 7 KATUT 323737N 0453439E DENKI 322228N 0455122E ILMAP 312133N 0465702E PEBAD 305023N 0472958E SIDAD 295231N 0482944E LOVAR 292424N 0484606E SESRA 290800N 00485454E DANAL 285130N 0490448E IMDOX 283454N 0491436E LONOS 283027N 0491713E ORGEL 281312N 0494614E DATEN 273118N 0501832E REVAX 272026N 0502651E GETAL 270409N 0504039E LOSIS 270118N 0504208E BOXOG 265403N 0504553E NABOS 264354N 0505145E TOTIS 261119N 0511026E		NOLDO 324932N 0452129E *Note 7 KATUT 323737N 0453439E DENKI 322228N 0455122E ILMAP 312133N 0465702E PEBAD 305023N 0472958E SIDAD 295231N 0482944E LOVAR 292424N 0484606E SESRA 290800N 00485454E DANAL 285130N 0490448E IMDOX 283454N 0491436E LONOS 283027N 0491713E ORGEL 281312N 0494614E DATEN 273118N 0501832E REVAX 272026N 0502651E GETAL 270409N 0504039E LOSIS 270118N 0504208E BOXOG 265403N 0504553E NABOS 264354N 0505145E TOTIS 261119N 0511026E
R2	ATMUL 220000N 0290527E TULOP 252209N 0262226E DITAR 265903N 0250000E	UR2	ATMUL 220000N 0290527E TULOP 252209N 0262226E DITAR 265903N 0250000E
R205	ANARAK (ANK) BIRJAND (BJD)	UR205	ANARAK (ANK) BIRJAND (BJD)
R219	KUKLA 3414.6N 03444.8E KALDE (KAD)	UR219	KUKLA 3414.6N 03444.8E KALDE (KAD)
R401	AMPEX 08 1000N 055 0000E SUHIL 120000N 0550000E DAPAP 151115N 0552354E KIVEL 165306N 0553633E ERDAX 175903N 0554458E HAIMA (HAI) DEMKI 224941N 0562308E MUSAP 241754N 0555245E GIDIS 243600N 0555600E ANVIX 244655N 0555616E AVAMI 250554N 0555647E ULUSA 254925N 0555010E SOGUR 255221N 0554943E *Note7 Eastbound GABKO 260404N 0554755E GHESHM (KHM)	UR401	AMPEX 08 1000N 055 0000E SUHIL 120000N 0550000E DAPAP 151115N 0552354E KIVEL 165306N 0553633E ERDAX 175903N 0554458E HAIMA (HAI) DEMKI 224941N 0562308E MUSAP 241754N 0555245E GIDIS 243600N 0555600E ANVIX 244655N 0555616E AVAMI 250554N 0555647E ULUSA 254925N 0555010E SOGUR 255221N 0554943E *Note7 Eastbound GABKO 260404N 0554755E GHESHM (KHM)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
R402	LAKLU 232235N 0570401E *Note 7 (OO) HAIMA (HAI)	UR402	LAKLU 232235N 0570401E *Note 7 (OO) HAIMA (HAI)
R462	(JIWANI) JI DENDA 2442.5N 06054.8E VUSET 235540N 0590812E *Note 7 (OO) MIXAM 234139N 0575523E	UR462	(JIWANI) JI DENDA 2442.5N 06054.8E VUSET 235540N 0590812E *Note 7 (OO) MIXAM 234139N 0575523E
R650	ASRAB 2547.4N 03306.3E HURGHADA (HGD) SHARM EL SHEIKH (SHM) NUWEIBAA (NWB) NALSO 2932.0N 03453.0E	UR650	ASRAB 2547.4N 03306.3E HURGHADA (HGD) SHARM EL SHEIKH (SHM) NUWEIBAA (NWB) NALSO 2932.0N 03453.0E
R652	QATRANEH (QTR) KIPAS 312320N 0370641E GURIAT (GRY) *Note 7(OE) TURAIF (TRF) OVANO 3148.0N 03909.8E DAXAN 320512N 0393719E GIBUX 330500N 0411100E RAPLU 332300N 0414530E GEPAP 334906N 0422851E MUTAG 343003N 0433834E DAVAS 351724N 0451235E		
R654	ZANJAN (ZAJ) SAVEH (SAV) ESFAHAN (ISN) YAZD (YZD) KERMAN (KER) NABOD 2816.1N 05825.3E CHAH BAHAR (CBH) EGPIC 2508.6N 06029.5E	UR654	MAGRI 385408N 0462300E ZANJAN (ZAJ) SAVEH (SAV) ESFAHAN (ISN) YAZD (YZD) KERMAN (KER) NABOD 2816.1N 05825.3E CHAH BAHAR (CBH) EGPIC 2508.6N 06029.5E
R655	(LARNACA) LCA CHEKA (CAK) KARIATAIN (KTN)	UR655	(LARNACA) CHEKA (CAK) KARIATAIN (KTN)
R659	TEHRAN(TRN) *Note 7 (ISN-TRN) BOXAM 343749N 0515147E DAPOG 333744N 0522331E *Note 3 (DAPOG-SYZ) SHIRAZ (SYZ) MIDSI 264142N 0515442E *Note 8 (MIDSI-DOH) *Note 7 (MIDSI-VELAM) SOGAN 263915N 0515408E ROSAN 263129N 0515220E DASOS 262430N 0515043E RABLA 261506N 0514834E VEDED 260558N 0514628E VELAM 255426N 0514347E EMISA 254658N 0514207E DOHA (DOH)	UR659	TEHRAN(TRN) *Note 7 (ISN-TRN) BOXAM 343749N 0515147E DAPOG 333744N 0522331E *Note 3 (DAPOG-SYZ) SHIRAZ (SYZ) MIDSI 264142N 0515442E *Note 8 (MIDSI-DOH) *Note 7 (MIDSI-VELAM) SOGAN 263915N 0515408E ROSAN 263129N 0515220E DASOS 262430N 0515043E RABLA 261506N 0514834E VEDED 260558N 0514628E VELAM 255426N 0514347E EMISA 254658N 0514207E DOHA (DOH)
R660	(ERZURUM) (ERZ)	UR660	(ERZURUM) (ERZ)

LOWER AIRSPACE		UPPER AIRSPACE	
Designator	Significant Points	Designator	Significant Points
1	2	1	2
	DASIS 38 54.5N 044 12.5E TABRIZ (TBZ) RASHT (RST) TEHRAN (TRN)		RASHT (RST) TEHRAN (TRN)
R661	DULAV 3857.0N 04537.9E TABRIZ (TBZ) ZANJAN (ZAJ) RUDESHUR (RUS) VARAMIN (VR) DEHNAMAK (DHN)	UR661	DULAV 3857.0N 04537.9E TABRIZ (TBZ) ZANJAN (ZAJ) RUDESHUR (RUS) VARAMIN (VR) DEHNAMAK (DHN)
		UR674	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
R777	DANAK 1608.0N 04129.0E SANA'A TAIZ ARABO 1238.8N 04404.0E TORBA 1210.6N 04402.1E	UR777	DANAK 1608.0N 04129.0E SANA'A TAIZ ARABO 1238.8N 04404.0E TORBA 1210.6N 04402.1E
R784	SHARJAH (SHJ) ORSAR 2604.5N 05357.5E *Note 8 (OM) DURSI 2712.3N 05201.7 E IMDAT 2740.0N 05113.0E ALNIN 2840.9N 05001.6E NANPI 290457N 0493157E SIDAD 295231N 0482944E	UR784	SHARJAH (SHJ) ORSAR 2604.5N 05357.5E *Note 8 (OM) DURSI 2712.3N 05201.7 E IMDAT 2740.0N 05113.0E ALNIN 2840.9N 05001.6E NANPI 290457N 0493157E SIDAD 295231N 0482944E
R785	TURAIF (TRF) ZELAF 3257.0N 03800.0E KARIATAIN (KTN) BANIAS (BAN) NIKAS 3511.6N 03543.0E	UR785	TURAIF (TRF) ZELAF 3257.0N 03800.0E KARIATAIN (KTN) BANIAS (BAN) NIKAS 3511.6N 03543.0E
R794	ULDUS 3810.0N 05020.0E NOSHAHR (NSR) DEHNAMAK (DHN) TABAS (TBS) BIRJAND (BJD) * Note 5 (OI)	UR794	ULDUS 3810.0N 05020.0E NOSHAHR (NSR) DEHNAMAK (DHN) TABAS (TBS) BIRJAND (BJD) * Note 5 (OI)
R799	IMPOS 183136N 0511848 E PASUL 180341N 0513803E TONRO 165850N 0522235E ASMAK 162327N 0524634E ENADO 153333N 0532015E	UR799	IMPOS 183136N 0511848 E PASUL 180341N 0513803E TONRO 165850N 0522235E ASMAK 162327N 0524634E ENADO 153333N 0532015E

TABLE ATM II-MID-2 – MID SSR CODE ALLOCATION LIST

Code	AMMAN	BAGHDAD	BAHRAIN	BEIRUT	CAIRO	DAMASCUS	EMIRATES	JEDDAH	KHARTOUM	KUWAIT	MUSCAT	SANA'A	TEHRAN	TRIPOLI
0001-0077[2]														
0101-0177[1]									T					
0200-0277[1]								D						
0300-0377[2]														
0400-0477[2]	D						D							
0500-0577[1]							T							
0600-0677[1]					D		D			D				
0700-0777[1]	T													
1001-1077[1]		T												
1101-1177[1]	D						D						D	
1200-1277[1]			D						D					
1300-1377[1]		D					D							D
1400-1477[1]										T				
1500-1577[1]													D	
1600-1677[1]					T									
1700-1777[1]							T							
2001-2077[3]														T
2100-2177[1]			D											
2200-2277[1]			T											
2300-2377[1]					D									
2400-2477[1]	D													
2500-2577[1]				D				D						
2600-2677[1]			T											
2700-2777[1]			D		D									
3000-3077[1]						D		D						
3100-3177[1]								T						
3200-3277[1]			T											
3300-3377[1]					T									
3400-3477[1]							T							
3500-3577[1]								D						
3600-3677[1]													T	
3700-3777[1]										D		D		
4000-4077[1]											T			
4100-4177[1]								D					D	
4200-4277[1]								T						
4300-4377[1]				T										
4400-4477[1]			T											
4500-4577[1]								T						
4600-4677[1]									D		D			
4700-4777[1]											T			

Code	AMMAN	BAGHDAD	BAHRAIN	BEIRUT	CAIRO	DAMASCUS	EMIRATES	JEDDAH	KHARTOUM	KUWAIT	MUSCAT	SANA'A	TEHRAN	TRIPOLI
5000-5077[1]								D						
5100-5177[1]													T	
5200-5277[1]								T						
5300-5377[3]														
5400-5477[1]													T	
5500-5577[3]														
5600-5677[1]								D					D	
5700-5777[1]						T								
6000-6077[1]							D		D					
6100-6177[1]							D					D		
6200-6277[1]							T							
6300-6377[1]								D					D	
6400-6477[3]														
6500-6577[1]											D			
6600-6677[1]											D			
6700-6777[2]														
7001-7077[1]												T		
7100-7177[2]														
7200-7277[1]		T												
7300-7377[1]					T									
7400-7477[1]		D												
7501-7577[2]														
7613-7677[2]														
7701-7775[2]														

T: codes allocated for Transit use
D: codes allocated for Domestic use
[1] Series allocated to the MID Region and Assigned to MID States
[2] MID Region SSR Reserve List for Domestic use
[3] MID Region SSR Reserve List for Transit use

MID ANP, VOLUME II

PART V – METEOROLOGY (MET)

1. INTRODUCTION

1.1 This part of the MID ANP, Volume II, complements the provisions in the ICAO SARPs and PANS related to aeronautical meteorology (MET). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of MET facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to the MET facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the States concerned to implement the requirements specified.

2. GENERAL REGIONAL REQUIREMENTS

Meteorological offices

2.1 In the MID Region, meteorological watch offices (MWO) have been designated to maintain continuous watch on meteorological conditions affecting flight operations within their area(s) of responsibility, as indicated at **Table MET II-1**.

Meteorological observations and reports

2.2 In the MID Region, routine observations, issued as a METAR, should be made throughout the 24 hours of each day at intervals of one hour or, for RS and AS designated aerodromes[1], at intervals of one half-hour at aerodromes as indicated in **Table MET II-2**. For aerodromes included on the VHF VOLMET broadcast as indicated in **Table MET II-3**, routine observations, issued as METAR, should be made throughout the 24 hours of each day.

2.3 At aerodromes that are not operational throughout 24 hours, METAR should be issued at least 3 hours prior to the aerodrome resuming operations in the MID Region.

Forecasts

2.4 In the MID Region, an aerodrome forecast, issued as a TAF, should be for the aerodromes indicated in **Table MET II-2**.

2.5 In the MID Region, the period of validity of a routine TAF should be of 9-, 24-, or 30-hours to meet the requirements indicated in **Table MET II-2**.

2.6 In the MID Region, the forecast maximum and minimum temperatures expected to occur during the period of validity, together with their corresponding day and time of occurrence, should be included in TAF at aerodromes indicated in **Table MET II-2**.

[1] Refer to Table AOP II-1

2.7 In the MID Region, landing forecasts (prepared in the form of a trend forecast) should be provided at aerodromes indicated in **Table MET II-2**.

Requirements for and use of communications

2.8 Operational meteorological information prepared as METAR, SPECI and TAF for aerodromes indicated in **Table MET II-2**, and SIGMET messages prepared for flight information regions or control areas indicated in **Table MET II-1**, should be disseminated to the international OPMET databanks designated for the MID Region (namely Jeddah and Bahrain (backup) Regional OPMET Centres) and to the centre designated for the operation of the aeronautical fixed service satellite distribution system (SADIS) and the Internet-based service (Secure SADIS FTP) and/or WIFS in the MID Region.

2.9 SIGMET messages should be disseminated to other meteorological offices in the MID Region.

2.10 Special air-reports that do not warrant the issuance of a SIGMET should be disseminated to other meteorological offices in the MID Region.

2.11 In the MID Region, meteorological information for use by aircraft in flight should be supplied through VOLMET broadcasts.

2.12 In the MID Region, the aerodromes for which METAR and SPECI are to be included in VOLMET broadcasts, the sequence in which they are to be transmitted and the broadcast time, is indicated in **Table MET II-3**.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 In the MID Region, operational meteorological information during the Pilgrimage Season should be issued as indicated in **Table II-MID-1**.

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TABLE MET II-1 - METEOROLOGICAL WATCH OFFICES

EXPLANATION OF THE TABLE

Column

1 Name of the State where meteorological service is required

2 Name of the flight information region (FIR) or control area (CTA) where meteorological service is required

Note: The name is extracted from the ICAO Location Indicators (Doc 7910) updated quarterly. If a State wishes to change the name appearing in Doc 7910 and this table, ICAO should be notified officially.

3 ICAO location indicator of the FIR or CTA

4 Name of the meteorological watch office (MWO) responsible for the provision of meteorological service for the FIR or CTA

Note: The name is extracted from the ICAO Location Indicators (Doc 7910) updated quarterly. If a State wishes to change the name appearing in Doc 7910 and this table, ICAO should be notified officially.

5 ICAO location indicator of the responsible MWO

6 Requirement for SIGMET information (excluding for volcanic ash and for tropical cyclones) to be provided by the MWO for the FIR or CTA concerned, where:

Y – Yes, required
N – No, not required

7 Requirement for SIGMET information for volcanic ash to be provided by the MWO for the FIR or CTA concerned, where:

Y – Yes, required
N – No, not required

8 Requirement for SIGMET information for tropical cyclone to be provided by the MWO for the FIR or CTA concerned, where:

Y – Yes, required
N – No, not required

9 Requirement for AIRMET information to be provided by the MWO for the FIR or CTA concerned, where

Y – Yes, required
N – No, not required

State	FIR or CTA Where Meteorological Service is Required		Responsible Meteorological Watch Office		Meteorological Service To Be Provided			
	Name	ICAO Location Indicator	Name	ICAO Location Indicator	SIGMET (WS)	SIGMET (WV)	SIGMET (WC)	AIRMET (WA)
1	2	3	4	5	6	7	8	9
BAHRAIN	BAHRAIN FIR	OBBB	BAHRAIN INTL	OBBI	Y	Y	Y	
EGYPT	CAIRO FIR	HECC	CAIRO INTL	HECA	Y	Y		Y
IRAN (ISLAMIC REPUBLIC OF)	TEHRAN FIR	OIIX	TEHRAN/ MEHRABAD INTL	OIII	Y	Y	Y	
IRAQ	BAGHDAD FIR	ORBB	BAGHDAD INTL	ORBI	Y	Y		
JORDAN	AMMAN FIR	OJAC	AMMAN/QUEEN ALIA	OJAI	Y	Y		
KUWAIT	KUWAIT FIR	OKAC	KUWAIT INTL	OKBK	Y	Y	Y	
LEBANON	BEIRUT FIR	OLBB	BEIRUT/BEIRUT INTL	OLBA	Y	Y		
LIBYA	TRIPOLI FIR	HLLL*	TRIPOLI/TRIPOLI INTL	HLLT	Y	Y		
OMAN	MUSCAT FIR	OOMM	MUSCAT/MUSCAT INTL	OOMS	Y	Y	Y	
SAUDI ARABIA	JEDDAH FIR	OEJD	JEDDAH/KING ABDULAZIZ INTL	OEJN	Y	Y	Y	
SUDAN	KHARTOUM FIR	HSSS	KHARTOUM	HSSS	Y	Y		
SYRAIN ARAB REPUBLIC	DAMASCUS FIR	OSDI	DAMASCUS INTL	OSDI	Y	Y		
UNITED ARAB EMIRATES	EMIRATES FIR	OMAE	ABU DHABI INTL	OMAA	Y	Y	Y	
YEMEN	SANAA' FIR	OYSN	SANAA' INTL	OYSN	Y	Y	Y	

TABLE MET II-2 - AERODROME METEOROLOGICAL OFFICES

EXPLANATION OF THE TABLE

Column

1 Name of the State where meteorological service is required

2 Name of the AOP aerodrome where meteorological service is required

Note: The name is extracted from the ICAO Location Indicators (Doc 7910) updated quarterly. If a State wishes to change the name appearing in Doc 7910 and this table, ICAO should be notified officially.

3 ICAO location indicator of the AOP aerodrome

4 Designation of AOP aerodrome:

RG - international general aviation, regular use
RS - international scheduled air transport, regular use
RNS - international non-scheduled air transport, regular use
AS - international scheduled air transport, alternate use
ANS - international non-scheduled air transport, alternate use

5 Name of the aerodrome meteorological office responsible for the provision of meteorological service

Note: The name is extracted from the ICAO Location Indicators (Doc 7910) updated quarterly. If a State wishes to change the name appearing in Doc 7910 and this table, ICAO should be notified officially.

6 ICAO location indicator of the responsible aerodrome meteorological office

7 Requirement for METAR/SPECI from the aerodrome concerned, where:

Y – Yes, required
N – No, not required

8 Requirement for information on the state of the runway provided by the appropriate airport authority to be included as supplementary information in METAR/SPECI from the aerodrome concerned, where:

Y – Yes, required
N – No, not required

9 Requirement for trend forecast to be appended to METAR/SPECI from the aerodrome concerned, where

Y – Yes, required
N – No, not required

10 Requirement for TAF from the aerodrome concerned, where

C - Requirement for 9-hour validity aerodrome forecasts in TAF code (9H)
T - Requirement for 18/24-hour validity aerodrome forecasts in TAF code (18/24H)
X - Requirement for 30-hour validity aerodrome forecasts in TAF code (30H)
N – No, not required

11 Requirement for maximum and minimum temperature (expected to occur during the period of validity of the TAF) to be included in TAF from the aerodrome concerned, where:

Y – Yes, required
N – No, not required

12 Availability of METAR/SPECI and TAF from the aerodrome concerned, where:

F – Full availability : OPMET information as listed issued for the aerodrome all through the 24-hour period
P – Partial availability: OPMET information as listed not issued for the aerodrome for the entire 24-hour period

State	AOP Aerodrome where meteorological service is to be provided			Responsible aerodrome meteorological office		Observations and forecasts to be provided					METAR/SPECI and TAF availability
	Name	ICAO Location Indicator	Use	Name	ICAO Location Indicator	METAR/SPECI	State of the runway	Trend forecast	TAF	Temperature Tx/Tn	
1	2	3	4	5	6	7	8	9	10	11	12
BAHRAIN	BAHRAIN INTL	OBBI	RS	BAHRAIN INT'L	OBBI	Y	N	Y	X	N	F
EGYPT	ALEXANDRIA/BORG EL-ARAB INTL	HEBA	RS	CAIRO INTL	HECA	Y		Y	X		F
	ASWAN INTL	HESN	RS	CAIRO INTL	HECA	Y		Y	X		F
	CAIRO INTL	HECA	RS	CAIRO INTL	HECA	Y		Y	X		F
	HURGHADA INTL	HEGN	RS	CAIRO INTL	HECA	Y		Y	X		F
	LUXOR INTL	HELX	RS	CAIRO INTL	HECA	Y		Y	X		F
	MARSA ALAM INTL	HEMA	RS	CAIRO INTL	HECA	Y		Y	X		F
	SHARM EL SHEIKH INTL	HESH	RS	CAIRO INTL	HECA	Y		Y	X		F
IRAN (ISLAMIC REPUBLIC OF)	BANDAR ABBASS INTL	OIKB	RS	TEHRAN/ MEHRABAD INTL	OIII	Y			T		F
	ESFAHAN / SHAHID BEHESHTI INTL	OIFM	RS	TEHRAN/ MEHRABAD INTL	OIII	Y			X		F
	MASHHAD/ SHAHID HASHEMI NEJAD INTL	OIMM	RS	TEHRAN/ MEHRABAD INTL	OIII	Y			T		F
	SHIRAZ/ SHAHID DASTGHAIB INTL	OISS	RS	SHIRAZ/ SHAHID DASTGHAIB INTL	OISS	Y		Y	X		F
	TABRIZ INTL	OITT	RNS	TABRIZ/ INTL	OITT	Y			X		F
	TEHRAN/ IMAM KHOMAINI INTL	OIIE	RS	TEHRAN/ MEHRABAD INTL	OIII	Y		Y	X		F
	TEHRAN/ MEHRABAD INTL	OIII	RS	TEHRAN/ MEHRABAD INTL	OIII	Y		Y	T		F
	YAZD/SHAHID SADOOGHI	OIYY	RS			Y					F

	INTL*								
	ZAHEDAN INTL	OIZH	RS	TEHRAN/ MEHRABAD INTL	OIII	Y		T	F
IRAQ	AL NAJAF	ORNI	RNS			Y		T	F
	BAGHDAD INTL	ORBI	RS	BAGHDAD INTL	ORBI	Y	Y	T	F
	BASRAH INTL	ORMM	RS	BAGHDAD INTL	ORBI	Y	Y	T	F
	ERBIL INTL	ORER	RS			Y		T	F
	MOSUL INTL	ORBM	RS	BAGHDAD INTL	ORBI		Y	T	F
	SULAYMANIYAH INTL	ORSU	RS			Y		T	F
JORDAN	AMMAN/ MARKA	OJAM	AS	AMMAN/ MARKA	OJAM	Y	Y	T	F
	AMMAN/ QUEEN ALIA	OJAI	RS	AMMAN/ MARKA	OJAM	Y	Y	X	F
	AQABA/ KING HUSSEIN	OJAQ	RNS	AMMAN/ MARKA	OJAM	Y			F
KUWAIT	KUWAIT INTL	OKBK	RS	KUWAIT/ INTL	OKBK	Y	Y	X	F
LEBANON	BEIRUT/ BEIRUT INTL	OLBA	RS	BEIRUT/ BEIRUT INTL	OLBA	Y	Y	X	F
LIBYA	BENGHAZI / BENINA INTL	HLLB	RS	BENGHAZI / BENINA INTL	HLLB	Y	Y	T	F
	SEBHA / SEBHA INTL	HLLS	RS	BENGHAZI / BENINA INTL	HLLB	Y			F
	TRIPOLI / TRIPOLI INTL	HLLT	RS	TRIPOLI / TRIPOLI INTL	HLLT	Y	Y	T	F
OMAN	MUSCAT/ MUSCAT INTL.	OOMS	RS	MUSCAT/ MUSCAT INTL.	OOMS	Y	Y	X	F
	SALALAH	OOSA	AS	SALALAH	OOSA	Y		X	F
QATAR	DOHA INTL	OTBD	RS	DOHA INTL	OTBD	Y	Y	T	F
	HAMAD INTL	OTHH	RS	DOHA INTL	OTBD		Y	X	F
SAUDI ARABIA	DAMMAM/ KING FAHD INTL	OEDF	RS			Y		X	F
	JEDDAH/ KING ABDULAZIZ INTL	OEJN	RS	JEDDAH/ KING ABDULAZIZ INTL	OEJN	Y	Y	X	F
	MADINAH/ PRINCE MOHAMMAD BIN ABDULAZIZ	OEMA	RS	JEDDAH/ KING ABDULAZIZ INTL	OEJN	Y	Y	T	F

	INTL									
	RIYADH/ KING KHALED INTL	OERK	RS	JEDDAH/ KING ABDULAZIZ INTL	OEJN	Y		Y	X	F
SOUTH SUDAN	JUBA	HSSJ	RS	KHARTOUM	HSSS	Y	Y			F
SUDAN	EL OBEID/EL OBEID	HSOB	AS			Y				F
	KHARTOUM	HSSS	RS	KHARTOUM	HSSS	Y		Y	X	F
	NYALA/NYALA	HSNN	AS			Y				F
	PORT SUDAN	HSPN	RS	WADI HALFA	HSSW	Y			X	F
SYRIAN ARAB REPUBLIC	ALEPPO INTL	OSAP	RS	DAMASCUS INTL	OSDI	Y			T	F
	BASSEL AL-ASSAD INTL LATTAKIA	OSLK	RS	DAMASCUS INTL	OSDI	Y			T	F
	DAMASCUS INTL	OSDI	RS	DAMASCUS INTL	OSDI	Y		Y	X	F
UNITED ARAB EMIRATES	ABU DHABI INTL	OMAA	RS	ABU DHABI INTL	OMAA	Y		Y	X	F
	AL AIN INTL	OMAL	RS	ABU DHABI INTL	OMAA	Y		Y	X	F
	ABU DHABI/ AL BATEEN EXECUTIVE	OMAD	RS	ABU DHABI INTL	OMAA	Y		Y	X	F
	DUBAI INTL	OMDB	RS	DUBAI INTL	OMDB	Y		Y	X	F
	DUBAI/ AL MAKTOUM INTL	OMDW	RS	DUBAI INTL	OMDB	Y		Y	X	F
	FUJAIRAH INTL	OMFJ	RS	DUBAI INTL	OMDB	Y			X	F
	RAS AL KHAIMAH INTL	OMRK	RS	DUBAI INTL	OMDB	Y			X	F
	SHARJAH INTL	OMSJ	RS	DUBAI INTL	OMDB	Y			X	F
YEMEN	ADEN INTL	OYAA	RS	SANAA/ INTL	OYSN	Y		Y	X	F
	HODEIDAH INTL	OYHD	RS	SANAA/ INTL	OYSN	Y			T	F
	MUKALLA INTL	OYRN	RS	SANAA/ INTL	OYSN	Y			T	F
	SANAA INTL	OYSN	RS	SANAA/ INTL	OYSN	Y			T	F
	TAIZ INTL	OYTZ	RS	SANAA/ INTL	OYSN	Y			T	F

TABLE MET II-3 – VOLMET BROADCASTS

EXPLANATION OF THE TABLE

The transmitting station appears at the top of each block.
Names in lower case letters indicate aerodromes for which reports (routine or selected special) are required.
Names in upper-case letters indicate aerodromes for which forecasts are required.

Istanbul 25~~B~~-30 55~~B~~-60	Shiraz 20~~B~~-25 50~~B~~-55	Tehran 15~~B~~-20 45~~B~~-50
Istanbul Ankara Athinai Thessaloniki Roma Tehran ISTANBUL	Tehran Shiraz Isfahan Kuwait Bandar Abbass Bahrain Muscat Dubai SHIRAZ	Tehran Shiraz Mashhad Karachi Ashgabat Baku Yerevan Tashkent TEHRAN

TABLE MET II-MID-1 - EXCHANGE OF OPERATIONAL METEOROLOGICAL INFORMATION DURING THE PILGRIMAGE SEASON

EXPLANATION OF THE TABLE

Column

1 Name of the State in which the operational meteorological information should be available.
2 Location from which, or related to which, the operational meteorological information refers.
3 TF – Aerodrome forecasts X: Seasonal requirement
4 RF – Route forecasts

To be available in	From or related to	Information required	
		TF	RF
1	2	3	4
LIBYA	DHAHRAN	X	
	MADINAH	X	
	RIYADH	X	
	ALGER (Route CASABLANCA-TRIPOLI)		X
	CAIRO (Route TRIPOLI-JEDDAH)		X
SAUDI ARABIA	ABIDJAN	X	
	ACCRA	X	
	AKTYUBINSK	X	
	ALGER (Route CASABLANCA-TRIPOLI)		X
	ALMATY	X	
	ASKHABAT	X	
	BAMAKO	X	
	BANGUI	X	
	BRAZZAVILLE		X
	CAIRO (Route TRIPOLI-JEDDAH)	X	
	CONAKRY	X	
	COTONOU	X	
	DAKAR	X	
	DOUALA	X	
	DUSHANBE		X
	KHARTOUM (Route KHARTOUM-GENEINA)	X	
	KYIV	X	
	NOUADHIBOU	X	
	OUAGADOUGOU	X	
	SAL ISLAND	X	
	SAMARKAND	X	
	TASHKENT		
SUDAN	BAMAKO	X	
	CONAKRY	X	

To be available in	From or related to	Information required	
		TF	RF
1	2	3	4
	DAKAR	X	
	NOUADHIBOU	X	
	OUAGADOUGOU	X	
	SAL ISLAND	X	
	JEDDAH (Route JEDDAH-KHARTOUM)		X

MID ANP, VOLUME II

PART VI - SEARCH AND RESCUE (SAR)

1. INTRODUCTION

1.1 This part of the MID ANP, Volume II, complements the provisions in ICAO SARPs and PANS related to search and rescue (SAR). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of SAR facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to the SAR facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

2. GENERAL REGIONAL REQUIREMENTS

2.1 The Rescue Coordination Centres (RCCs) and Rescue Sub-Centres (RSCs) for the MID Region are listed in **Table SAR II-1** and depicted in **Chart SAR I-1**.

2.2 In cases where the minimum SAR facilities are temporarily unavailable, alternative suitable means should be made available.

2.3 In cases where a SAR alert is proximate to a Search and Rescue Region (SRR) boundary (e.g. 50 NM or less), or it is unclear if the alert corresponds to a position entirely contained within an SRR, the adjacent RCC or RSC should be notified of the alert immediately.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1. The contact details for the SAR Point of Contact (SPOC) – COSPAS-SARSAT in the MID Region are at **Table SAR II-MID-1**

_____

TABLE SAR II-1 - RESCUE COORDINATION CENTRES (RCCs) AND RESCUE SUB CENTRES (RSCs) IN THE MID REGION

EXPLANATION OF THE TABLE

Column

1 State
2 Name of the Rescue Coordination Centre (RCC) and Rescue Sub-centre (RSC).
3 SAR points of contact (SPOC). Name of the SPOC.
4 Remarks. Supplementary information such as the type of RCC (e.g. maritime or aviation or joint).

RCC and Rescue Units		SPOC	Remarks
1	2	3	4
BAHRAIN			
RCC	BAHRAIN RCC	RCC ATC Bahrain	
RSC	Qatar	DJRCC	
EGYPT			
RCC	CAIRO RCC	SAR Centre	
RSC	Alexandria		
	El Ariesh		
	Hurghada		
	Luxor		
	M. Matruh		
	Ras-Banas		
IRAN			
RCC	TEHRAN RCC	RCC Tehran	
RSC	Bandar Abbass		
	Busherhr		
	Esfahan		
	Kerman		
	Kermanshah		
	Mashhad		
	Tabriz		
	Zahedan		
IRAQ			
RCC	BAGHDAD RCC	CENTAF-AUAB CAOC JSRC	
RSC	Kirkuk		
	Shaibah		
	Basrah		
JORDAN			
RCC	AMMAN RCC	RCC ATC Amman	
RSC	-		

RCC and Rescue Units		SPOC	Remarks
1	2	3	4
KUWAIT			
RCC	KUWAIT RCC	RCC ATC Kuwait	
RSC	-		
LEBANON			
RCC	BEIRUT RCC	RCC Beirut	
RSC	Tripoli		
LIBYA			
RCC	TRIPOLI RCC	CAA	
RSC	Marsa Brega		
	Sirte		
	Tobruk		
OMAN			
RCC	MUSCAT RCC	RCC Muscat Air Force	
RSC	Salalah		
SAUDI ARABIA			
RCC	JEDDAH RCC	SAMCC	
RSC	Dammam		
SUDAN			
RCC	KHARTOUM RCC	ACC Khartoum	
RSC	El Obeid		
	Juba		
	Port Sudan		
SYRIA			
RCC	DAMASCUS RCC	RCC ATC	
RSC	Damascus		
	Latakia		
UAE			
RCC	ABU DHABI RCC	AEMCC	
RSC	Abu Dhabi		
	Dubai		
YEMEN			
RCC	SANA'A RCC	RCC Sanaa	
RSC	Aden		
	Hodeidah		
	Riyan		

TABLE SAR II-MID-1 - MID REGION SAR POINT OF CONTACT (SPOC) – COSPAS-SARSAT

STATE	SPOC NAME	ADDRESS	EMAIL	TEL	FAX	AFTN	ASS. MCC/ STATE[2]	LAST REVISION	REMARK
Bahrain	RCC ATC Bahrain	Bahrain CAA, Air Navigation Directorate P.O. Box 586 Kingdom of Bahrain	Bahatc@caa.gov.bh	(973) 17321081 17321080	(973) 17321905	OBBISARX	SAMCC Saudi Arabia	16-April-2013	
Egypt	SAR Centre	SAR Centre Almaza Air Base Heliopolis, Cairo, Egypt	jrcc136@afmic.gov.eg mmc@saregypt.net nahedh@tra.gov.eg	(202) 24184537 24184531	(202) 24184537 24184531	HECCYCYX	ALMCC Algeria	22-OCT-2013	TELEX: (91) 21095 RCCC RUN
Iran	RCC Tehran	Civil Aviation Organization SAR Coordination Centre Mehrabad Airport Tehran, Iran	SAR@cao.ir IRAN-SAR@airport.ir rcc.IRAN@airport.ir	(9821) 44544107 44544116 44544060	(9821) 44544117 44544106	OIIIZRZX	TRMCC Turkey	1-Jan-2013	
Iraq	RCC ATC Baghdad'	Baghdad ACC, Baghdad International Airport	atc_iraqcaa@yahoo.com	(964) 7901654653	(974) 15430764		TRMCC Turkey	18-Mar.-2015	
Jordan	RCC ATC Amman	RCC Civil Aviation Authority Amman Airport, Jordan		(9626) 4451672	(9626) 4451667	OJACZQZX	SAMCC Saudi Arabia	16-Apr-2013	
Kuwait	RCC ATC Kuwait	RCC DGCA Kuwait International Airport, P.O.Box 17, Kuwait		(965) 24760463 24762994	(965) 24346515 24346221	OKBKZQZX OKBKNSAR	SAMCC Saudi Arabia	16-Apr-2013	
Lebanon	RCC Beirut	RCC, DGCA Lebanon, Hariri Int'l Airport- Beirut, Lebanon		(961) 1628161	(961) 1628186 1629035	OLBIZQZX	SAMCC Saudi Arabia	16-Apr-2013	
Libya	CAA	CAA, Tripoli Int'l Airport, Libya	info@sar.caa.ly	(218.21) 5632332 4446799 3606868	(218.21) 563 0257 360 6868	HLLTYCYX	ALMCC Algeria	16-May-2013	TELEX (218.21) 5632332

[2] Associated COSPAS-SARSAT Mission Control Center / State where it is located

STATE	SPOC NAME	ADDRESS	EMAIL	TEL	FAX	AFTN	ASS. MCC/ STATE[2]	LAST REVISION	REMARK
Oman	RCC Muscat Air Force	RCC, HQ RAFO P.O.Box 730 Central Post Office Muscat Int'l Airport, Oman		(968) 24519209 24519332	(968) 24334776 24338692	OOMSYAYX	SAMCC Saudi Arabia	16-Apr-2013	
Qatar	DJRCC	P.O. Box 37 Doha, Qatar	qatsar@yahoo.com	(974) 44980384		OTBDZTZX	SAMCC Saudi Arabia	02-Apr-2015	
Saudi Arabia*	SAMCC	KSA.GACA / Air Navigation services P.O.Box 929 Jeddah 21421 Saudi Arabia	samcc@gaca.gov.sa	(96612) 6150170 6855812 (96650) 4601445	(96612) 6150171 6402855	OEJNJSAR	SAMCC Saudi Arabia	28-Jun-2013	TEL 3 & FAX 2 for Head of SAMCC
Sudan	ACC Khartoum	Khartoum Airport, Sudan		(249.183) 788192 784925	(249.183) 528323	HSSSYCYX	ITMCC Italy	16-Apr-2013	Thuraya +8821655524 296
Syria	RCC ATC	General Civil Aviation Authority		(963.11) 5400540	(963.11) 5400312	OSDIZQZX	SAMCC Saudi Arabia	16-Apr-2013	
UAE*	AEMCC	SAR Coordination Center P.O.Box 906 GHQ Armed Forces UAE	aemcc@uae-jrcc.ae	(971.2) 4056144 4496866	(971.2) 4496844	OMADYCYX	AEMCC UAE	23-Sep-2011	
Yemen	RCC Sanaa	RCC Department of Civil Aviation Sanaa, Yemen		(967) 1344673	(967) 1345916	OYSNYCYX	SAMCC Saudi Arabia	16-April-2013	

***** Associated COSPAS-SARSAT Mission Control Centre/State where it is located

CHART SAR II-1

RESCUE COORDINATION CENTRES (RCCS) AND RESCUE SUB-CENTRES (RSCS) FOR THE MID REGION

TBD

MID ANP, VOLUME II

PART VII - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

1. INTRODUCTION

1.1 This part of the MID ANP, Volume II, complements the provisions in ICAO SARPs and PANS related to AIS/ AIM and aeronautical charts (MAP). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of AIS/ AIM facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to the AIS/ AIM facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

2. GENERAL REGIONAL REQUIREMENTS

2.1 The responsibility for the provision of AIS/ AIM facilities and services in the MID Region, is reflected in the **Table AIM II-1,** which shows the list of designated international NOTAM Office (NOF), designated State for AIP production, designated State for aeronautical charts (MAP) production, designated State for the provision of the authoritative Integrated Aeronautical Information Database (IAID) and designated State for the provision of the pre-flight information services.

2.2 States should designate and implement an authoritative Integrated Aeronautical Information Database (IAID) where data sets are integrated and used to produce current and future AIS/ AIM products and services, which is a fundamental step in the transition to AIM. The designation of authoritative databases should be clearly stated in the Aeronautical Information Package AIP.

2.3 The national plans for the transition from AIS to AIM identifying clearly the timelines for the implementation of the different elements of the ICAO Roadmap for the transition from AIS to AIM should be submitted by States to the ICAO MID Regional Office. States should also inform the ICAO MID Regional Office of any update.

2.4 States should take necessary measures to ensure that aeronautical information and data they provide meet the regulatory Aeronautical Data quality requirements.

2.5 The Quality Management System (QMS) in AIS/ AIM should define procedures to meet the safety and security objectives associated with the management of aeronautical data and information.

2.6 Recognizing the need to maintain or enhance existing safety levels of operations, States should ensure that any change to the existing systems or the introduction of new systems used for processing aeronautical data and/ or information are preceded by a safety assessment.

2.7 Technical services responsible for origination of the raw aeronautical information should be acquainted with the requirements for promulgation and advance notification of changes that are operationally significant as established in Annexes 11 and 14 and other relevant ICAO documentation. They should take due account of the time needed by AIS/ AIM for the preparation, production and issue of the relevant material, including the compliance with the AIRAC procedures.

2.8 AIS/ AIM personnel should be involved in the air navigation planning processes. This should ensure the timely preparation of appropriate AIS documentation and that the effective dates for changes to the air navigation system and procedures are satisfied.

2.9 States should produce relevant aeronautical charts required for civil air operations employing

visual air navigation independently or in support of other forms of air navigation. The production responsibility for sheets of the World Aeronautical Chart (WAC) — ICAO 1: 1 000 000 or Aeronautical Chart — ICAO 1: 500 000 (*as an alternative to the World Aeronautical Chart — ICAO 1:1 000 000)* is set out in **Table AIM II-2**.

3. SPECIFIC REGIONAL REQUIREMENTS

None.

TABLE AIM II-1 - RESPONSIBILITY FOR THE PROVISION OF AIS/ AIM FACILITIES AND SERVICES IN THE MID REGION

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory

2 Designated international NOTAM Office (NOF)

3 Designated State for AIP production

4 Designated State for aeronautical charts (MAP) production

5 Designated State for the provision of the authoritative Integrated Aeronautical Information Database (IAID)

6 Designated State for the provision of pre-flight information services

7 Remarks — additional information, as appropriate.

State	NOF	AIP	MAP	IAID	Pre-flight briefing	Remarks
1	2	3	4	5	6	7
BAHRAIN	BAHRAIN*	BAHRAIN	BAHRAIN	BAHRAIN	BAHRAIN	
EGYPT	CAIRO	EGYPT	EGYPT	EGYPT	EGYPT	
IRAN, ISLAMIC REPUBLIC OF	TEHRAN	IRAN	IRAN	IRAN	IRAN	
IRAQ	BAGHDAD	IRAQ	IRAQ	IRAQ	IRAQ	
JORDAN	AMMAN	JORDAN	JORDAN	JORDAN	JORDAN	
KUWAIT	KUWAIT	KUWAIT	KUWAIT	KUWAIT	KUWAIT	
LEBANON	BEIRUT	LEBANON	LEBANON	LEBANON	LEBANON	
LIBYA	TRIPOLI	LIBYA	LIBYA	LIBYA	LIBYA	
OMAN	MUSCAT	OMAN	OMAN	OMAN	OMAN	
QATAR	QATAR*	QATAR	QATAR	QATAR	QATAR	
SAUDI ARABIA	JEDDAH	SAUDI ARABIA	SAUDI ARABIA	SAUDI ARABIA	SAUDI ARABIA	
SUDAN	KHARTOUM	SUDAN	SUDAN	SUDAN	SUDAN	
SYRIAN ARAB REPUBLIC	DAMASCUS	SYRIAN ARAB REPUBLIC	SYRIAN ARAB REPUBLIC	SYRIAN ARAB REPUBLIC	SYRIAN ARAB REPUBLIC	
UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	
YEMEN	SANA'A	YEMEN	YEMEN	YEMEN	YEMEN	

** Areas of responsibility of Bahrain and Qatar NOFs are defined in the Service Level Agreement between the two States.*

TABLE AIM II-2 - PRODUCTION RESPONSIBILITY FOR SHEETS OF THE WORLD AERONAUTICAL CHART - ICAO 1:1 000 000

EXPLANATION OF THE TABLE

Column:

1 Name of the State accepting production responsibility.

2 World Aeronautical Chart — ICAO 1:1 000 000 sheet number(s) for which production responsibility is accepted.

3 Remarks.

Note — In those instances where the production responsibility for certain sheets has been accepted by more than one State, these States by mutual agreement should define limits of responsibility for those sheets. This should be reflected in the Remarks column

State	Sheet number(s)	Remarks
1	**2**	**3**
BAHRAIN	2547	
EGYPT	2447, 2448, 2543, 2544	*Note: For sheet 2447, Egypt to cover its own territory within Cairo FIR*
IRAN, ISLAMIC REPUBLIC OF	2338, 2339, 2428, 2429, 2443, 2444, 2548	
IRAQ	2427, 2445	
JORDAN	2426, 2446, 2447	*Note: Jordan to cover its own territory within Amman FIR*
KUWAIT	2445	*Note: Kuwait to cover its own territory within Kuwait FIR*
LEBANON	2426	*Note: Lebanon to cover its own territory within Beirut FIR*
LIBYA	2424, 2449, 2450, 2541, 2542, 2569	
OMAN	2563, 2670	
QATAR	-	
SAUDI ARABIA	2446, 2545, 2546, 2564, 2565, 2566, 2668, 2669	
SUDAN	2567, 2568, 2665, 2666, 2667, 2689, 2690, 2787, 2811	
SYRIAN ARAB REPUBLIC	2426	*Note: Syria to cover its own territory within Damascus FIR*
UNITED ARAB EMIRATES	-	
YEMEN	2686, 2687	

APPENDIX 4.6B

MID AIR NAVIGATION PLAN

VOLUME III

MID AIR NAVIGATION PLAN

VOLUME III

TABLE OF CONTENTS

MID ANP, VOLUME III

PART 0 – INTRODUCTION

1. INTRODUCTION

1.1 The background to the publication of ANPs in three volumes is explained in the Introduction in Volume I. The procedure for amendment of Volume III is also described in Volume I. Volume III contains dynamic/flexible plan elements related to the implementation of the air navigation system and its modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) and associated technology roadmaps described in the Global Air Navigation Plan (GANP).

1.2 The information contained in Volume III is related mainly to:

- Planning: objectives set, priorities and targets planned at regional or sub-regional levels;
- Implementation monitoring and reporting: monitoring of the progress of implementation towards targets planned. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

1.3 The management of Volume III is the responsibility of the MIDANPIRG.

1.4 Volume III should be used as a tool for monitoring and reporting the status of implementation of the elements planned here above, through the use of tables/databases and/or references to online monitoring tools, as endorsed by MIDANPIRG. The status of implementation is updated on a regular basis as endorsed by MIDANPIRG.

2. AVIATION SYSTEM BLOCK UPGRADES (ASBUs), MODULES AND ROADMAPS

2.1. The ASBU Modules and Roadmaps form a key component to the GANP, noting that they will continue to evolve as more work is done on refining and updating their content and in subsequent development of related provisions, support material and training.

2.2. Although the GANP has a worldwide perspective, it is not intended that all Block Upgrade Modules are required to be applied in every State, sub-region and/or region. Many of the Block Upgrade Modules contained in the GANP are specialized packages that should be applied only where the specific operational requirement exists or corresponding benefits can be realistically projected. Accordingly, the Block Upgrade methodology establishes an important flexibility in the implementation of its various Modules depending on a region, sub-region and/or State's specific operational requirements. Guided by the GANP, ICAO MID regional, sub-regional and State planning should identify Modules which best provide the needed operational improvements.

MID ANP, VOLUME III

PART I - GENERAL PLANNING ASPECTS (GEN)

1. PLANNING METHODOLOGY

1.1 Guided by the GANP, the regional planning process starts by identifying the homogeneous ATM areas, major traffic flows and international aerodromes. An analysis of this data leads to the identification of opportunities for performance improvement. Modules from the Aviation System Block Upgrades (ASBUs) are evaluated to identify which of those modules best provide the needed operational improvements. Depending on the complexity of the module, additional planning steps may need to be undertaken including financing and training needs. Finally, regional plans would be developed for the deployment of modules by drawing on supporting technology requirements. This is an iterative planning process which may require repeating several steps until a final plan with specific regional targets is in place. This planning methodology requires full involvement of States, service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

1.2 Block 0 features Modules characterized by technologies and capabilities which have already been developed and implemented in many parts of the world today. It therefore features a near-term availability milestone, or Initial Operating Capability (IOC), of 2013 for high density based on regional, sub-regional and State operational need. Blocks 1 through 3 are characterized by both existing and projected performance area solutions, with availability milestones beginning in 2018, 2023 and 2028 respectively.

2. REVIEW AND EVALUATION OF AIR NAVIGATION PLANNING

2.1. The progress and effectiveness against the priorities set out in the regional air navigation plans should be annually reported, using a consistent reporting format, to ICAO.

2.2. Performance monitoring requires a measurement strategy. Data collection, processing, storage and reporting activities supporting the identified global/regional performance metrics are fundamental to the success of performance-based approaches.

2.3. The air navigation planning and implementation performance framework prescribes reporting, monitoring, analysis and review activities being conducted on a cyclical, annual basis. An Air Navigation Reporting Form (ANRF) reflecting selected key performance areas as defined in the Manual on Global Performance of the Air Navigation System (ICAO Doc 9883) has been developed for each ASBU Module. The ANRF is a customized tool which is recommended for the application of setting planning targets, monitoring implementation, and identifying challenges, measuring implementation/performance and reporting. If necessary, other reporting formats that provide more details may be used but should contain as a minimum the elements described in the ANRF template. A sample of the ANRF is provided in **Appendix A**. A sample Template of a planning table which may be used to show the elements planned in an ICAO region is provided in **Appendix B**.

3. REPORTING AND MONITORING RESULTS

3.1 Reporting and monitoring results will be analyzed by the PIRGs, States and ICAO Secretariat to steer the air navigation improvements, take corrective actions and review the allocated objectives, priorities and targets if needed. The results will also be used by ICAO and aviation partner stakeholders to develop the annual Global Air Navigation Report. The report results will provide an opportunity for the international civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure and performance-based procedures.

3.2 The reports will also provide the ICAO Council with detailed annual results on the basis of which tactical adjustments will be made to the performance framework work programme, as well as triennial policy adjustments to the GANP and the Block Upgrade Modules.

3.3 **Table GEN III-1** contains a minimum set of Implementation Indicator(s) for each of the eighteen ASBU Block 0 Modules necessary for the monitoring of these Modules (if identified as a priority for implementation at regional or sub-regional level). These indicators are intended to enable comparison between ICAO Regions with respect to ASBU Block 0 Modules and will apply only to commonly selected ASBU Modules. All regions/PIRGs reserve the right to select the ASBU Modules relevant to their needs and to endorse additional indicators, as deemed necessary. No reporting is required for ASBU Block 0 Modules that have not been selected.

Note: The priority for implementation as well as the applicability area of each selected ASBU Block 0 Module is to be defined by the MIDANPIRG.

TABLE GEN III-1 – IMPLEMENTATION INDICATOR(S) FOR EACH ASBU BLOCK 0 MODULE

Explanation of the Table

1 Block 0 Module Code
2 Block 0 Module Title
3 Implementation Indicator
4 Remarks

Module Code	Module Title	Implementation Indicator	Remarks
1	2	3	4
B0-APTA	Optimization of Approach Procedures including vertical guidance	% of international aerodromes having at least one runway end provided with APV Baro-VNAV or LPV procedures	
B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	% of applicable international aerodromes having implemented increased runway throughput through optimized wake turbulence separation	1. Not to be considered for the first reporting cycles due to lack of maturity. 2. List of ADs to be established through regional air navigation agreement.
B0-RSEQ	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	% of applicable international aerodromes having implemented AMAN / DMAN	1. Not to be considered for the first reporting cycles due to lack of maturity. 2. List of ADs to be established through regional air navigation agreement.
B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	% of applicable international aerodromes having implemented A-SMGCS Level 2	List of ADs to be established through regional air navigation agreement.
B0-ACDM	Improved Airport Operations through Airport-CDM	% of applicable international aerodromes having implemented improved airport operations through airport-CDM	List of ADs to be established through regional air navigation agreement.
B0-FICE	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs	
B0-DATM	Service Improvement through Digital Aeronautical Information Management	- % of States having implemented an AIXM based AIS database - % of States having implemented QMS	

Module Code	Module Title	Implementation Indicator	Remarks
1	2	3	4
B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	- % of States having implemented SADIS / WIFS - % of States having implemented QMS	
B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	% of FIRs in which FUA is implemented	
B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	% of FIRs within which all ACCs utilize ATFM systems	
B0-ASUR	Initial capability for ground surveillance	% of FIRs where ADS-B OUT and/or MLAT are implemented for the provision of surveillance services in identified areas.	Not to be considered for the first reporting cycles due to lack of maturity.
B0-ASEP	Air Traffic Situational Awareness (ATSA)	% of States having implemented air traffic situational awareness	Not to be considered for the first reporting cycles due to lack of maturity.
B0-OPFL	Improved access to optimum flight levels through climb/descent procedures using ADS-B	% of FIRs having implemented in-trail procedures	Not to be considered for the first reporting cycles due to lack of maturity.
B0-ACAS	ACAS Improvements	% of States requiring carriage of ACAS (with TCAS 7.1 evolution)	
B0-SNET	Increased Effectiveness of Ground-Based Safety Nets	% of States having implemented ground-based safety-nets (STCA, APW, MSAW, etc.)	
B0-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO)	- % of international aerodromes / TMAs with PBN STAR implemented - % of international aerodromes/TMA where CDO is implemented	
B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	% of FIRs utilising data link en-route in applicable airspace	
B0-CCO	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	- % of international aerodromes / TMAs with PBN SID implemented - % of international aerodromes/TMA where CCO is implemented	

Appendix A

SAMPLE TEMPLATE

1. AIR NAVIGATION REPORT FORM (ANRF)

(This template demonstrates how ANRF to be used.
The data inserted here refers to ASBU B0-05/CDO as an example only)

Regional and National planning for ASBU Modules

2. REGIONAL/NATIONAL PERFORMANCE OBJECTIVE – B0-05/CDO: Improved Flexibility and Efficiency in Descent Profiles

Performance Improvement Area 4: Efficient Flight Path – Through Trajectory-based Operations

3. ASBU B0-05/CDO: Impact on Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	Y	Y

4. ASBU B0-05/CDO: Planning Targets and Implementation Progress

5. Elements	6. Targets and implementation progress (Ground and Air)
1. CDO	
2. PBN STARs	

7. ASBU B0-05/CDO: Implementation Challenges

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. CDO				
2. PBN STARs				

8. Performance Monitoring and Measurement
8A. ASBU B0-05/CDO: Implementation Monitoring

Elements	Performance Indicators/Supporting Metrics
1. CDO	Indicator: Percentage of international aerodromes/TMAs with CDO implemented Supporting metric: Number of international aerodromes/TMAs with CDO implemented
2. PBN STARs	Indicator: Percentage of international aerodromes/TMAs with PBN STARs implemented Supporting metric: Number of international aerodromes/TMAs with PBN STARs implemented

8. Performance Monitoring and Measurement **8 B. ASBU B0-05/CDO: Performance Monitoring**	
Key Performance Areas (Out of eleven KPAs, for the present until experienced gained, only five have been selected for reporting through ANRF)	**Where applicable, indicate qualitative Benefits,**
Access & Equity	Not applicable
Capacity	Not applicable
Efficiency	Cost savings through reduced fuel burn. Reduction in the number of required radio transmissions.
Environment	Reduced emissions as a result of reduced fuel burn
Safety	More consistent flight paths and stabilized approach paths. Reduction in the incidence of controlled flight into terrain (CFIT).
9. Identification of performance metrics: It is not necessary that every module contributes to all of the five KPAs. Consequently, a limited number of metrics per type of KPA, serving as an example to measure the module(s)' implementation benefits, without trying to apportion these benefits between module, have been identified on page 5. For the family of ASBU modules selected for air navigation implementation, States/Region to choose the applicable performance (benefit) metrics from the list available on page 5. This approach would facilitate States in collecting data for the chosen performance metrics. States/Region, however, could add new metrics for different KPAs based on maturity of the system and ability to collect relevant data.	

AIR NAVIGATION REPORT FORM
HOW TO USE - EXPLANATORY NOTES

1. **Air Navigation Report Form (ANRF):** This form is nothing but the revised version of Performance Framework Form that was being used by Planning and Implementation Regional Groups (PIRGs)/States until now. The ANRF is a customized tool for Aviation System Block Upgrades (ASBU) Modules which is recommended for application for setting planning targets, monitoring implementation, identifying challenges, measuring implementation/performance and reporting. Also, the PIRGs and States could use this report format for any other air navigation improvement programmes such as Search and Rescue. If necessary, other reporting formats that provide more details may be used but should contain as a minimum the elements described in this ANRF template. The results will be analysed by ICAO and aviation partners and utilized in the Regional Performance Dashboards and the Annual Air Navigation Report. The conclusions from the Air Navigation Report will serve as the basis for future policy adjustments, aiding safety practicality, affordability and global harmonization, amongst other concerns.

2. **Regional/National Performance objective:** In the ASBU methodology, the performance objective will be the title of the ASBU module itself. Furthermore, indicate alongside corresponding Performance Improvement area (PIA).

3. **Impact on Main Key Performance Areas:** Key to the achievement of a globally interoperable ATM system is a clear statement of the expectations/benefits to the ATM community. The expectations/benefits are referred to eleven Key Performance Areas (KPAs) and are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. The KPAs applicable to respective ASBU module are to be identified by marking Y (Yes) or N (No). The impact assessment could be extended to more than five KPAs mentioned above if maturity of the national system allows and the process is available within the State to collect the data.

4. **Planning Targets and Implementation Progress:** This section indicates planning targets and status of progress in the implementation of different elements of the ASBU Module for both air and ground segments.

5. **Elements related to ASBU module:** Under this section list elements that are needed to implement the respective ASBU Module. Furthermore, should there be elements that are not reflected in the ASBU Module (example: In ASBU B0-80/ACDM, Aerodrome certification and data link applications D-VOLMET, D-ATIS, D-FIS are not included; Similarly in ASBU B0-30/DAIM, note that WGS-84 and eTOD are not included) but at the same time if they are closely linked to the module, ANRF should specify those elements. As a part of guidance to PIRGs/States, every Regional ANP will have the complete list of all 18 Modules of ASBU Block 0 along with corresponding elements, equipage required on the ground and in the air as well as metrics specific to both implementation and performance (benefits).

6. **Targets and implementation progress (Ground and Air):** Planned implementation date (month/year) and the current status/responsibility for each element are to be reported in this section. Please provide as much details as possible and should cover both avionics and ground systems. This ANRF being high level document, develop necessary detailed action plan separately for each element/equipage.

7. **Implementation challenges**: Any challenges/problems that are foreseen for the implementation of elements of the Module are to be reported in this section. The purpose of the section is to identify in advance any issues that will delay the implementation and if so, corrective action is to be initiated by the concerned person/entity. The four areas, under which implementation issues, if any, for the ASBU Module to be identified, are as follows:

- Ground System Implementation:
- Avionics Implementation:
- Procedures Availability:
- Operational Approvals:

Should be there no challenges to be resolved for the implementation of ASBU Module, indicate as "NIL".

8. **Performance Monitoring and Measurement:** Performance monitoring and measurement is done through the collection of data for the supporting metrics. In other words, metrics are quantitative measure of system performance – how well the system is functioning. The metrics fulfil three functions. They form a basis for assessing and monitoring the provision of ATM services, they define what ATM services user value and they can provide common criteria for cost benefit analysis for air navigation systems development. The Metrics are of two types:

A. **Implementation Monitoring**: Under this section, the indicator supported by the data collected for the metric reflects the status of implementation of elements of the Module. For example- Percentage of international aerodromes with CDO implemented. This indicator requires data for the metric "number of international aerodromes with CDO".

B. **Performance Monitoring**: The metric in this section allows to asses benefits accrued as a result of implementation of the module. The benefits or expectations, also known as Key Performance Areas (KPAs), are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present until experienced gained, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. Where applicable, mention qualitative benefits under this section.

9. **Identification of performance metrics:** It is not necessary that every module contributes to all of the five KPAs. Consequently, a limited number of metrics per type of KPA, serving as an example to measure the module(s)' implementation benefits, without trying to apportion these benefits between module, have been identified on page 6. For the family of ASBU modules selected for air navigation implementation, States/Region to choose the applicable performance (benefit) metrics from the list available on page 6. This approach would facilitate States in collecting data for the chosen performance metrics. States/Region, however, could add new metrics for different KPAs based on maturity of the system and ability to collect relevant data.

Appendix B - Main Planning Table Template

	Objectives					Priorities and targets			Reference
Block	**ASBU modules and elements Enablers**	**Performance Improvement Area**	**Applicable or not in [Region] (Yes/No)**	**Regional planning elements**	**Enablers**	**Priority allocated in [Region]**	**Target(s) in [Region]**	**Indicator(s) / Metric(s)**	**Supporting Planning Document (ANRF, other)**

MID ANP, VOLUME III

PART II – AIR NAVIGATION SYSTEM IMPLEMENTATION

1. INTRODUCTION

1.1 The planning and implementation of the ICAO Aviation System Block Upgrades (ASBUs) should be undertaken within the framework of the MIDANPIRG with the participation and support of all stakeholders, including regulatory personnel.

1.2 The ASBU Blocks and Modules adopted by the MID Region should be followed in accordance with the specific ASBU requirements to ensure global interoperability and harmonization of air traffic management. The MIDANPIRG should determine the ASBU Block Upgrade Modules, which best provide the needed operational improvements in the ICAO MID Region.

2. ICAO MID REGION AIR NAVIGATION OBJECTIVES, PRIORITIES AND TARGETS

2.1 In accordance with Recommendation 6/1 of the Twelfth Air Navigation Conference (AN-Conf/12), PIRGs are requested to establish priorities and targets for air navigation, in line with the ASBU methodology.

2.2 The achievement of the intended benefits along each routing or within each area of affinity is entirely dependent on the coordinated implementation of the required elements by all provider and user stakeholders concerned.

2.3 Considering that some of the block upgrade modules contained in the GANP are specialized packages that may be applied where specific operational requirements or corresponding benefits exist, States and PIRGs should clarify how each Block Upgrade module would fit into the national and regional plans.

2.4 As Block 0 modules in many cases provide the foundation for future development, all Block 0 modules should be assessed, as appropriate, for early implementation by States in accordance with their operational needs.

2.5 In establishing and updating the MID air navigation plan, the MIDANPIRG and States should give due consideration to the safety priorities set out in the Global Aviation Safety Plan (GASP) and MID Region safety strategy.

2.6 States in the MID Region through the MIDANPIRG should establish their own air navigation objectives, priorities and targets to meet their individual needs and circumstances in line with the global and regional air navigation objectives, priorities and targets.

3. MONITORING OF ASBU MODULES IMPLEMENTATION

3.1 The monitoring of air navigation performance and its enhancement should be carried out through identification of relevant air navigation Metrics and Indicators as well as the adoption and attainment of air navigation system Targets.

3.2 The monitoring of the regional implementation progress and performance metrics/indicators should be done for all elements planned by MIDANPIRG. The monitoring should allow global correlation of status and expectations, appreciation of benefits achieved for the airspace users, as well as corrective actions to be taken by the PIRG on implementation plans.

3.3 The MIDANPIRG should determine appropriate mechanisms and tools for the monitoring and the collection of necessary data at national and regional levels.

MID Region ASBU Block 0 Modules Prioritization and Monitoring

3.4 On the basis of operational requirements and taking into consideration the associated benefits, MID Region has prioritized the implementation of the Block "0" Modules**,** also agreed on the subsidiary bodies that will be monitoring and supporting the implementation of the modules as in Table below:

MID REGION ASBU BLOCK 0 MODULES PRIORITIZATION AND MONITORING

Module Code	Module Title	Priority	Start Date	Monitoring		Remarks
				Main	Supporting	
Performance Improvement Areas (PIA) 1: **Airport Operations**						
B0-APTA	Optimization of Approach Procedures including vertical guidance	1	2014	PBN SG	ATM SG, AIM SG, CNS SG	
B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	2				
B0-RSEQ	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	2				
B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	1	2014	ANSIG	CNS SG	Coordination with RGS WG
B0-ACDM	Improved Airport Operations through Airport-CDM	1	2014	ANSIG	CNS SG, AIM SG, ATM SG	Coordination with RGS WG
Performance Improvement Areas (PIA) 2 Globally Interoperable Systems and Data Through Globally Interoperable System Wide Information Management						
B0-FICE	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	1	2014	CNS SG	AIM SG, ATM SG	
B0-DATM	Service Improvement through Digital Aeronautical Information Management	1	2014	AIM SG		
B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	1	2014	MET SG		

Performance Improvement Areas (PIA) 3 Optimum Capacity and Flexible Flights – Through Global Collaborative ATM						
B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	2014	ATM SG		
B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	1	2015			
B0-ASUR	Initial capability for ground surveillance	2				
B0-ASEP	Air Traffic Situational Awareness (ATSA)	2				
B0-OPFL	Improved access to optimum flight levels through climb/descent procedures using ADS-B	2				
B0-ACAS	ACAS Improvements	1	2014	CNS SG		
B0-SNET	Increased Effectiveness of Ground-Based Safety Nets	1	2017	ATM SG		
Performance Improvement Areas (PIA) 4 Efficient Flight Path – Through Trajectory-based Operations						
B0-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO)	1	2014	PBN SG		
B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	2		ATM SG	CNS SG	
B0-CCO	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	1	2014	PBN SG		

Note:

Priority 1*: Modules that have the highest contribution to the improvement of air navigation safety and/or efficiency in the MID Region. These modules should be implemented where applicable and will be used for the purpose of regional air navigation monitoring and reporting for the period 2015-2018.*

Priority 2*: Modules recommended for implementation based on identified operational needs and benefits.*

APPENDIX

ASBU BLOCK 0 MODULES APPLICABLE IN THE MID REGION

B0 – APTA: Optimization of Approach Procedures including vertical guidance

Description and purpose

The use of performance-based navigation (PBN) and ground-based augmentation system (GBAS) landing system (GLS) procedures will enhance the reliability and predictability of approaches to runways, thus increasing safety, accessibility and efficiency. This is possible through the application of Basic global navigation satellite system (GNSS), Baro vertical navigation (VNAV), satellite-based augmentation system (SBAS) and GLS. The flexibility inherent in PBN approach design can be exploited to increase runway capacity.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	Y

Applicability consideration:

This module is applicable to all instrument, and precision instrument runway ends, and to a limited extent, non-instrument runway ends.

B0 – APTA: Optimization of Approach Procedures including vertical guidance				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
LNAV	All RWYs Ends at International Aerodromes	Indicator: % of runway ends at international aerodromes with RNAV(GNSS) Approach Procedures (LNAV) Supporting metric: Number of runway ends at international aerodromes with RNAV (GNSS) Approach Procedures (LNAV)	100% (All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches)	Dec. 2016
LNAV/VNAV	All RWYs ENDs at International Aerodromes	Indicator: % of runways ends at international aerodromes provided with Baro-VNAV approach procedures (LNAV/VNAV) Supporting metric: Number of runways ends at international aerodromes provided with Baro-VNAV approach procedures (LNAV/VNAV)	100% (All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches)	Dec. 2017

B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)

Description and purpose
To implement continuous climb operations in conjunction with performance-based navigation (PBN) to provide opportunities to optimize throughput, improve flexibility, enable fuel-efficient climb profiles and increase capacity at congested terminal areas.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N/A	N/A	Y	Y	Y

Applicability consideration:
Regions, States or individual locations most in need of these improvements. For simplicity and implementation success, complexity can be divided into three tiers:

a) least complex: regional/States/locations with some foundational PBN operational experience that could capitalize on near-term enhancements, which include integrating procedures and optimizing performance;

b) more complex: regional/States/locations that may or may not possess PBN experience, but would benefit from introducing new or enhanced procedures. However, many of these locations may have environmental and operational challenges that will add to the complexities of procedure development and implementation; and

c) most complex: regional/States/locations in this tier will be the most challenging and complex to introduce integrated and optimized PBN operations. Traffic volume and airspace constraints are added complexities that must be confronted. Operational changes to these areas can have a profound effect on the entire State, region or location.

B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
PBN SIDs	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMAD, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with PBN SID implemented as required. Supporting Metric: Number of International Aerodromes/ TMAs with PBN SID implemented as required.	100% (for the identified Aerodromes/TMAs)	Dec. 2018
International aerodromes/ TMAs with CCO	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OIKB, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with CCO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CCO implemented as required.	100% (for the identified Aerodromes/TMAs)	Dec. 2018

B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)

Description and purpose
To use performance-based airspace and arrival procedures allowing aircraft to fly their optimum profile using continuous descent operations (CDOs). This will optimize throughput, allow fuel efficient descent profiles and increase capacity in terminal areas.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	Y

Applicability consideration:
Regions, States or individual locations most in need of these improvements. For simplicity and implementation success, complexity can be divided into three tiers:

a) least complex – regional/States/locations with some foundational PBN operational experience that could capitalize on near term enhancements, which include integrating procedures and optimizing performance;

b) more complex – regional/States/locations that may or may not possess PBN experience, but would benefit from introducing new or enhanced procedures. However, many of these locations may have environmental and operational challenges that will add to the complexities of procedure development and implementation; and

c) most complex – regional/States/locations in this tier will be the most challenging and complex to introduce integrated and optimized PBN operations. Traffic volume and airspace constraints are added complexities that must be confronted. Operational changes to these areas can have a profound effect on the entire State, region or location.

B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
PBN STARs	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMAD, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with PBN STAR implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with PBN STAR implemented as required.	100% (for the identified Aerodromes/TMAs)	Dec. 2018
International aerodromes/ TMAs with CDO	OBBI, HESH, HEMA, HEGN, OIIE, OIKB, OIFM, OJAI, OJAQ, OKBK, OLBA, OOMS, OTHH, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with CDO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CDO implemented as required.	100% (by for the identified Aerodromes/TMAs)	Dec. 2018

TABLE B0-APTA/CCO/CDO 3-1

EXPLANATION OF THE TABLE

Column	
1	Name of the State / International Aerodromes' Location Indicator
2	Runway Designator
3, 4, 5	Conventional Approaches (ILS / VOR or NDB)
6, 7, 8, 9	Elements of B0-APTA (Status of PBN Plan and implementation of LNAV, LNAV/VNAV), where: Y – Yes, implemented N – No, not implemented
10	PBN Runway: where any type of PBN approach is implemented
11, 12, 13	Elements of B0-CCO (Status of implementation of RNAV SID, CCO) per runway end and per aerodrome, where: Y – Yes, implemented N – No, not implemented
14, 15, 16	Elements of B0-CDO (Status of implementation of RNAV STAR, CDO) per runway end and per aerodrome, where: Y – Yes, implemented N – No, not implemented
18	Remarks

Int'l AD (Ref. MID ANP) (1)	RWY (2)	Conventional Approaches (3)			APTA (6)				CCO (11)				CDO (14)				Remarks
		Precision (4)		VOR or NDB (5)	PBN PLAN (7)	LNAV (8)	LNAV / VNAV (9)	PBN RWY (10)	RNAV SID (12)		CCO (13)		RNAV STAR (15)		CDO (16)		
		xLS	CAT		Update date				RWY	AD	RWY	AD	RWY	AD	RWY	AD	
BAHRAIN																	1
OBBI	12L	ILS	I	VORDME		Y	Y	Y			Y	Y	Y	Y	Y	Y	
	12R			VORDME		Y	Y	Y									
	30L			VORDME		Y	Y	Y									

	30R	ILS	I	VORDME		Y	Y	Y			Y		Y		Y		
Total	4	2		4	Y	4	4	4	0	0	2	1	2	1	2	1	
%		50		100	Y	100	100	100	0	0	50	100	50	100	50	100	
EGYPT																	7
HEBA	14					Y		Y		Y							
	32	ILS	I			Y		Y	Y								
HESN	17			VORDME		Y	Y	Y	Y	Y			Y	Y			
	35	ILS	I	VORDME		Y	Y	Y	Y				Y				
HECA	05L	ILS	I	VORDME		Y		Y									
	05C	ILS	II	VORDME		Y		Y									
	05R	ILS	II			Y		Y									
	23L	ILS	II	VORDME		Y		Y									
	23C	ILS	II	VORDME		Y		Y									
	23R	ILS	I	VORDME		Y		Y									
HEGN	16L			VORDME		Y	Y	Y		Y				Y			
	16R			VORDME		Y	Y	Y									
	34L			VORDME		Y	Y	Y	Y				Y				
	34R	ILS	I	VORDME		Y	Y	Y	Y				Y				
HELX	2	ILS	I	VORDME		Y	Y	Y	Y	Y			Y	Y			
	20	ILS	I	VORDME		Y	Y	Y	Y				Y				
HEMA	15			VORDME		Y		Y	Y	Y			Y	Y			
	33			VORDME		Y		Y	Y				Y				
HESH	04L	ILS	I	VORDME		Y	Y	Y	Y	Y			Y	Y			
	04R			VORDME		Y	Y	Y	Y				Y				
	22L			-		Y	Y	Y	Y				Y				
	22R			-		Y	Y	Y	Y				Y				

Total	22	12		17	Y	22	12	22	13	6	0	0	12	5	0	0	
%		55		77	Y	100	55	100	59	86	0	0	55	71	0	0	
I.R. IRAN																	9
OIKB	03L																
	03R			VORDME / NDB													
	21L	IL S	I	VORDME / NDB													
	21R																
OIFM	08L			VORDME / NDB													
	08R			VORDME / NDB													
	26L			VORDME / NDB													
	26R	IL S	I	VORDME / NDB													
OIMM	13L			VORDME													
	13R			VORDME													
	31L			VORDME / NDB													
	31R	IL S	I	VORDME / NDB													
OISS	11L																
	11R																
	29L	IL S	I	VORDME / NDB													
	29R			VORDME / NDB													
OITT	12L			VORDME / NDB													
	12R			VORDME / NDB													
	30L	IL S	I	VORDME / NDB													
	30R	IL S	I	VORDME / NDB													

OIIE	11L	-	-	VORDME									Y	Y			
	11R			VORDME									Y				
	29L			-									Y				
	29R	IL S	II	VORDME		Y	Y	Y					Y				
OIII	11L			VORDME													
	11R			VORDME													
	29L	IL S	I	VORDME		Y	Y	Y									
	29R			VORDME													
OIZH	17					Y	Y	Y					Y	Y			
	35	IL S	I	VORDME		Y	Y	Y					Y				
OIYY	13			VORDME													
	31			VORDME													
Total	**32**	**9**		**26**	**Y**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**6**	2	**0**	0	
%		**28**		**81**	**Y**	**13**	**13**	**13**	**0**	**0**	**0**	**0**	**19**	**22**	**0**	**0**	
IRAQ																	6
ORBI	15L	IL S	I	VORDME													
	15R					Y		Y									
	33L					Y		Y									
	33R	IL S	I	VORDME													
ORMM	14			VORDME													
	32	IL S	I	VORDME													
ORER	18	IL S	II			Y		Y									
	36	IL S	I			Y		Y									
ORSU	13	IL S	I	VOR		Y		Y									
	31	IL S	I	VOR		Y		Y									
ORNI	10	IL S	I	VOR		Y	Y	Y	Y	Y			Y	Y			

	28	ILS	I	VOR		Y	Y	Y	Y				Y				
ORBM	15																
	33																-
Total	**14**	**9**		**8**	**N**	**8**	**2**	**8**	**2**	**1**	**0**	**0**	**2**	1	**0**	0	
%		**64**		**57**		**57**	**14**	**57**	**14**	**17**	**0**	**0**	**14**	16.67	**0**	0	
JORDAN																	2
OJAI	08L	ILS	I	NDB		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	08R			NDB		Y	Y	Y	Y				Y				
	26L	ILS	II	VOR		Y	Y	Y	Y				Y				
	26R	ILS	I	VORDME		Y	Y	Y	Y				Y				
OJAQ	1	ILS	I	-		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	19	ILS	I			Y	N/A	Y	Y				Y				LNAV/VNAV not feasible
Total	**6**	**5**		**4**	**Y**	**6**	**6**	**6**	**6**	**2**	**2**	**2**	**6**	2	**2**	2	
%		**83**		**67**		**100**	**100**	**100**	**100**	**100**	**33**	**100**	**100**	100	**33**	100	
KUWAIT																	1
OKBK	15L	ILS	II	VORDME		Y	Y	Y	Y	Y			Y	Y			
	15R	ILS	II	VORDME		Y	Y	Y	Y				Y				
	33L	ILS	II	VORDME		Y	Y	Y	Y				Y				
	33R	ILS	II	VORDME		Y	Y	Y	Y				Y				
Total	**4**	**4**		**4**	**Y**	**4**	**4**	**4**	**4**	**1**	**0**	**0**	**4**	1	**0**	0	
%		**100**		**100**		**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	100	**0**	0	
LEBANON																	1
OLBA	3	ILS	I	VORDME		Y		Y			Y	Y	Y	Y	Y	Y	
	16	ILS	I	VORDME		Y		Y			Y		Y		Y		
	17	ILS	I	VORDME / NDB		Y		Y			Y		Y		Y		

	21					Y		Y			Y		Y		Y		
	34	N/A		N/A							Y						Not used for landing
	35	N/A		N/A							Y						Not used for landing
Total	**4**	**5**		**5**	**N**	**4**	**0**	**4**	**0**	**0**	**6**	**1**	**4**	1	**4**	1	
%		**125**		**125**		**100**	**0**	**100**	**0**	**0**	**150**	**100**	**100**	100	**100**	100	
LIBYA																	3
HLLB	15R			VORDME													
	15L			VORDME													
	33R			VORDME													
	33L	ILS	I	VORDME													
HLLS	13	ILS	I	VORDME													
	31			VORDME													
HLLT	9			VORDME													
	27	ILS	I	VORDME													
Total	**8**	**3**		**8**	**N**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**	0	
%		**38**		**100**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**	0	
OMAN																	2
OOMS	08L	ILS	I	VORDME		Y	Y	Y	Y	Y			Y	Y			
	26R	ILS	I	VORDME		Y	Y	Y	Y				Y				
OOSA	7	ILS	I	VORDME		Y	Y	Y	Y	Y			Y	Y			
	25	ILS	I	VORDME		Y	Y	Y	Y				Y				
Total	**4**	**4**		**4**	**Y**	**4**	**4**	**4**	**4**	**2**	**0**	**0**	**4**	2	**0**	**0**	
%		**100**		**100**		**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	100	**0**	**0**	
QATAR																	2
OTBD	15	ILS	I	VORDME		Y	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y	LNAV/VNAV not feasible
	33	ILS	II/III	VORDME/NDB		Y	Y	Y	Y		Y		Y		Y		CCO/CDO tactically achieved

OTHH	16L	ILS	I/II/III	VORDME		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	CCO/CDO tactically achieved
	16R	ILS	I/II/III	VORDME		Y	Y	Y	Y		Y		Y		Y		CCO/CDO tactically achieved
	34L	ILS	I/II/III	VORDME		Y	Y	Y	Y		Y		Y		Y		CCO/CDO tactically achieved
	34R	ILS	I/II/III	VORDME		Y	Y	Y	Y		Y		Y		Y		CCO/CDO tactically achieved
Total	**6**	**6**		**6**	**Y**	**6**	**5**	**6**	**6**	**2**	**6**	**2**	**6**	2	**6**	2	
%		**100**		**100**		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	100	**100**	100	
SAUDI ARABIA																	4
OEDF	16L	ILS	I	VORDME													
	16R	ILS	I	VORDME													
	34L	ILS	I	VORDME													
	34R	ILS	I	VORDME													
OEJN	16L	ILS	I			-		-									
	16C	ILS	I														
	16R	ILS	I	VORDME		-		-									
	34L	ILS	I	VORDME		-		-									
	34C	ILS	I	VORDME													
	34R	ILS	I			-		-									
OEMA	17	ILS	I	VORDME		Y		Y	Y	Y			Y	Y			
	18			VORDME		Y		Y	Y				Y				
	35	ILS	I	VORDME		Y		Y	Y				Y				

	36	ILS	I	VORDME		Y		Y	Y				Y					
OERK	15L	ILS	I	VORDME		Y	Y	Y	Y	Y			Y	Y				
	15R	ILS	I			Y	Y	Y	Y				Y					
	33L	ILS	I			Y	Y	Y	Y				Y					
	33R	ILS	I	VORDME		Y	Y	Y	Y				Y					
Total	**18**	**17**		**13**	**Y**	**8**	**4**	**8**	**8**	**2**	**0**	**0**	**8**	2	**0**	0		
%		**94**		**72**		**44**	**22**	**44**	**44**	**50**	**0**	**0**	**44**	50	**0**	0	**Plan needs update**	
SUDAN																	4	
HSNN	4					Y	-	Y										
	22					Y	-	Y										
HSOB	1					Y	-	Y										
	19					Y	-	Y										
HSSS	18	ILS	I	VORDME		Y	-	Y	Y	Y			Y	Y				
	36	ILS	I	VORDME		Y	-	Y	Y				Y					
HSPN	17			VORDME / NDB		Y	-	Y										
	35	ILS	I	VORDME / NDB		Y	-	Y										
Total	**6**	**3**		**4**	**Y**	**6**	**0**	**6**	**2**	**1**	**0**	**0**	**2**	1	**0**	0		
%		**50**		**67**		**100**	**0**	**100**	**33**	**25**	**0**	**0**	**33**	25	**0**	**0**		
SYRIA																	3	
OSAP	9			VORDME														
	27	ILS	II	VORDME / NDB														
OSLK	17	ILS	I	VORDME / NDB														
	35																	
OSDI	05L			VOR														
	05R	ILS	II	VORDME / NDB														

	23L			VORDME / NDB DME													
	23R	ILS	II	VORDME		Y	Y	Y									
Total	8	4		7		1	1	1	0	0	0	0	0	0	0	0	
%		50		88		13	13	13	0	0	0	0	0	0	0	0	
UNITED ARAB EMIRATES																	8
OMAA	13L	ILS	II			AR	AR	Y	Y	Y	Y	Y	Y	Y	Y	Y	RNP AR
	13R	ILS	I	VOR		AR	AR	Y	Y		Y		Y		Y		RNP AR
	31L	ILS	II/III	VOR		AR	AR	Y	Y		Y		Y		Y		RNP AR
	31R	ILS	II			AR	AR	Y	Y		Y		Y		Y		RNP AR
OMAD	13			VORDME		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	
	31	ILS	I	VORDME		Y		Y	Y		Y		Y		Y		
OMAL	1	ILS	I	VOR		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	19			VOR		Y	Y	Y	Y		Y		Y		Y		
OMDB	12L	ILS	I/II/III	-		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	12R	ILS	I/II/III	-		Y	Y	Y	Y		Y		Y		Y		
	30L	ILS	I/II/III			Y	Y	Y	Y		Y		Y		Y		
	30R	ILS	I/II/III	-		Y	Y	Y	Y		Y		Y		Y		
OMDW	12	ILS	II/III			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	30	ILS	II/III			Y	Y	Y	Y		Y		Y		Y		
OMFJ	11					N/A	N/A	N/A	Y	Y	Y	Y		Y		Y	Not used for landing

	29	ILS	I	VOR		Y	Y	Y	Y		Y		Y		Y		
OMRK	16			VOR		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	34	ILS	I	VOR		Y	Y	Y	Y		Y		Y		Y		
OMSJ	12	ILS	I			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RNP AR
	30	ILS	II			Y	Y	Y	Y		Y		Y		Y		RNP AR
Total	**20**	**16**		**9**	**Y**	**20**	**18**	**20**	**20**	**8**	**20**	**8**	**19**	8	**19**	8	
%		**80**		**45**		**100**	**90**	**100**	**100**	**100**	**100**	**100**	**95**	100	**95**	100	
YEMEN																	5
OYAA	8	ILS	I	VORDME													
	26			VORDME													
OYHD	3			VOR										Y			
	21			VOR / NDB		Y		Y					Y				
OYRN	6																
	24			VORDME													
OYSN	18	ILS	I	VORDME/NDB		Y	Y	Y	Y	Y			Y	Y			
	36			VOR		Y	Y	Y	Y				Y				
OYTZ	1																-
	19																
Total	**10**	**2**		**7**		**3**	**2**	**3**	**2**	**1**	**0**	**0**	**3**	**2**	**0**	**0**	**58**
%		**20**		**70**		**30**	**20**	**30**	**20**	**20**	**0**	**0**	**30**	**40**	**0**	**0**	
Results					**Plans**	**LNAV**	**LNAV/VNAV**	**PBN RWYs**		**SID**		**CCO**		**STAR**		**CDO**	
Total	**166**	**101**		**126**	**13**	**100**	**66**	**100**	**67**	26	**36**	14	**78**	30	**33**	14	**10 PBN APV + 101 ILS (111/166)**
Percentage (%)		**61**		**76**	**87**	**60**	**40**	**60**	**40**	45	**22**	24	**18**	52	**20**	24	**67% RWY Ends with Vertical guidance**

58	Aerodrmes									
Note. 6 RNP AR Approach were implemented in UAE (OMAA and OMSJ)										

B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)

Description and purpose

Basic A-SMGCS provides surveillance and alerting of movements of both aircraft and vehicles on the aerodrome thus improving runway/aerodrome safety. ADS-B information is used when available (ADS-B APT).

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	Y

Applicability consideration:

A-SMGCS is applicable to any aerodrome and all classes of aircraft/vehicles. Implementation is to be based on requirements stemming from individual aerodrome operational and cost-benefit assessments. ADS-B APT, when applied is an element of A-SMGCS, is designed to be applied at aerodromes with medium traffic complexity, having up to two active runways at a time and the runway width of minimum 45 m.

B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
A-SMGCS Level 1*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 1 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 1	70%	Dec. 2017
A-SMGCS Level 2*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 2 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 2	50%	Dec. 2017

**Reference: Eurocontrol Document – "Definition of A-SMGCS Implementation Levels, Edition 1.2, 2010".*

TABLE B0-SURF 3-1
(A-SMGCS Level 1-2)

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Name of City/Aerodrome and Location Indicator

3 Status of implementation of A-SMGCS Level 1, where:
Y – Yes, implemented
N – No, not implemented

4 Status of implementation of A-SMGCS Level 2, where:
Y – Yes, implemented
N – No, not implemented

5 Action plan — short description of the State's Action Plan with regard to the implementation of A-SMGCS Level 1-2, especially for items with "N".

6 Remarks

State	City/ Aerodrome Location Indicator	Level 1	Level 2	Action Plan	Remarks
1	*2*	*3*	*4*	*5*	*6*
BAHRAIN	Bahrain/Bahrain Intl (OBBI)	Y	Y	~~A-SMGCS Level 1-2 Project is under Execution phase. expected completion on Dec 2015~~	
EGYPT	Cairo/Cairo Intl (HECA)	Y	Y		
IRAN	Tehran/Mehrabad Intl (OIII)	N	N		
KUWAIT	Kuwait/Kuwait Intl (OKBK)	N	N		
OMAN	Muscat/Muscat Intl (OOMS)	N	N		
QATAR	Doha/Doha Intl (OTBD)	Y	Y		
	Doha/Hamad Intl (OTHH)	Y	Y		
SAUDI ARABIA	Dammam/King Fahad Intl (OEDF)	N	N		
	JEDDAH/King Abdulaziz Intl (OEJN)	N	N		
	RIYADH/King Khalid Intl (OERK)	N	N		
UAE	Abu Dhabi/Abu Dhabi Intl (OMAA)	Y	Y	Level 4 2017	
	Dubai/Dubai Intl (OMDB)	Y	Y	Level 4 2017	
	DUBAI/Al Maktoum Intl (OMDW)	Y	N	Level 4 2018	
Total Percentage		**54%**	**46%**		

B0 – ACDM: Improved Airport Operations through Airport-CDM

Description and purpose

To implement collaborative applications that will allow the sharing of surface operations data among the different stakeholders on the airport. This will improve surface traffic management reducing delays on movement and manoeuvring areas and enhance safety, efficiency and situational awareness.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	N

Applicability consideration:

Local for equipped/capable fleets and already established airport surface infrastructure.

B0 – ACDM: Improved Airport Operations through Airport-CDM				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
A-CDM	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA	Indicator: % of applicable international aerodromes having implemented improved airport operations through airport-CDM Supporting metric: Number of applicable international aerodromes having implemented improved airport operations through airport-CDM	50%	Dec. 2018

TABLE B0-ACDM 3-1

EXPLANATION OF THE TABLE

Column

1- Name of the State

2- Aerodrome and Location Indicator

3 & 4 Fundamental ACDM Elements

3-Information Sharing:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

Note 1- Information Sharing is essential since it forms the foundation for all the other subsequent elements.

4-The Milestones Approach (Turn- Round Process)
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

Note 2- The Milestones Approach (Turn- Round Process) aims to achieve common situational awareness by tracking the progress of a flight from the initial planning to the take off.

5 – 8 Other ACDM Elements

5- Variable Taxi Time
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

Note 3- Variable Taxi Time is the key to predictability of accurate take-off in block times especially at complex airports.

6-Collaborative Management of Flight Updates
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

Note 4- Collaborative Management of Flight Updates enhances the quality of arrival and departure information exchanges between the Network Operations and the CDM airports.

7-Collaborative Pre-departure Sequence
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

Note 5- (Collaborative) Pre-departure Sequence establishes an off-block sequence taking into account operators preferences and operational constraints.

8-ACDM in Adverse Conditions

FI – Fully Implemented

PI – Partially Implemented

NI – Not Implemented

Note 6- ACDM in Adverse Conditions achieves collaborative management of a ACDM during periods of predicted or unpredicted reductions of capacity.

9- Action Plan — short description of the State's Action Plan with regard to ACDM Implementation, especially for items with a "PI" or "NI" status, including planned date(s) of full compliance, as appropriate.

10- Remarks — additional information, including detail of "PI" or "N", as appropriate.

State	Aerodrome Location Indicator	ACDM IMPLEMENTATIOM ELEMENTS							
		Fundamental ACDM Elements		Other ACDM Elements				Action Plan	Remarks
		Information Sharing	Milestones Approach	Variable Taxi Time	Collaborative Management of Flight Updates	Collaborative Pre-departure Sequence	ACDM in Adverse Conditions		
1	2	3	4	5	6	7	8	9	10
Bahrain	OBBI								
Egypt	HECA								
Iran	OIII								
Kuwait	OKBK								
Oman	OOMS								
Qatar	OTBD								
	OTHH								
Saudi Arabia	OEJN								
	OERK								
UAE	OMDB								
	OMAA								

B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration

Description and purpose

To improve coordination between air traffic service units (ATSUs) by using ATS Interfacility Data Communication (AIDC) defined by the ICAO *Manual of Air Traffic Services Data Link Applications* (Doc 9694). The transfer of communication in a data link environment improves the efficiency of this process particularly for oceanic ATSUs.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	N	Y

Applicability consideration:

Applicable to at least two area control centres (ACCs) dealing with enroute and/or terminal control area (TMA) airspace. A greater number of consecutive participating ACCs will increase the benefits.

B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
AMHS capability	All States	Indicator: % of States with AMHS capability Supporting metric: Number of States with AMHS capability	90	Dec. 2020
AMHS implementation /interconnection	All States	Indicator: % of States with AMHS implemented (interconnected with other States AMHS) Supporting metric: Number of States with AMHS implemented (interconnections with other States AMHS)	90	Dec. 2020
Implementation of AIDC/OLDI between adjacent ACCs	As per the AIDC/OLDI Applicability Table*	Indicator: % of priority 1 AIDC/OLDI Interconnection have been implemented Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs	70%	Dec. 2020

** Note – the required AIDC/OLDI connection is detailed in the MID eANP Volume II Part III*

TABLE B0-FICE 3-1

EXPLANATION OF THE TABLE

Column

1 Name of the State

2,3, Status of AMHS Capability and Interconnection and AIDC/OLDI Capability, where:
Y – Fully Implemented
N – Not Implemented

4 File Transfer Body Part (FTBP) Capability
Y – Fully Implemented
N – Not Implemented

5 Number of required AIDC/OLDI Interconnections

6 Number of implemented AIDC/OLDI Interconnection.

7 Remarks

State	AMHS Capability	AMHS Interconnection	FTBP Capability	AIDC/OLDI Capability	Required AIDC/OLDI Interconnections	AIDC/OLDI Implementation	Remarks
1	*2*	*3*	*4*	*4*	*5**	*6*	*7*
Bahrain	Y	Y		Y	5	1	connection with ABU Dhabi
Egypt	Y	Y		Y	4	1	
Iran	Y	N		Y	4	0	Contract signed for AMHS
Iraq	N	N		N	2	0	Thales Topsky ATM system
Jordan	Y	Y		Y	2	0	
Kuwait	Y	Y		Y	2	0	
Lebanon	Y	Y		Y	1	0	
Libya	Y	N		Y	0	0	0Contract signed for AMHS
Oman	Y	Y		Y	4	1	
Qatar	Y	Y		Y	2	1	local implementation for OLDI
Saudi Arabia	Y	Y		Y	7	2	local implementation for AIDC
Sudan	Y	Y		Y	4	0	
Syria	N	N		N	0	0	
UAE	Y	Y		Y	4	3	
Yemen	N	N		N	0	0	Contract signed for AMHS
Total Percentage / Number	**80%**	**67%**		**80%**	**42**	**9 (21%)**	

B0 – DATM: Service Improvement through Digital Aeronautical Information Management

Description and purpose

The initial introduction of digital processing and management of information, through aeronautical information service (AIS)/aeronautical information management (AIM) implementation, use of aeronautical information exchange model (AIXM), migration to electronic aeronautical information publication (AIP) and better quality and availability of data

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	N	Y	Y	Y

Applicability consideration:
Applicable at State level, with increased benefits as more States participate

B0 – DATM: Service Improvement through Digital Aeronautical Information Management				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
AIXM	All States	Indicator: % of States that have implemented an AIXM-based AIS database Supporting Metric: Number of States that have implemented an AIXM-based AIS database	80%	Dec. 2018
eAIP	All States	Indicator: % of States that have implemented an IAID driven AIP Production (eAIP) Supporting Metric: Number of States that have implemented an IAID driven AIP Production (eAIP)	80%	Dec. 2020
QMS	All States	Indicator: % of States that have implemented QMS for AIS/AIM Supporting Metric: Number of States that have implemented QMS for AIS/AIM	90%	Dec. 2018
WGS-84	All States	Indicator: % of States that have implemented WGS-84 for horizontal plan (ENR, Terminal, AD) Supporting Metric: Number of States that have implemented WGS-84 for horizontal plan (ENR, Terminal, AD) Indicator: % of States that have implemented WGS-84 Geoid Undulation Supporting Metric: Number of States that have implemented WGS-84 Geoid Undulation	Horizontal: 100% Vertical: 90%	Dec. 2018 Dec. 2018

Agreement with data originators	All States	Indicator: % of States that have signed Service Level Agreements (SLA) with at least 50% of their AIS data originators Supporting Metric: Number of States that have signed Service Level Agreements (SLA) with at least 50% of their AIS data originators	80%	Dec. 2020

B0-DATM Enablers/Tables

In order to assist States in the planning for the transition from AIS to AIM in an expeditious manner, the following Tables, which provide more details than the standard ANRF, should be used:

1- **Table B0-DATM 3-1** sets out the requirements for the Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID). It reflects the transition from the current product centric AIS to data centric AIM. For the future digital environment it is important that the authoritative databases are clearly designated and such designation must be published for the users. This is achieved with the concept of the Integrated Aeronautical Information Database (IAID), a single access point for one or more authoritative databases (AIP, Terrain, Obstacles, AMDB, etc) for which the State is responsible. This Table will be used for the monitoring of the Key Performance Indicators (KPIs) related to elements Nr. 1 and 2 of the Module B0-DATM.

2- **Table B0-DATM 3-2** sets out the requirements for aeronautical data quality. It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 3 of the Module B0-DATM.

3- **Table B0-DATM 3-3** sets out the requirements for the implementation of the World Geodetic System – 1984 (WGS-84).The requirement to use a common geodetic system remains essential to facilitate the exchange of data between different systems. The expression of all coordinates in the AIP and charts using WGS-84 is an important first step for the transition to AIM. This Table will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 4 of the Module B0-DATM.

4- **Table B0-DATM 3-4-1** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 1 and Area 4. It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 5 of the Module B0-DATM.

5- **Table B0-DATM 3-4-2** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 2. It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 5 of the Module B0-DATM.

6- **Table B0-DATM 3-4-3** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 3 and implementation of Airport Mapping Databases (AMDB). It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 5 of the Module B0-DATM.

Table B0-DATM 3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which the provision of AIS/AIM products and services based on the IAID is required.

2 Requirement for the implementation and designation of the authoritative IAID, shown by:
FI – Fully Implemented
NI – Not Implemented
Note 1 — The IAID of a State is a single access point for one or more databases (AIP, Terrain, Obstacles, AMDB, etc). The minimum set of databases which should be integrated is defined in Annex 15.
Note 2 — The information related to the designation of the authoritative IAID should be published in the AIP (GEN 3.1)

3 Requirement for an IAID driven AIP production, shown by:
FI – Fully Implemented (eAIP: Text, Tables and Charts)
PI – Partially Implemented
NI – Not Implemented
Note 3 — AIP production includes, production of AIP, AIP Amendments and AIP Supplements
Note 4 — Charts' GIS-based database should be interoperable with AIP database

4 Requirement for an IAID driven NOTAM production, shown by:
FC – Fully Compliant
NC – Not Compliant

5 Requirement for an IAID driven SNOWTAM processing, shown by:
FI – Fully Implemented
NI – Not Implemented

6 Requirement for an IAID driven PIB production, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

7 Requirement for Procedure design systems to be interoperable with the IAID, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
Note 5 — full implementation includes the use of the IAID for the design of the procedures and for the storage of the encoded procedures in the IAID

8 Requirement for ATS systems to be interoperable with the IAID, shown by:
FI – Fully Implemented
PI – Partially Implemented

NI – Not Implemented

9 Action Plan — short description of the State's Action Plan with regard to the provision of AIM products and services based on the IAID, especially for items with a "PC", "PI", "NC" or "NI" status, including planned date(s) of full compliance, as appropriate.

10 Remarks — additional information, including detail of "PC", "NC", "PI" and "NI", as appropriate.

TABLE B0-DATM-3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

State	IAID	AIP	NOTAM	SNOWTAM	PIB	Procedure Design	ATS	Action Plan	Remarks
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
BAHARAIN	FI	FI	FC	FI	FC	PI	FI		**AIXM:** 5.1
EGYPT	FI	PI	FC	FI	FC	NI	PI		**AIXM:** 5.1 3 and 7 by2018
IRAN, ISLAMIC REPUBLIC OF	NI	NI	NC	NI	NC	NI	NI		**AIXM:** NI Separate semi-automated NOTAM/SNOWTAM system is operative
IRAQ	NI	NI	NC	NI	NC	NI	NI		**AIXM:** NI
JORDAN	NI	NI	FC	NI	FC	NI	NI		**AIXM:** database through EAD
KUWAIT	NI	NI	FC	NI	PC	NI	NI		**AIXM:** NI (5.1 in progress)
LEBANON	NI	NI	NC	NI	NC	NI	NI		**AIXM:** 4.5
LIBYA	NI	NI	NC	NI	NC	NI	NI		**AIXM:** NI
OMAN	NI	NI	NC	NI	NC	NI	NI		**AIXM:** NI (5.1 in progress)
QATAR	NI	PI	FC	NI	FC	PI	NI	Q4/2017 – Data Integration (AIP, Terrain, Obstacle, Procedure Design and AMDB)	**AIXM:** 5.1
SAUDI ARABIA	FI	FI	NC	NI	PC	FI	FI	AIXM 5.1 & NOTAM: 2019	**AIXM:** 4.5
SUDAN	NI	NI	FC	NI	FC	PI	PI		**AIXM:** NI
SYRIAN ARAB REPUBLIC	NI	NI	NC	NI	NC	NI	NI	No Action Plan	**AIXM:** NI
UNITED ARAB EMIRATES	NI	FI	NC	NI	PC	NI	PI	AMDB: 2016-2021; PIB: AVBL at OMAA, OMDB, OMDW, OMFJ, other ADs 2020; Procedure Design 2020; ATS: ACC AVBL, ADs 2020 Digital NOTAM: 2016-2021	**AIXM:** 5.1
YEMEN	NI	NI	NC	NI	NC	NI	NI	No Action Plan	**AIXM:** NI

Table B0-DATM-3-2
Aeronautical Data Quality

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 Compliance with the requirement for implementation of QMS for Aeronautical Information Services including safety and security objectives, shown by:

FC – Fully compliant

NC – Not compliant

3 Compliance with the requirement for the establishment of formal arrangements with approved data originators concerning aeronautical data quality, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

4 Implementation of digital data exchange with originators, shown by:

FI – Implemented

PI – Partially Implemented

NI – Not implemented

Note 1 — Information providing detail of "PI" and "NI" should be given in the Remarks column (percentage of implementation).

5 Compliance with the requirement for metadata, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

6 Compliance with the requirements related to aeronautical data quality monitoring (accuracy, resolution, timeliness, completeness), shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

7 Compliance with the requirements related to aeronautical data integrity monitoring, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

8 Compliance with the requirements related to the AIRAC adherence, shown by:

FC – Fully compliant

NC – Not compliant

9 Action Plan — short description of the State's Action Plan with regard to aeronautical data quality requirements implementation, especially for items with a "PC", "PI", "NC" or "NI" status, including planned date(s) of full compliance, as appropriate.

10 Remarks — additional information, including detail of "PC", "NC", "PI" and "NI", as appropriate.

TABLE B0-DATM-3-2
Aeronautical Data Quality

State	QMS	Establishment of formal agreements	Digital data exchange with originators	Metadata	Data quality monitoring	Data integrity monitoring	AIRAC adherence	Action Plan	Remarks
1	2	3	4	5	6	7	8	9	10
BAHARAIN	FC	PC	PI	FC	FC	FC	FC		
EGYPT	FC	PC	PI	FC	PC	PC	FC	3, 4, 6 and 7 by 2018	
IRAN, ISLAMIC REPUBLIC OF	FC	PC	NI	NC	FC	FC	FC		
IRAQ	NC	NC	NI	NC	NC	NC	FC		
JORDAN	FC	PC	NI	FC	FC	FC	FC		
KUWAIT	FC	PC	NI	NC	NC	NC	FC		
LEBANON	NC	PC	NI	PC	PC	PC	FC		
LIBYA	NC	NC	NI	NC	NC	NC	NC	No Action Plan	
OMAN	NC	NC	NI	NC	PC	PC	FC		
QATAR	FC	PC	PI	FC	PC	PC	FC		
SAUDI ARABIA	FC	FC	NI	FC	FC	FC	FC	4: 2019	
SUDAN	FC	FC	NI	NC	FC	FC	FC		
SYRIAN ARAB REPUBLIC	NC	NC	NI	NC	NC	NC	NC	No Action Plan	
UNITED ARAB EMIRATES	FC	PC	PI	FC	FC	FC	FC	4: implemented for some of internal stakeholders. Completion by 2020	
YEMEN	NC	NC	NI	PC	NC	NC	NC	No Action Plan	

Table B0-DATM-3-3

World Geodetic System-1984 (WGS-84)

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which implementation of WGS-84 is required.

2 Compliance with the requirements for implementation of WGS-84 for FIR and Enroute points, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

3 Compliance with the requirements for implementation of WGS-84 for Terminal Areas (arrival, departure and instrument approach procedures), shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

4 Compliance with the requirements for implementation of WGS-84 for Aerodrome, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

5 Compliance with the requirements for implementation of Geoid Undulation, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

6 Action Plan — short description of the State's Action Plan with regard to WGS-84 implementation, especially for items with a "PC", "PI", "NC" or "NI" status, including planned date(s) of full compliance, as appropriate.

7 Remarks — additional information, including detail of "PC" and "NC", as appropriate.

TABLE B0-DATM-3-3
World Geodetic System-1984 (WGS-84)

State	FIR/ENR	Terminal	AD	GUND	Action Plan	Remarks
1	2	3	4	5	6	7
BAHARAIN	FC	FC	FC	FC		
EGYPT	FC	FC	FC	FC		
IRAN, ISLAMIC REPUBLIC OF	FC	FC	FC	FC		
IRAQ	FC	FC	FC	NC		
JORDAN	FC	FC	FC	FC		
KUWAIT	FC	FC	FC	FC		Last survey FEB 2015
LEBANON	FC	FC	FC	FC		
LIBYA	PC	PC	NC	NC	No Action Plan	
OMAN	FC	FC	FC	FC		
QATAR	FC	FC	FC	FC		Annual Validation/Survey
SAUDI ARABIA	FC	FC	FC	FC		
SUDAN	FC	FC	FC	FC		
SYRIAN ARAB REPUBLIC	FC	FC	FC	NC	No Action Plan	
UNITED ARAB EMIRATES	FC	FC	FC	FC		
YEMEN	FC	FC	FC	FC		

Table B0-DATM-3-4-1
Provision of Terrain and Obstacle data sets for Areas 1 and 4

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacle data sets for Areas 1 and 4 are required.

2 Compliance with requirement for the provision of Terrain data sets for Area 1, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

3 Compliance with requirement for the provision of Terrain data sets for Area 4, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant
N/A – Not Applicable

4 Compliance with requirement for the provision of Obstacle data sets for Area 1, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

5 Compliance with requirement for the provision of Obstacle data sets for Area 4, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant
N/A – Not Applicable

6 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Areas 1 and 4, especially for items with a "PC" or "NC" status, including planned date(s) of full compliance, as appropriate.

7 Remarks— additional information, including detail of "PC" and "NC", as appropriate.

TABLE B0-DATM-3-4-1

Provision of Terrain and Obstacle data sets for Areas 1 and 4

State	Terrain data sets		Obstacle data sets		Action Plan	Remarks
	Area 1	Area 4	Area 1	Area 4		
1	2	3	4	5	6	7
BAHARAIN	FC	FC	FC	FC		
EGYPT	FC	FC	NC	NC	Completion of area 4: Dec. 2019	
IRAN, ISLAMIC REPUBLIC OF	FC	FC	FC	FC		
IRAQ	NC	NC	NC	NC		
JORDAN	PC	FC	PC	FC		
KUWAIT	FC	FC	FC	FC		
LEBANON	NC	N/A	NC	N/A	2 & 4: Q2-2019	
LIBYA	NC	N/A	NC	N/A		
OMAN	NC	N/A	NC	N/A		
QATAR	FC	FC	FC	FC		
SAUDI ARABIA	FC	FC	FC	FC		
SUDAN	NC	N/A	NC	N/A		
SYRIAN ARAB REPUBLIC	NC	N/A	NC	N/A	No Action Plan	
UNITED ARAB EMIRATES	PC	FC	PC	FC		
YEMEN	NC	N/A	NC	N/A	No Action Plan	

Table B0-DATM-3-4-2
Provision of Terrain and Obstacle data sets for Area 2

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacle data sets for Area 2 are required.

2 Compliance with requirement for the provision of Terrain data sets for Area 2a, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

3 Compliance with requirement for the provision of Terrain data sets for Area 2b, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not implemented
N/A – Not Applicable

4 Compliance with requirement for the provision of Terrain data sets for Area 2c, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

5 Compliance with requirement for the provision of Terrain data sets for Area 2d, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

6 Compliance with requirement for the provision of Obstacle data sets for Area 2a, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

7 Compliance with requirement for the provision of Obstacle data sets for Area 2b, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not implemented
N/A – Not Applicable

8 Compliance with requirement for the provision of Obstacle data sets for Area 2c, shown by:
FI – Fully Implemented

PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

9 Compliance with requirement for the provision of Obstacle data sets for Area 2d, shown by:

FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

10 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 2, especially for items with a "PC", "PI", "NC" or "NI" status.

11 Remarks— additional information, including detail of "PC", "PI" and "NC", "NI", as appropriate.

TABLE B0-DATM-3-4-2

Provision of Terrain and Obstacle data sets for Area 2

State	Terrain data sets				Obstacle data sets				Action Plan	Remarks
	Area 2a	Area 2b	Area 2c	Area 2d	Area 2a	Area 2b	Area 2c	Area 2d		
1	2	3	4	5	6	7	8	9	10	11
BAHARAIN	NC	NI	NI	NI	FC	FI	FI	FI		
EGYPT	PC	PI	PI	PI	NC	NI	NI	NI	To be completed by 2020	
IRAN, ISLAMIC REPUBLIC OF	FC	FI	FI	FI	FC	FI	FI	FI		
IRAQ	NC	NI	NI	NI	NC	NI	NI	NI		
JORDAN	PC	PI	PI	NI	PC	PI	PI	NI		Area 2a, 2b and 2c implemented for OJAI RWY 26R/08L
KUWAIT	NC	NI	NI	NI	NC	NI	NI	NI		
LEBANON	NC	NI	NI	NI	NC	NI	NI	NI	To be completed by Q4-2019	
LIBYA	NC	NI	NI	NI	NC	NI	NI	NI	No Action Plan	
OMAN	NC	NI	NI	NI	NC	NI	NI	NI		
QATAR	FC	FI	FI	FI	FC	FI	FI	FI		
SAUDI ARABIA	NC	NI	NI	NI	NC	NI	NI	NI	To be completed by 2020	
SUDAN	NC	NI	NI	NI	NC	NI	NI	NI		
SYRIAN ARAB REPUBLIC	NC	NI	NI	NI	NC	NI	NI	NI	No Action Plan	
UNITED ARAB EMIRATES	NC	NI	NI	PI	FC	FI	FI	PI	To be completed by 2020	TOD Area 2 (all sub-areas) survey & data acquisition through international airport service providers
YEMEN	NC	NI	NI	NI	NC	NI	NI	NI	No Action Plan	

Table B0-DATM-3-4-3
Provision of Terrain and Obstacle data sets for Area 3 and Airport Mapping Databases (AMDB)

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacle data sets for Area 3 and AMDB are required.

2 Compliance with requirement for the provision of Terrain data sets for Area 3, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

3 Compliance with requirement for the provision of Obstacle data sets for Area 3, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

4 Implementation of AMDB, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

5 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 3 and AMDB implementation, especially for items with a "PC", "PI", "NC" or "NI" status.

6 Remarks— additional information, including detail of "PI" and "NI", as appropriate.

TABLE B0-DATM-3-4-3

Provision of Terrain and Obstacle data sets for Area 3 and Airport Mapping Databases (AMDB)

State	Terrain data sets (Area 3)	Obstacle data sets (Area 3)	AMDB	Action Plan	Remarks
1	2	3	4	5	6
BAHARAIN	NI	FI	NI	To be completed by 2021	
EGYPT	NI	NI	NI	To be completed by 2020	
IRAN, ISLAMIC REPUBLIC OF	FI	FI	NI	No Action Plan	
IRAQ	NI	NI	NI		
JORDAN	PI	PI	NI		Area 3 implemented for OJAI RWY 26R/08L
KUWAIT	FI	FI	NI		
LEBANON	NI	NI	NI	Area 3: Q4-2019 AMDB: no plan	
LIBYA	NI	NI	NI	No Action Plan	
OMAN	NI	NI	NI		
QATAR	FI	PI	PI	Q4/2017 AMDB implementation	
SAUDI ARABIA	NI	NI	NI	No Action Plan	
SUDAN	NI	NI	NI		
SYRIAN ARAB REPUBLIC	NI	NI	NI	No Action Plan	
UNITED ARAB EMIRATES	FI	FI	NI	AMDB: completed by 2021	AMDB technical infrastructure (metadata, model) implemented in IAID, pending compatibility analysis AIXM 5.1 with revised AMDB model (RTCA DO-272D) when released.
YEMEN	NI	NI	NI	No Action Plan	

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety

Description and purpose

Global, regional and local meteorological information:

a) forecasts provided by world area forecast centres (WAFC), volcanic ash advisory centres (VAAC) and tropical cyclone advisory centres (TCAC);
b) aerodrome warnings to give concise information of meteorological conditions that could adversely affect all aircraft at an aerodrome including wind shear; and
c) SIGMETs to provide information on occurrence or expected occurrence of specific en-route weather phenomena which may affect the safety of aircraft operations and other operational meteorological (OPMET) information, including METAR/SPECI and TAF, to provide routine and special observations and forecasts of meteorological conditions occurring or expected to occur at the aerodrome.

This module includes elements which should be viewed as a subset of all available meteorological information that can be used to support enhanced operational efficiency and safety.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	Y

Applicability consideration:

Applicable to traffic flow planning, and to all aircraft operations in all domains and flight phases, regardless of level of aircraft equipage.

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
SADIS FTP	All States	Indicator: % of States having implemented SADIS FTP service Supporting Metric: Number of States having implemented SADIS FTP service	100%	Dec. 2018
QMS	All States	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	80%	Dec. 2018
SIGMET	All States with MWOs in MID Region	Indicator: % of States having implemented SIGMET Supporting metric: number of States having implemented SIGMET	100%	Dec. 2018
OPMET	All States	Indicator: % of States having implemented METAR and TAF Supporting metric: number of States having implemented METAR and TAF	95%	Dec. 2018
WIND SHEAR	TBD	Indicator: TBD Supporting metric: TBD	TBD	TBD

Table B0-AMET 3-1

SADIS FTP

EXPLANATION OF THE TABLE

Column

1 Name of the State
2 Status of implementation of SADIS FTP, where:
Y – Yes, implemented
N – No, not implemented
3 Action Plan
4 Remarks

State	Status	Action Plan	Remarks
1	2	3	4
BAHRAIN	Y		
EGYPT	Y		
IRAN (ISLAMIC REPUBLIC OF)	N	No Action Plan	
IRAQ	Y		
JORDAN	Y		
KUWAIT	Y		
LEBANON	N	No Action Plan	
LIBYA	~~Y~~N		
OMAN	Y		
QATAR	Y		
SAUDI ARABIA	Y		
SUDAN	Y		
SYRIAN ARAB REPUBLIC	N	No Action Plan	
UNITED ARAB EMIRATES	Y		
YEMEN	Y		

Table B0-AMET 3-2

Volcanic Ash Advisory Centers

Not Applicable

Table B0-AMET 3-3

Tropical Cyclone Advisory Centers

Not Applicable

Table B0-AMET 3-4

Quality Management System

EXPLANATION OF THE TABLE

Column

1 Name of the State

2, 3, 4, 5 Status of implementation of Quality Management System of meteorological information – QMS: not started/ planning, ongoing/ partially implemented, Implemented/ISO 9001 Certified, Date of Certification.

6 Action Plan

7 Remarks

State	Not started/ planning	Ongoing/ partially implemented	Implemented/ ISO 9001 Certified		Action Plan	Remarks
			Status	Date of Certification		
1	2	3	4	5	6	7
BAHRAIN			√	2008		
EGYPT			√	23 May 2012		Recertification: May 2015
IRAN, ISLAMIC REPUBLIC OF			√	Oct 2015		
IRAQ	√				No Action Plan	
JORDAN			√	2 Apr 2014		Recertification: 14 April 2017
KUWAIT			√	23 Aug 2013		Recertification: 22 Aug 2016
LEBANON	√				No Action Plan	
LIBYA	√				No Action Plan	
OMAN		√			TBD	
QATAR			√	Dec 2011		
SAUDI ARABIA			√	Aug 2014		
SUDAN			√	5 June 2014		
SYRIAN ARAB REPUBLIC	√				No Action Plan	
UNITED ARAB EMIRATES			√	19 Dec 2012		Recertification: 18 Dec 2015
YEMEN	√				No Action Plan	

Table B0-AMET 3-5
SIGMET Availability

EXPLANATION OF THE TABLE

Column

1 Name of the State
2 Status of implementation of SIGMET, where:
Y – Yes, implemented (at least one SIGMET received within a 5 month monitoring period, or as required)
N – No, not implemented (no SIGMET received within a 5 month monitoring period)
3 Status of implementation of SIGMET format, where:
Y – Yes, implemented (at least 95% of received SIGMET messages reveal the correct format (TTAAii CCCC in accordance to the MID SIGMET Guide; ATSU, MWO, FIR and FIR name in accordance to ICAO Doc 7910) for the first two lines of SIGMET)
N – No, not implemented (less than 95% of received SIGMET messages reveal the correct format for the first two lines of SIGMET)
4 Action Plan
5 Remarks

State	Implementation		Action Plan	Remarks
	SIGMET Reception	SIGMET Format		
1	2	3	4	5
BAHRAIN	Y	Y		
EGYPT	Y	Y		
IRAN, ISLAMIC REPUBLIC OF	Y	Y		
IRAQ	Y	Y		Verify the header for Iraq is WSIQ01 ORBI for FIR ORBB – if so, update to MID Doc 009
JORDAN	Y	Y		
KUWAIT	Y	Y		
LEBANON	Y	Y		
LIBYA	Y	N		Indicators HLMC for MWO and HLLL for FIR are not defined in ICAO Doc 7910
OMAN	Y	Y		
QATAR	N/A	N/A		These fields are not applicable to Qatar
SAUDI ARABIA	Y	Y		
SUDAN	Y	Y		
SYRIAN ARAB REPUBLIC	N	N	No Action Plan	
UNITED ARAB EMIRATES	Y	Y		
YEMEN	N	N	No Action Plan	

Draft Table B0-AMET 3-6

~~Draft~~ OPMET Availability (METAR and TAF)

EXPLANATION OF THE TABLE

Column

1 Name of the State

2, 3 Status of availability of METAR and TAF for AOP aerodromes, where:

Y – Yes, implemented (95% availability of required METAR within a State; 95% availability of required TAF within a State)

N – No, not implemented

4 Remarks

State	Implementation		Remarks
	METAR	TAF	
1	2	3	4
BAHRAIN	Y	Y	
EGYPT	Y	Y	
IRAN, ISLAMIC REPUBLIC OF	Y	Y	
IRAQ	N	N	METAR and TAF needed for ORBM
JORDAN	Y	Y	
KUWAIT	Y	Y	
LEBANON	Y	Y	
LIBYA	Y	Y	
OMAN	Y	Y	
QATAR	Y	Y	
SAUDI ARABIA	Y	Y	
SUDAN	Y	Y	
SYRIAN ARAB REPUBLIC	N	N	METAR &TAF needed for OSAP
UNITED ARAB EMIRATES	Y	Y	
YEMEN	N	N	METAR & TAF needed for OYAA, OYHD, OYRN, OYSN and OYTZ

Table B0-AMET 3-7
WIND SHEAR Availability

TBD

B0 – FRTO: Improved Operations through Enhanced En-Route Trajectories

Description and purpose

To allow the use of airspace which would otherwise be segregated (i.e. special use airspace) along with flexible routing adjusted for specific traffic patterns. This will allow greater routing possibilities, reducing potential congestion on trunk routes and busy crossing points, resulting in reduced flight length and fuel burn.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	N/A

Applicability consideration:

Applicable to en-route and terminal airspace. Benefits can start locally. The larger the size of the concerned airspace the greater the benefits, in particular for flex track aspects. Benefits accrue to individual flights and flows. Application will naturally span over a long period as traffic develops. Its features can be introduced starting with the simplest ones.

B0 – FRTO: Improved Operations through Enhanced En-Route Trajectories				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
Flexible Use of Airspace (FUA) Level 1 Strategic	All States	Indicator: % of States that have implemented FUA Level 1 Supporting metric*: number of States that have implemented FUA Level 1	50%	Dec. 2019
FUA Level 2 Pre-tactical	All States	Indicator: % of States that have implemented FUA Level 2 Supporting metric*: number of States that have implemented FUA Level 2	60%	Dec. 2020
FUA Level 3 Tactical	All States	Indicator: % of States that have implemented FUA Level 3 Supporting metric*: number of States that have implemented FUA Level 3	60%	Dec. 2022

Table B0-FRTO 3-1

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Status of implementation of Flexible Use of Airspace (FUA) Level 1-Strategic.

3 Status of implementation of Flexible Use of Airspace (FUA) Level 2-Pre-tactical

4 Status of implementation of Flexible Use of Airspace (FUA) Level 3-Tactical

Implementation should be based on the published aeronautical information:

FI – Fully Implemented

PI – Partially Implemented

NI – Not Implemented

5 Remarks

Applicability State	FUA Level 1	FUA Level 2	FUA Level 3	Remarks
1	2	3	4	5
Bahrain				
Egypt				
Iran				
Iraq				
Jordan				
Lebanon				
Libya				
Kuwait				
Oman				
Qatar				
Saudi Arabia				
Sudan				
Syria				
Unite Arab Emirates				
Yemen				
Total				
Percentage				

B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view

Description and purpose

Air Traffic Flow Management (ATFM) is used to manage the flow of traffic in a way that minimizes delay 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 crisis caused by human or natural phenomena.

Experience clearly shows the benefits related to managing flows consistently and collaboratively over an area of a sufficient geographical size to take into account sufficiently well the network effects. The concept for ATFM and demand and capacity balancing (DCB) should be further exploited wherever possible. System improvements are also about better procedures in these domains, and creating instruments to allow collaboration among the different actors**.**

Guidance on the implementation of ATFM service are provided in the ICAO Doc 9971– Manual on Collaborative
Air Traffic Flow Management

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	N/A

Applicability consideration:

Applicable to en-route and terminal airspace. Benefits can start locally. The larger the size of the concerned airspace the greater the benefits. Application will naturally span over a long period as traffic develops.

B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
ATFM Measures implemented in collaborative manner	All States	Indicator: % of States that have established a mechanism for the implementation of ATFM Measures based on collaborative decision Supporting metric: number of States that have established a mechanism for the implementation of ATFM Measures based on collaborative decision	100%	Dec. 2018
ATFM Structure	All States	Indicator: % of States that have established an ATFM Structure Supporting metric: number of States that have established an ATFM Structure	100 %	Dec. 2019

Table B0-NOPS 3-1

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Mechanism for the implementation of ATFM Measures based on collaborative decision:
Y –Implemented
N – Not Implemented

3 ATFM Structure/Functions:
Y –Implemented
N – Not Implemented

4 Remarks

Applicability State	Mechanism for the implementation of ATFM Measures based on collaborative decision	ATFM Structure/Functions	Remarks
1	2	3	4
Bahrain	Y		
Egypt			
Iran			
Iraq			
Jordan			
Lebanon			
Libya			
Kuwait			
Oman			
Qatar			
Saudi Arabia			
Sudan			
Syria			
UAE			
Yemen			
Total			
Percentage			

B0 – ACAS: ACAS Improvements

Description and purpose:

To provide short-term improvements to existing airborne collision avoidance systems (ACAS) to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory deviations and increase safety in cases where there is a breakdown of separation

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N/A	N/A	Y	N/A	Y

Applicability consideration:

Safety and operational benefits increase with the proportion of equipped aircraft.

B0 – ACAS: ACAS Improvements				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
Avionics (TCAS V7.1)	All States	Indicator: % of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons Supporting metric: Number of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons	100%	Dec. 2017

Table B0-ACAS 3-1

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Status of implementation:

Y – Fully Implemented

N – Not Implemented

3 National Regulation(s) Reference(s)

4 Remarks

State	Status	Regulation Reference	Effective Date	Remarks
1	2	3	4	5
Bahrain	Y	Aeronautical Circular AC/OPS/05/2015 dated 10th of March 2015		Air Navigation Technical Regulations (ANTR) updated to reflect Annex 10 (Volume IV) Reference needs to be provided http://www.mtt.gov.bh/content/caa-laws-and-regulations
Egypt	Y	ECAR Part 121.356 & ECAR Part 91.221		Egyptian Civil Aviation Regulation (ECAR) Parts 121 and 91 have been updated in accordance with the relevant provisions of ICAO Annex 10, Volume IV, Ch.4 http://www.civilaviation.gov.eg/Regulations/regulation.html
Iran	Y	Aeronautical Telecommunications bylaw, articles 3 and 4	1 Jan 2017	According to articles 3 and 4 of Iran aeronautical telecommunications by law, ratified by board of ministers, Airborne collision avoidance systems are categorized as aeronautical telecommunications systems and should be manufactured, installed and maintained according to standards of Annex 10. -Since no difference to ICAO annex 10 is notified, ACAS V 7.1 is mandatory according to provisions of annex 10 amendment 85. -Airworthiness directives issued by FAA and EASA shall to be implemented by Iranian AOC holders.
Iraq	N			

State	Status	Regulation Reference	Effective Date	Remarks
1	2	3	4	5
Jordan	Y	JCAR-OPS.1 (1.668 airborne collision avoidance system)	15 April 2015	
Kuwait	Y	Kuwait Civil Aviation Safety Regulations – Part 6 – Operation of Aircraft, Para. 6.20.4		
Lebanon	Y	Lebanese Aviation Regulations Part V subpart 6 605.12		http://dgca.gov.lb/index.php/en/pd-cat-8-lar6-en/file/72-part-vi-subpart-5-general-operating-and-flight-rules-new-2015
Libya	N			
Oman	Y	CAR-OPS 1, Subpart K, CAR-OPS 1.668-Airborne Collision Avoidance System		Regulation reference needs to be provided
Qatar	Y	QCAR – OPS 1, Subpart K, QCAR – OPS 1.668 – Airborne collision avoidance system QCAR Part 10 - Volume4 Chapter 4 Airborne Collision Avoidance System		References: http://www.caa.gov.qa/en/safety_regulations
Saudi Arabia	Y	GACAR PART 91 – Appendix C		
Sudan	Y	Amended Annex 10 (V4)- ANNESX 6 (V2)		According to adopted annexes to Sudan Regulations (SUCAR 10 V4 Par. 4.3.5.3.1 and SUCAR 6 V2 par 2.05.15)
Syria	N			
UAE	Y	CAR-OPS 1.668 Airborne Collision Avoidance System (See IEM OPS 1.668) and CAAP 29 and AIP 1.5.6.6	1 July 2011	https://www.gcaa.gov.ae/en/ePublication/Pages/CARs.aspx?CertD=CARs
Yemen	Y			Reference need to be provided

B0 – SNET: Increased Effectiveness of Ground-based Safety Nets

Description and purpose:

To enable monitoring of flights while airborne to provide timely alerts to air traffic controllers of potential risks to flight safety. Alerts from short-term conflict alert (STCA), area proximity warnings (APW) and minimum safe altitude warnings (MSAW) are proposed. Ground-based safety nets make an essential contribution to safety and remain required as long as the operational concept remains human centered.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N/A	N/A	Y	N/A	Y

Applicability consideration:

Benefits increase as traffic density and complexity increase. Not all ground-based safety nets are relevant for each environment. Deployment of this Module should be accelerated.

B0 – SNET: Increased Effectiveness of Ground-based Safety Nets				
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**	**Timelines**
Short-Term Conflict Alert (STCA)	All States	Indicator: % of States that have implemented Short-term conflict alert (STCA) Supporting metric*: number of States that have implemented Short-term conflict alert (STCA)	80 %	Dec. 2018
Minimum Safe Altitude Warning (MSAW)	All States	Indicator: % of States that have implemented Minimum safe altitude warning (MSAW) Supporting metric*: number of States that have implemented Minimum safe altitude warning (MSAW)	80 %	Dec. 2018

Table B0-SNET 3-1

EXPLANATION OF THE TABLE

Column

1 Name of the State and ATS Units within a State providing En-route and Approach services

2 En-route and Approach ATS Units providing Radar services: “R”

3 En-route and Approach ATS Units providing Procedural services: “P”

4 En-route and Approach ATS Units within a State providing radar services where Short-Term Conflict Alert (STCA) was implemented (Y/N or N/A)

5 En-route and Approach ATS Units within a State providing radar services where Minimum Safe Altitude Warning (MSAW)was implemented (Y/N or N/A)

6 Action Plan for the implementation of STCA and MSAW

7 Status of implementation of STCA and MSAW (reference to column 2)

State/ ATS Units (ENR & APP)	ATS		STCA	MSAW	Action Plan	Status
1	*2*	*3*	*4*	*5*	*6*	*7*
Bahrain	**2**	**0**	**2**	**2**		**STCA 100%**
Bahrain ACC	R		Y	Y		
Bahrain APP	R		Y	Y		**MSAW 100%**
Egypt	**7**	**1**				
Cairo ACC	R		Y	Y		
Alex APP	R		Y	Y		
Aswan APP	R		Y	Y		
Cairo APP	R		Y	Y		**STCA 100%**
Luxor APP	R		Y	Y		**MSAW 100%**
Hurghada APP	R		Y	Y		
Marsa APP		P	N/A	N/A		
Sharm APP	R		Y	Y		
Iran	**5**	**2**				
Tehran ACC	R		Y	Y		
Bandar Abbas APP		P	N/A	N/A		
Esfahan APP	R		Y	Y		**STCA 100%**
Mashhad APP	R		Y	Y		
Mehrabad APP	R		Y	Y		**MSAW 100%**
Shiraz APP	R		Y	Y		
Tabriz APP		P	N/A	N/A		

State/ ATS Units (ENR & APP)	ATS		STCA	MSAW	Action Plan	Status
1	*2*	*3*	*4*	*5*	*6*	*7*
Iraq	**2**	**0**				**STCA 100%**
Baghdad ACC	R		Y	Y		
Baghdad APP	R		Y	Y		**MSAW 100%**
Jordan	**2**	**1**				
Amman ACC	R		Y	Y		**STCA 100%**
Amman APP	R		Y	Y		**MSAW 100%**
Aqaba APP		P	N/A	N/A		
Kuwait	**2**	**0**				**STCA 100%**
Kuwait ACC	R		Y	Y		
Kuwait APP	R		Y	Y		**MSAW 100%**
Lebanon	**2**	**0**				**STCA 100%**
Beirut ACC	R		Y	Y		
Beirut APP	R		Y	Y		**MSAW 100%**
Libya	**0**	**4**				
Tripoli ACC		P	N/A	N/A		**STCA 0%**
Tripoli APP		P	N/A	N/A		
Benghazi Centre		P	N/A	N/A		**MSAW 0%**
Benghazi APP		P	N/A	N/A		
Oman	**3**	**0**				
Muscat ACC	R		Y	Y		**STCA 100%**
Seeb APP	R		Y	Y		**MSAW 100%**
Salalah APP	R		Y	Y		
Qatar	**1**	**0**				**STCA 100%**
Doha Radar	R		Y	Y		**MSAW 100%**
Saudi Arabia	**6**	**0**				
Jeddah ACC	R		Y	Y		
Riyadh ACC	R		Y	Y		**STCA 100%**
Jeddah APP	R		Y	Y		
Riyadh APP	R		Y	Y		**MSAW 100%**
Madina APP	R		Y	Y		
Damam APP	R		Y	Y		
Sudan	**2**	**3**				**STCA 100%**
Khartoum ACC	R		Y	Y		**MSAW 100%**

State/ ATS Units (ENR & APP)	ATS		STCA	MSAW	Action Plan	Status
1	*2*	*3*	*4*	*5*	*6*	*7*
Khartoum APP	R		Y	Y		
Elobeid APP		P	N/A	N/A		
Nyala APP		P	N/A	N/A		
Port Sudan APP		P	N/A	N/A		
Syria	**0**	**4**				
Damascus ACC		P				**STCA 0%**
Damascus ACC		P				
Aleppo APP		P				**MSAW 0%**
Latakia APP		P				
UAE	**7**	**0**	**6**	**6**		
SZC	R		Y	Y		
Al Ain APP	R		Y	Y		
Abu Dhabi Radar	R		Y	Y		**STCA 86%**
Al Maktoum APP	R		Y	Y		**MSAW 86%**
Dubai Radar	R		Y	Y		
Fujairah APP	R		Y	Y		
RAS AL KHAIMAH	R		N	N		
Yemen		**3**				
Sana'a ACC		P	N/A	N/A		**STCA 0%**
Aden APP		P	N/A	N/A		**MSAW 0%**
Sana'a APP		P	N/A	N/A		
Total	**41**	**18**	**40 Y**	**40 Y**		**STCA 97%**
Percentage			**18 N/A**	**18 N/A**		**MSAW 97%**

APPENDIX 4.6C

MID ANP Volume I (MET PART)

eANP proposed changes related to SADIS:

- update paragraph 2.1 of Volume I, Part V (MET) of eANP:
  - In the MID Region, WAFC London has been designated as the centre for the operation of the aeronautical fixed service ~~satellite distribution system / WAFS Internet File Service (SADIS and/or WIFS) and the Internet-based Secure SADIS FTP service~~ Secure Aviation Data Information Service (SADIS). The status of implementation of SADIS~~/WIFS~~ by States in the MID Region is detailed in Volume III.

- update paragraph 2.2 of Volume I, Part V (MET) of eANP:
  - In the MID Region, WAFS products in digital form should be disseminated by WAFC London using the ~~SADIS 2G satellite broadcast and the Secure SADIS FTP service and/or WIFS~~ Secure Aviation Data Information Service (SADIS).

APPENDIX 4.6D

MID ANP, VOLUME II (MET and CNS PARTS)

eANP proposed changes related to SADIS:

- update paragraph 2.1 b) of Volume II, Part III (CNS) of eANP:
  - meteorological operational circuits, networks and broadcast systems, including World Area Forecast System – Internet File Service (WIFS) and/or ~~Satellite Distribution System for Information Relating to Air Navigation~~ Secure Aviation Data Information Service (SADIS);

eANP proposed changes related to ROC:

- update paragraph 2.8 of Volume II, Part V (MET) of eANP:
  - Operational meteorological information prepared as METAR, SPECI and TAF for aerodromes indicated in **Table MET II-2**, and SIGMET messages prepared for flight information regions or control areas indicated in **Table MET II-1**, should be disseminated to the ~~international OPMET databanks~~ Regional OPMET Centres (ROC) designated for the MID Region (namely Jeddah and Bahrain (backup) Regional OPMET Centres). ~~and~~ The ROCs will take care of the further dissemination to the centre designated for the operation of the aeronautical fixed service ~~satellite distribution system (SADIS) and the Internet-based service (Secure SADIS FTP)~~ Secure Aviation Data Information Service (SADIS) ~~and/or WIFS~~ in the MID Region. The data will be forwarded to other international databanks and to the WIFS Provider State in accordance with regional OPMET data exchange schemes.

eANP proposed changes related to half-hourly METAR requirements:

- update paragraph 2.2 of Volume II, Part V (MET) of eANP (reference **MSG Conclusion 5/12** which was derived and adapted from **MET SG Draft Conclusion 6/4**):
  - In the MID Region, routine observations, issued as a METAR as indicated in Table MET II-2, should be made throughout the 24 hours of each day at intervals of one hour or, ~~for RS and AS designated aerodromes[1],~~ at intervals of one half-hour where warranted using criteria such as number of operations at an aerodrome, frequency of weather change and use of METAR in VOLMET ~~at aerodromes as indicated in Table MET II-2~~. For aerodromes included on the VHF VOLMET broadcast as indicated in Table MET II-3, routine observations, issued as METAR, should be made throughout the 24 hours of each day.

APPENDIX 5A

Deficiencies in the MET Field

BAHRAIN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

EGYPT

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

IRAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

[(1)] Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

IRAQ

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	-	O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2019	A
2	MID eANP VOL II, MET Table II-2	ORBM METAR and 24-hour TAF	ORBM METAR and 24-hour TAF not available internationally	Mar 2019	-	O	Proposed deficiency for MIDANPIRG/18 consideration	Iraq	Dec 2020	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

JORDAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

KUWAIT

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

LEBANON

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Lebanon	Dec 2019	A
2	Annex 3; Para 9.1.4, 9.3.1, 9.4.1 and Appendix 2, 2.1.1	WAFS forecasts required for briefing and flight documentation	SADIS FTP not available	May 2016	-	O	Corrective Action Plan has not been formally provided by the State	Lebanon	Dec 2019	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

LIBYA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Libya	Dec 2019	A
2	Annex 3; Para 9.1.4, 9.3.1, 9.4.1 and Appendix 2, 2.1.1	WAFS forecasts required for briefing and flight documentation	SADIS FTP not available	Jan 2019	-	O	Proposed deficiency for MIDANPIRG/18 consideration	Libya	Dec 2020	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

OMAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP-CMA finding)	O	Oman plans to begin the process of certification in 2020	Oman	Dec 2020	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

QATAR

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

SAUDI ARABIA

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

[(1)] Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

SUDAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

SYRIA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	MID eANP VOL II, MET Table II-2	OSAP METAR and 24-hour TAF	OSAP METAR and 24-hour TAF not available internationally	Nov 2013	-	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2019	A
2	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2019	A
3	Annex 3; Para 7.1	SIGMET Implementation	Non-Issuance of SIGMET information	Nov 2017	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2019	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

UAE

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

YEMEN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2019	A
2	Annex 3; Para 7.1	SIGMET Implementation	Non-issuance of SIGMET information	Nov 2017	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2019	A
3	MID eANP VOL II, MET Table II-2	OYAA, OYHD, OYRN, OYSN, OYTZ METAR and 24-hour TAF	OYAA, OYHD, OYRN, OYSN, OYTZ METAR and 24-hour (30-hour OYAA) TAF not available internationally	Mara 2019	-	O	Proposed deficiency for MIDANPIRG/18 consideration	Yemen	Dec 2020	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Note:* Priority for action to remedy a deficiency is based on the following safety assessments:

'U' priority = 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 = 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 = 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.

Definition:

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.

- END -

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

APPENDIX 6A

TERMS OF REFERENCE (TOR) OF METEOROLOGY SUB-GROUP (MET SG)

1. Terms of Reference

1.1 The terms of reference of the MET Sub-Group are:

a) ensure that the implementation of MET 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) methodology and the MID Region Air Navigation Strategy;

b) monitor the status of implementation of the MID Region MET-related ASBU Modules included in the MID Region Air Navigation Strategy as well as other required MET facilities and services, identify the associated difficulties and deficiencies and provide progress reports, as required;

c) keep under review the MID Region MET performance objectives/priorities, develop action plans to achieve the agreed performance targets and propose changes to the MID Region MET plans/priorities, through the ~~ANSIG~~MSG and MIDANPIRG;

d) seek to achieve common understanding and support from all stakeholders involved in or affected by the MET developments/activities in the MID Region;

e) provide a platform for harmonization of developments and deployments in the MET domain;

f) monitor and review the latest MET developments that support Air Navigation and provide expert inputs for the implementation of the Air Navigation Systems related to MET based on ATM operational requirements;

g) provide regular progress reports to the ~~ANSIG~~MSG and MIDANPIRG concerning its work programme; and

h) review periodically its Terms of Reference and propose amendments, as necessary.

1.2 In order to meet the Terms of Reference, the MET Sub Group shall:

a) monitor the status of implementation of the required MET facilities and services in the MID Region;

b) provide necessary assistance and guidance to States to ensure harmonization and interoperability in line with the GANP, the MID ANP and ASBU methodology;

c) provide necessary inputs to the MID Air Navigation Strategy through the monitoring of the agreed Key Performance Indicators related to MET;

d) identify and review those specific deficiencies and problems that constitute major obstacles to the provision of efficient MET services, and recommend necessary remedial actions;

e) keep under review the adequacy of ICAO SARPs requirements in the area of MET, taking into account, inter alia, changes in user requirements, the evolution of operational requirements and technological developments;

f) develop proposals for the updating of relevant ICAO documentation related to MET, including the amendment of relevant parts of the MID ANP, as deemed necessary;

g) monitor and review technical and operating developments in the area of MET and foster their implementation in the MID Region in a harmonized manner;

h) foster the integrated improvement of MET services through proper training and qualification of the MET personnel; and

i) liaise with other States providing services and/or serve as inter-regional exchange of meteorological information for international civil aviation (e.g. SADIS (U.K.), VAAC Toulouse (France), TCAC New Delhi (India), Regional OPMET Centre Vienna (Austria)).

2. COMPOSITION

2.1 The Sub-Group is composed of:

a) MIDANPIRG Member States;

b) World Meteorological Organization (WMO) and other concerned International and Regional Organizations as observers; and

c) other representatives from provider States and Industry may be invited on ad hoc basis, as observers, when required.

ATTACHMENT

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