INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE SIXTH MEETING OF THE MIDANPIRG COMMUNICATION, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MANAGEMENT/ IMPLEMENTATION COORDINATION SUB-GROUP

(CNS/ATM/IC SG/6)

(Cairo, Egypt, 31 January – 02 February 2012)

The views expressed in this Report should be taken as those of the CNS/ATM/IC SG Sixth Meeting 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 Sixth Meeting of the MIDANPIRG CNS/ATM/IC SG was held at the ICAO MID Regional Office in Cairo, Egypt, 31 January – 02 February 2012.

2. OPENING

2.1 Mr. Mohammed Khonji, ICAO Regional Director Cairo welcomed all participants and International Organizations attending the meeting, he highlighted the importance of this meeting indicating that, this meeting is following two events i.e the workshop on the ICAO Fuel Savings Estimation Tool (IFSET workshop) and the High Briefing on Aviation System Block Upgrade (ASBU), conducted just before this meeting in order to pave the way for the meeting to look closely on the operational improvement for the MID Region.

2.2 Mr. Khonji further informed the meeting about the Twelfth Air Navigation Conference (AN-Conf/12), to be held in Montreal giving some details on its contents, specifically the Aviation System Block Upgrades that were introduced to the international community at the Global Air Navigation Industry Symposium (GANIS) held at Montréal from 20-23 September 2011 and will consider the communication, navigation, surveillance, aeronautical information management (AIM) and avionics roadmaps for the Global Air Navigation Plan. Mr. Khonji concluded by wishing the meeting productive deliberations and outcome.

2.3 Mr. Waleed Madani, Manager Operation Planning ATM, General Authority of Civil Aviation, Saudi Arabia, the Chairperson also welcomed all the participants to the meeting and expressed his special thanks on behalf of State to ICAO HQ delegate for attending and supporting the meeting.

3. ATTENDANCE

3.1 The meeting was attended by a total of thirty four 34 participants, which included delegates from seven (7) States (Bahrain, Egypt, Iran, Jordan, Oman, Saudi Arabia and UAE) and three International Organizations (CANSO, IATA and IFALPA). The list of participants is at Attachment A.

4. OFFICERS AND SECRETARIAT

4.1 Mr. Waleed Madani, Manager Operation Planning ATM, General Authority of Civil Aviation, Saudi Arabia, Chaired the meeting, Mr. Mohamed Smaoui Regional Officer (ANS/AIM), Mr. Raza Gulam, Regional Officer/CNS, Mr. Saud Al Adhoobi, Regional Officer, (ATM/SAR) from the ICAO Middle East Office were the Secretaries of the meeting. Mr. Jehad Faqir, Deputy Regional Director, Mr. Adel Ramlawi, Regional Officer (AGA), from the ICAO Middle East Office, and Mr. Chris Dalton from ICAO HQ supported the meeting.

5. LANGUAGE

5.1 The discussions were conducted in English and documentation was issued in English.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1:	Adoption of the Provisional Agenda
Agenda Item 2:	Follow-up on the Outcome of MIDANPIRG/12 Meeting and DGCA-MID/1 Conclusions and Decisions relevant to the CNS/ATM Field
Agenda Item 3:	Air Navigation Global Developments - Global Air Navigation Industry Symposium (GANIS) - Operational Improvements - Aviation System Block Upgrades (ASBU) - Global Air Navigation Plan - Twelfth Air Navigation Conference (AN-Conf/12)
Agenda Item 4:	MID Region Air navigation performance based approach - MID Region Operational Improvements - MID Region Performance Framework - ICAO Fuel Savings Estimation Tool (IFSET) and Environment
Agenda Item 5:	Regional Air Navigation Planning and Implementation Issues - PBN / GNSS - ICAO New FPL
Agenda Item 6:	Review of the MID Air Navigation Plan (ANP)
Agenda Item 7:	Future Work Programme
Agenda Item 8:	Any other Business

7. CONCLUSIONS AND DECISIONS – DEFINITION

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

a) **Conclusions** deal with matters 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 CONCLUSIONS AND DECISIONS

DRAFT CONCLUSION 6/1:	NATIONAL PERFORMANCE FRAMEWORK
DRAFT DECISION 6/2:	ESTABLISHMENT OF THE AIR TRAFFIC MANAGEMENT MEASUREMENT TASK FORCE (ATMM TF)
DRAFT CONCLUSION 6/3:	ESTIMATING ENVIRONMENT BENEFITS
DRAFT CONCLUSION 6/4:	STATE ACTION PLANS FOR CO_2 EMISSION
DRAFT CONCLUSION 6/5:	MID REGIONAL PBN IMPLEMENTATION STRATEGY AND PLAN
DRAFT DECISION 6/6:	ESTABLISHMENT OF MID PBN SUPPORT TEAM (MPST)
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DRAFT CONCLUSION 6/13:	MID REGION PROCESS FOR MODE S IC CODES ALLOCATION
DRAFT CONCLUSION 6/14:	ALLOCATION OF 24 BIT AIRCRAFT ADDRESS
DRAFT DECISION 6/15:	ESTABLISHMENT OF THE MID AIR NAVIGATION PLAN AD-HOC WORKING GROUP (ANP WG)
DRAFT CONCLUSION 6/16:	ENDORSEMENT OF THE AIM PARTS OF THE MID BASIC ANP AND FASID

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

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

REPORT ON AGENDA ITEM 2: Follow-up on the outcome of MIDANPIRG/12 and DGCA-MID/1 Conclusions and Decisions

2.1 The meeting noted the status of the MIDANPIRG/12 Conclusions and Decisions and the follow up actions taken by States, the secretariat and other parties concerned as at **Appendix 2A** to the Report on Agenda Item 2. The meeting was apprised also of the DGCA-MID/1 Conclusions relevant to Air Navigation.

CNS/ATM/IC SG/6
Appendix 2A to the Report on Agenda Item 2

FOLLOW-UP ACTION PLAN ON MIDANPIRG/12 AND DGCA-MID/1 CONCLUSIONS AND DECISIONS

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC.12/1: ESTABLISHMENT OF RASGS – CONSEQUENT REVISION TO TOR OF MIDANPIRG That, the revised terms of reference of MIDANPIRG as at the **Appendix 3A** to the Report on Agenda Item 3 be adopted and reflected also in the MIDANPIRG Procedural Handbook	Implementation of the Conclusion	ICAO	Revised TOR	October 2010	**COMPLETED**
CONC. 12/2: INCREASING THE EFFICIENCY OF THE MIDANPIRG SUBSIDIARY BODIES That, with a view to maintain the continuity in the activity of the MIDANPIRG subsidiary bodies and increase their efficiency: a) States be invited to nominate for each MIDANPIRG subsidiary body Experts/Specialists as Members of the body concerned to fully contribute to the work of this body; and b) the specialists nominated for membership in a MIDANPIRG subsidiary body, act as focal points within their Civil Aviation Administration for all issues and follow-up activities related to the Work Programme of that body.	Implementation of the Conclusion	ICAO States	State Letter Nomination of Experts/Specialist	January 2011	Ongoing SL Ref.: ME 3/56 - 11/041 dated 7 March 2011 4 States replied
CONC. 12/3: UPDATE OF THE MIDANPIRG PROCEDURAL HANDBOOK That, the ICAO MID Regional Office: a) proceed with the amendment of concerned pages of the MIDANPIRG Procedural Handbook to reflect the changes approved by MIDANPIRG/12; and b) publish the updated version of the Handbook on the ICAO MID website before 31 December 2010.	Update the MIDANPIRG Procedural Handbook and post it on the web	ICAO	Fifth edition of the Procedural Handbook	January2011	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/4: REQUIREMENT FOR ICAO GUIDANCE ON AERODROME OPERATIONAL MANAGEMENT PROCEDURES That, an ICAO Guidance material on aerodrome operational management procedures is urgently requested as complementary to the implementation of the SARPs contained in Annex 14, Vol. I	Implementation of the Conclusion	ICAO	PANS-Aerodromes	2013	Ongoing
DEC. 12/5: ESTABLISHMENT OF AERODROME CERTIFICATION IMPLEMENTATION TASK FORCE That, an Aerodromes Certification Implementation Task Force (ADCI TF) be established in accordance with the agreed Terms of Reference (TOR):	Implementation of the Conclusion	MIDANPIRG/12	TF established	October 2010	Ongoing
DEC. 12/6: SURVEY ON AERODROME EMERGENCY PLAN AND EMERGENCY OPERATION CENTRE That, a) a survey on Aerodrome Emergency Plan and Emergency Operation Centre be conducted in the MID Region; and b) the result of the survey be analyzed by ICAO MID Regional Office and presented to AOP SG/8 for further course of actions as appropriate.	Implementation of the Conclusion	ICAO States AOP SG/8	State Letter AOP SG/8 Report	May 2011 December 2011	Ongoing SL Ref.: ME 3/56. 4- 11/275 dated 2 November 2011 4 States replied
CONC. 12/7: RUNWAY SAFETY That, a) ICAO to consider organizing a Seminar/Workshop on Runway Safety during the year 2011, with focus on runway excursion prevention measures; and b) MID States be encouraged to host the Seminar/Workshop.	Implementation of the Conclusion	ICAO	Conduct a Seminar	December 2011	Completed Regional Runway Safety Seminar scheduled 14-16 May 2012 in Amman, Jordan

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/8: QUALITY OF AERODROME AERONAUTICAL DATA AND COORDINATION BETWEEN AERODROME OPERATORS AND AIS That, a) ICAO to consider development of additional guidance on the implementation of quality requirements for protection and reporting aerodrome-related aeronautical data in accordance with the SARPs contained in Annex 14, Volume I; and b) MID States to ensure proper coordination with the Aeronautical Information Services and aerodrome authorities/operators for the timely transfer of aerodrome operational data through Service Level Agreements (SLA), worldwide best practices, etc	Implementation of the Conclusion	ICAO States	Guidance Material Service Letter Agreements (SLA) AOP SG/8 Report	December 2013 December 2011	Actioned (To be closed)
CONC. 12/9: RNAV 5 IMPLEMENTATION IN THE MID REGION That, States that have not yet done so, be urged to: a) update their AIP to change RNP 5 to RNAV 5; and b) take necessary measures to implement RNAV 5 area in the level band FL 160 - FL460 (inclusive).	Implementation of the Conclusion	ICAO States	State Letter update AIP Implement RNAV 5 (FL 160-FL460)	January 2011	Actioned SL Ref.: AN 6/29 – 10/432 dated 16 December 2010 AN 6/29 – 11/141 7 June 2011 (re-iterated)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/10: ALLOCATION OF FIVE-LETTER-NAME CODES IN THE MID REGION That, prior to 31 March 2011, States that have not yet done so: a) assign ICARD ATS Route Planners, in order to make use of the ICARD system and improve the process of allocation of 5LNCs; b) take necessary action in order for their designated ICARD Route Planner(s) to register to the ICAO ICARD 5LNC web-based System; c) review their list of allocated 5LNCs and identify the non-used, duplicate and non-ICAO 5LNCs, and inform the ICAO MID Regional Office accordingly for necessary action; d) release those allocated 5LNCs which were replaced and/or are no longer used; and e) update the ICARD database by adding the missing information (missing latitude and longitude coordinates, etc).	Implement the Conclusion	ICAO States	State Letter Assign ATS Route Planner. Register to ICAO ICARD Update ICARD	January 2011 March 2011	Actioned SL Ref.: AN 8/15.2 – 10/444 dated 22 December 2010 (To be closed)
CONC. 12/11: MEMBERSHIP OF THE MIDRMA That, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, Syria, UAE and Yemen committed themselves to participate in the MIDRMA project, through the signature of the Memorandum of Agreement (MOA).	Implement the Conclusion	MIDANPIRG/12	Signature of MOA MIDRMA Board/10 Report	October 2010	Completed
CONC. 12/12: MIDRMA FUNDING MECHANISM That, a) the activities of the MIDRMA be ensured through contributions from all MIDRMA Member States, which could be recovered in accordance with ICAO Policies on charges for Airports and Air Navigation Services (Doc 9082), in coordination with IATA; b) the MIDRMA Member States pay their contributions on a yearly basis not later than 1 November of each year based on the invoices issued by ICAO;	MIDRMA Board and ICAO to Follow-up implementation with concerned States	MIDANPIRG	Updated funding mechanism approved by MIDANPIRG/12	October 2010	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
c) ICAO ensure that the year of contribution is clearly indicated in the invoices related to the MIDRMA Project; d) The annual amounts to be paid by the MIDRMA Member States are, as follows: i) Bahrain, Egypt, Iran, Oman and Saudi Arabia annual contribution is US$ 30,000 each; and ii) Iraq, Jordan, Kuwait, Lebanon, Syria and Yemen annual contribution is US$ 10,000 each; e) UAE is exempted from the payment of contributions to the MIDRMA for the first ten (10) years of operation (up-to end of 2015); f) the MIDRMA Member States comply with the payment instructions contained in the invoices sent by ICAO HQ (Project code, fund number, invoice number, Bank information, etc); g) the budget estimate for the MIDRMA operation for each year be prepared/approved by the MIDRMA Board before 31 May of previous year; h) in case a MIDRMA Member State does not pay the contribution to the MIDRMA Project in a timely manner, the MIDRMA Board might consider to take penalty measures against this State (exclusion from the MID RVSM Safety Monitoring Report, review of the Membership, etc); i) the MIDRMA Board Chairman, in compliance with the Custodian Agreement and based on the agreed funding mechanism and the estimation of the yearly operating budget of the MIDRMA, be delegated the authority to certify on behalf of the MIDRMA Member States the requests for advance payment from the MIDRMA account managed by ICAO HQ to the MIDRMA Bank account in Bahrain, as decided by the MIDRMA Board;					

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
j) the bills related to the MIDRMA expenses be certified by the MIDRMA Board Chairman and reviewed by the MIDRMA Board at each of its meetings; and k) the MIDRMA funding mechanism be revised by the MIDRMA Board when necessary.					
CONC. 12/13: MIDRMA STAFFING That, in accordance with the MIDRMA Memorandum of Agreement (MOA): a) the MIDRMA staff is composed of local personnel provided by Bahrain, as follows: i) MIDRMA Manager/Team Leader (Part Time) ii) MIDRMA Officer (Full Time) b) the salaries of the MIDRMA staff are paid as monthly lump sums as follows: i) MIDRMA Manager/Team Leader (Part Time) (500 BD) ii) MIDRMA Officer (Full Time) (1,500 BD) c) the MIDRMA staff salaries be revised by the MIDRMA Board when necessary and as appropriate; and d) Bahrain is responsible of all administrative issues related to the MIDRMA staff, in coordination with the MIDRMA Board Chairman.	Bahrain and the MIDRMA Board to follow up implementation of the Conclusion	MIDANPIRG	MIDRMA staffing approved by MIDANPIRG/12	October 2010	Completed
DEC. 12/14: MID RVSM SCRUTINY GROUP That, the MID RVSM Scrutiny Group is established with Terms of Reference (TOR) as at **Appendix 5.2C** to the Report on Agenda Item 5.2	MIDRMA to organize Scrutiny Group meetings	MIDANPIRG	Establishment of the Scrutiny Group approved by MIDANPIRG/12	October 2010	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/15: AIRCRAFT WITHOUT CONFIRMED RVSM APPROVAL STATUS That, a) States and the MIDRMA be invited to take necessary measures to ban any aircraft without confirmed RVSM approval status from entering the RVSM airspace; b) States be urged to report any case of handover at an RVSM Flight Level of an aircraft without confirmed RVSM approval status from adjacent ACCs to the ICAO MID Regional Office and the MIDRMA; and c) the MID RVSM Programme Managers monitor and follow up this subject at the national level, in order to ensure the efficient implementation of a) and b) above.	Implement the Conclusion	ICAO MIDRMA States	State Letter Report aircraft with non confirmed RVSM approval status	January 2011 Ongoing	Completed SL Ref.: AN 6/5.10.15A – 11/086 dated 12 April 2011 (To be replaced and superseded by MIDRMA Board/11 Draft Conc. 11/9)
CONC. 12/16: MID RVSM SAFETY OBJECTIVES That, the safety assessment of RVSM operations in the MID Region be based on the following safety objectives: a) **Safety Objective 1**: The risk of collision in the MID RVSM airspace due solely to technical height-keeping performance meets the ICAO Target Level of Safety (TLS) of 2.5 x 10^{-9} fatal accidents per flight hour; b) **Safety Objective 2**: The overall risk of collision due to all causes which includes the technical risk and all risk due to operational errors and in-flight contingencies in MID RVSM airspace meets the ICAO overall TLS of 5 x 10^{-9} fatal accidents per flight hour; and c) **Safety Objective 3**: address any safety-related issues raised in the SMR by recommending improved procedures and practices; and propose safety level improvements to ensure that any identified serious or risk-bearing situations do not increase and, where possible, that they decrease. This should set the basis for a continuous assurance that the operation of RVSM will not adversely affect the risk of en-route mid-air collision over the years.	Follow up the implementation of the safety objectives	MIDRMA MIDANPIRG	SMR 2012	November 2011	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/17: MID REGION HEIGHT-KEEPING MONITORING STRATEGY That, the MID Region height-keeping monitoring Strategy is adopted as at **Appendix 5.2D** to the Report on Agenda Item 5.2.	The MIDRMA Board and the ATM/SAR/AIS SG to follow up Implementation of the Strategy	MIDANPIRG	Strategy approved by MIDANPIRG/12	October 2010	Completed (To be replaced and superseded by MIDRMA Board/11 Draft Conc. 11/10)
CONC. 12/18: MID RVSM SMR 2012 That, a) the FPL/traffic data for the period 1-31 January 2011 be used for the development of the MID RVSM Safety Monitoring Report (SMR 2012); b) only the appropriate Flight Data form available on the MIDRMA website (www.midrma.com) should be used for the provision of FPL/traffic data to the MIDRMA; and c) the draft version of the MID RVSM SMR 2012 be ready before 30 September 2011 for review by the ATM/SAR/AIS SG/12 meeting.	Implement the Conclusion	ICAO MIDRMA	State Letter Draft SMR	December 2010 September 2011	Actioned SL Ref.: AN 6/5.10.15A – 10/437 dated 19 December 2010 (To be closed)
DEC. 12/19: RVSM IMPLEMENTATION WITHIN BAGHDAD FIR That, the Baghdad FIR RVSM Implementation Working Group (BFRI WG) is delegated the authority to take the Go/No-Go Decision for RVSM implementation within Baghdad FIR.	Implement the Decision	BFRI WG	BFRI WG/2 Report Go/No-Go decision	January 2011	Completed
CONC. 12/20: FDPS SSRCA REQUIRED FUNCTIONALITY That, MID States be encouraged to consider the upgrade of their FDPSs to include the directional assignment capability in conjunction with ICAO New Flight Plan (INFPL) upgrade.	Implement the Conclusion	States	Upgrade of FDPS	November 2012	Actioned (To be closed)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/21: MID STRATEGY ON SSR CODE ALLOCATION ISSUES That, MID States adopt the MID strategy in order to improve the MID SSR Code Allocation System as at **Appendix 5.2H** to the Report on Agenda Item 5.2.	Implement the Conclusion	SSRCA SG	SSRCA SG/4 Report	September 2011	Actioned SLs dated 14 Dec. 2010 and 8 Jun 2011 (To be replaced and superseded by Draft Conc. 12/5)
CONC 12/22: SURVEY ON THE PROVISION OF SAR IN THE MID REGION That, a) the ICAO MID Regional Office send a State Letter with a questionnaire to all MID States, prior to 15 Jan 2011, to collect information on the status of implementation of SAR provisions in the MID Region and update the list of Air Navigation Deficiencies accordingly; b) States send their replies to the ICAO MID Regional Office prior to15 February 2011; and c) in case of non-receipt of reply by the agreed deadline, concerned States will be added to the list of Air Navigation Deficiencies for non-provisions of required SAR services.	Implement the Conclusion	ICAO and States	State Letter Reply to survey	15 January 2011 15 February 2011	Actioned SLs dated 16 Dec 2010 and 7 Jun 2011 (To be closed)
CONC. 12/23: SAR POINT OF CONTACT (SPOC) AND 406MHZ BEACON That, MID States: a) designate a national SAR Point of Contact; b) take appropriate action to establish a register for 406 MHz ELT and share the data with International 406 MHz Beacon Registration Database; c) designate to the Cospas-Sarsat Secretariat a SAR Point of Contact; and	Follow-up Implementation of Conclusion	ICAO States	State Letter Data base Beacon upgrades and registration Focal points	2011 2011	Actioned SLs dated 16 Dec 2010 and 7 June 2011 (To be closed)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
d) update the ICAO MID Regional Office on their implementation status.					
DEC. 12/24: DISSOLVE THE SAR AD-HOC WORKING GROUP (AWG) That, the SAR AWG be dissolved and the ATM/SAR/AIS SG is to follow the SAR requirements and issues.	Implement the Decision	MIDANPIRG/12	Dissolve WG	October 2010	Completed
CONC. 12/25: CIVIL/MILITARY COOPERATION That, in order to facilitate effective civil/military cooperation and joint use of airspace in accordance with ICAO provisions, and in support of the ICAO's vision for an integrated, harmonized and globally interoperable air traffic management system as laid out in the ATM Operational Concept and in the Global Air Navigation Plan, MID States that have not yet done so, be urged to: a) manage the airspace in a flexible manner with an equitable balance between civil and military users through strategic coordination and dynamic interaction, in order to open up segregated airspace when it is not being used for its originally-intended purpose and allow for better airspace management and access for all users according to their needs; b) develop necessary institutional arrangements to foster civil/military cooperation; and c) take steps and arrange as necessary for the Military authorities to be: i) fully involved in the airspace planning and management process; ii) aware of the new developments in civil aviation; and iii) involved in national, regional and international aviation meetings, workshops, seminars and training sessions, as appropriate.	Follow-up Conclusion Implementation	States	Input from States Involvement of military in civil airspace management processes Civil/military coordination and cooperation	November 2011 Ongoing Ongoing	Actioned SL AN6/13-11/137 Dated 2 June 2011 (Re-iterated)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/26: UNCOORDINATED FLIGHTS OVER THE RED SEA AREA That, the ICAO MID Regional Office process a Proposal for Amendment to the Supplementary Procedures (Doc 7030) in order to include the procedures to be followed by all civil uncoordinated flights and, to the extent practicable, by military aircraft operating over the Red Sea Area, as shown at **Appendix 5.2L** to the Report on Agenda Item 5.2.	Implement the Conclusion	ICAO	Amendment of Doc 7030	January 2011	Completed
CONC. 12/27: IMPROVEMENT OF THE ADHERENCE TO THE AIRAC SYSTEM That, in order to improve the adherence to the AIRAC System, States, that have not yet done so, be urged to: a) fully comply with the AIRAC procedures, in accordance with the provisions of Annex 15 and the MID Basic ANP Chapter VIII; c) organize awareness campaigns involving AIS and all technical Departments providing the raw data to the AIS for promulgation; and c) arrange for the signature of Service Level Agreements (SLA) between AIS and the data originators.	Implement the Conclusion	ICAO States	State Letter Feedback from States	February 2011 June 2011	Actioned SL dated 12 April 2011 (To be closed)
CONC. 12/28: eTOD CHECKLIST That, MID States be encouraged to use the eTOD checklist at **Appendix 5.3B** to the Report on Agenda Item 5.3 in order to assist them in the process of planning and implementation of the eTOD provisions.	Implement the Conclusion	ICAO States	State Letter Feedback from States	February 2011 June 2011	Completed SL Ref.: AN 8/2.4 – 11/094 dated 19 April 2011
CONC. 12/29: eTOD AWARENESS CAMPAIGNS That, for the sake of an efficient and harmonized implementation of eTOD, MID States be invited to organize, at the National Level and, to the extent possible co-operatively, awareness campaigns and training programmes (seminars, workshops, etc) to promote and expedite the process of eTOD implementation.	Implement the Conclusion	ICAO States	State Letter Feedback from States	February2011 June 2011	Actioned SL dated 19 April 2011 (To be closed)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DEC. 12/30: DISSOLUTION OF THE eTOD WORKING GROUP That, noting that the majority of the tasks assigned to the eTOD Working Group have been completed: a) the eTOD Working Group is dissolved; and b) the eTOD tasks which have not yet been completed be included into the Work Programme of the AIS/MAP Task Force.	Implement the Decision	MIDANPIRG/12	Dissolve eTOD WG	October 2010	Completed
CONC. 12/31: AWARENESS CAMPAIGNS AND TRAINING PROGRAMMES ON QMS That**,** MID States be invited to organize, at the National level, awareness campaigns and training programmes with the support of ICAO and the QMS Implementation Action Group (QMS AG), to promote and expedite the process of implementation of QMS for AIS.	Implement the Conclusion	ICAO States	State Letter Feedback from States	February 2011 June 2011	Actioned SL dated 12 April 2011 (Replaced and superseded by Draft Conc. 12/12)
DEC 12/32: TERMS OF REFERENCE OF THE QMS IMPLEMENTATION ACTION GROUP That, the Terms of Reference of the QMS Implementation Action Group (QMS AG) be updated as at **Appendix 5.3G** to the Report on Agenda Item 5.3.	Implement the Decision	MIDANPIRG	Updated TOR	October 2010	Completed
DEC.12/33: TERMS OF REFERENCE OF THE AIS AUTOMATION ACTION GROUP That, the Terms of Reference of the AIS Automation Action Group (AISA AG) be updated as at Appendix 5.3H to the Report on Agenda Item 5.3.	Implement the Decision	MIDANPIRG	Updated TOR	October 2010	Completed
CONC.12/34: TRANSITION FROM AIS TO AIM That, recognizing the limitations of the current AIS, which does not meet the new global ATM system requirements envisioned by the ATM Operational Concept, and taking into consideration the ICAO Roadmap for the transition from AIS to AIM:	Implement the Conclusion	ICAO States AIS/MAP TF	State Letter National Plans AIS/MAP TF/6 Report	February 2011 April 2011	Actioned SL Ref.: AN 8/4 – 11/091dated 14 April 2011 (To be closed)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
a) MID States, that have not yet done so, be urged to develop national plans to implement the transition from AIS to AIM and send them to the ICAO MID Regional Office before 31 March 2011; and b) the AIS/MAP Task Force monitor the progress of transition from AIS to AIM in the MID Region and supports regional and national planning.					
DEC. 12/35: PLANNING FOR THE TRANSITION FROM AIS TO AIM That, based on the ICAO Global ATM Operational Concept and the ICAO Roadmap for the transition from AIS to AIM, the AIS/MAP Task Force: a) develop performance goals for the transition from AIS to AIM in the MID Region and identify achievable Milestones; and b) carry out a review of the AIS parts of the MID Basic ANP and FASID in order to introduce/develop planning material related to the transition from AIS to AIM.	Implement the Decision	AIS/MAP TF	AIM Performance goals Draft Proposal for Amendment to the MID ANP (Part AIM)	October 2011	Actioned (To be closed)
CONC. 12/36: MID AIM SEMINAR That, with a view to provide States with a better understanding of the planning and implementation issues related to the transition from AIS to AIM: a) a MID AIM Seminar be organized in 2012; b) ICAO coordinate with Egypt for the hosting of the Seminar; and c) MID States be encouraged to participate actively in this event.	ICAO to follow up with Egypt for the organization of the Seminar	ICAO Egypt	Seminar	2012	Ongoing

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DEC. 12/37: TERMS OF REFERENCE OF THE AIS/MAP TASK FORCE That, the Terms of Reference and Work Programme of the AIS/MAP Task Force be updated as at **Appendix 5.3I** to the Report on Agenda Item 5.3.	Implement the Decision	MIDANPIRG	Updated TOR	October 2010	Completed (replaced and superseded by Draft Dec 12/16)
CONC. 12/38: POSTING OF AMHS PLANS IN AMC That, MID States be encouraged to post their AMHS implementation plans on the European ATS Messaging Management Centre (AMC).	Follow-up the posting of Plan on AMC	ICAO States	State Letter AMHS plans Posted	February 2011	Actioned SL AN 7/5.1 – 11/016 Dated 20 January 2011 (To be replaced and superseded by Draft Conc. 4/4)
CONC. 12/39: MID IP NETWORK SURVEY That, MID States be urged to complete the MID IP Network survey as at **Appendix 5.4A** to the Report on Agenda Item 5.4 and send to ICAO MID Regional Office by February 2011.	Follow-up in IP Network in MID Region	ICAO States	State Letter Completed survey	February 2011	Actioned SL AN 7/5.1 – 11/016 Dated 20 January 2011 (To be replaced and superseded by Draft Conc. 4/1)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC.12/40: USE OF PUBLIC INTERNET IN THE MID REGION That MID States be encouraged to: a) follow the guidance **Appendix 5.4B** to the Report on Agenda Item 5.4, when using the public internet for critical aeronautical communication; and b) provide to the ICAO MID Regional Office, the inventory on the public internet usage ; as at **Appendix 5.4C** to the Report on Agenda Item 5.4 by 20 February 2011.	Implement the Conclusion	States	State Letter Inventory of public internet ATN/IPS WG report	February 2011 March 2011	Actioned AN 7/5.1 – 11/016 Dated 20 January 2011 completed
DEC. 12/41: REVISED NAME AND TOR OF THE IPS WG That, the IPS WG is renamed as ATN/IPS WG with same members; and its terms of reference and work programme of the ATN/IPS Working Group be updated as at **Appendix 5.4D** to the Report on Agenda Item 5.4.	Implement the Decision	MIDANPIRG/12	Revised TOR	October 2010	Completed (To be replaced and superseded by Draft Dec. 4/3)
DEC.12/42: DISSOLVE THE AD-HOC ACTION GROUP FOR THE SUPPORT OF AERONAUTICAL FREQUENCY BANDS That, the Ad-Hoc action group for the support of Aeronautical frequency bands is dissolved and its task to be carried by the CNS SG.	Implement the Decision	MIDANPIRG/12	Dissolve AD-HOC Group	October 2010	Completed
CONC. 12/43: SUPPORT ICAO POSITION FOR WRC-12 That, MID States be urged to: a) include ICAO Position on WRC-12 in their State Position to the extent possible; b) support Civil Aviation Authorities, aviation spectrum experts to participate actively in the national and regional level activities related to WRC-12 including ITU study groups to support ICAO Position; and c) support Civil Aviation Authorities, aviation spectrum experts to participate in WRC-12 and coordinate with the ICAO delegation to the conference.	Follow up with States to support ICAO positions	ICAO States	State Letter CNS SG/4 Report Support ICAO positions	February 2012	Actioned

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/44: UPDATING THE AFTN/CIDIN DIRECTORY That, ICAO MID Regional Office request Authorization from EUROCONTROL to provide the routing function and any additional functions available in AMC to the MID Region.	Follow-up with EUROCONTROL for additional fun	ICAO	State Letter	February 2011	Ongoing AN 7/5.1 – 11/011 Dated 19 January 2011 (To be replaced and superseded by Draft Conc. 4/5)
CONC. 12/45: MID SURVEILLANCE WORKSHOP That, a) the ICAO MID Regional Office organizes a workshop with an objective to raise awareness, develop MID Regional Surveillance strategy and road map; and b) MID States participate in the workshop and provide their future surveillance plans	Implement the Conclusion	ICAO State	Organize Workshop State to attend workshop and provide their plan	2011	Completed
CONC. 12/46: EXCHANGE OF SURVEILLANCE DATA That, MID States be encouraged, to share ATS surveillance data in order to improve surveillance coverage in the MID Region, which will enhance safety, efficiency, capacity and could be used as back-up where feasible.	Implement the Conclusion	ICAO States	State Letter Exchange Surveillance data	February 2011	Actioned SL AN 7/5.9 – 11/025 Dated 16 February 2011
CONC. 12/47: MID REGION PERFORMANCE METRICS That: a) the following MID Region Metrics be adopted for performance monitoring of the air navigation systems: MID Metric 1: Number of accidents per 1,000 000 departures; MID Metric 2: Percentage of certified international aerodromes; MID Metric 3: Number of Runway incursions and excursions per year;	Monitor performance of ANS using the endorsed metrics	MIDANPIRG & subsidiary bodies	Develop performance targets	2011	Ongoing SL Ref.: AN 7/26.1-11/121 dated 24 May 2011

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MID Metric 4: Number of States reporting necessary data to the MIDRMA on regular basis and in a timely manner; MID Metric 5: The overall collision risk in MID RVSM airspace; MID Metric 6: Percentage of air navigation deficiencies priority "U" eliminated; MID Metric 7: Percentage of instrument Runway ends with RNP/RNAV approach procedure; and MID Metric 8: Percentage of en-route PBN routes implemented in accordance with the regional PBN plan. b) the MIDANPIRG subsidiary bodies monitor the Metrics related to their work programmes; develop associated performance targets and provide feed-back to MIDANPIRG.					
CONC. 12/48: DATA COLLECTION FOR MID REGION PERFORMANCE METRICS That, States be invited to: a) incorporate the agreed MID Region Performance Metrics into their National performance monitoring process; b) collect and process relevant data necessary for performance monitoring of the air navigation systems to support the regional Metrics adopted by MIDANPIRG; and c) submit this data to the ICAO MID Regional Office on a regular basis.	Implement the Conclusion	ICAO States	State Letter Include metrics into national performance monitoring Submit data to ICAO	January 2011	Ongoing SL Ref.: AN 7/26.1-11/121 dated 24 May 2011

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DEC. 12/49: REVIEW OF THE MID AIR NAVIGATION PLAN (ANP) That, in support to ICAO efforts to improve regional ANPs, the MIDANPIRG subsidiary bodies: a) carry out a complete review of the MID Basic ANP and FASID parts related to their Terms of Reference (TOR) and Work Programme; b) develop revised draft structure and content of the Basic ANP in order to reconcile it with the ATM Operational Concept, the Global Plan provisions and the performance based approach; c) identify the need for and development of those FASID Tables necessary to support the implementation of a performance-based global air navigation systems; and d) report progress to MIDANPIRG/13.	Implement the Decision	ICAO States Users	New structure, format & content of ANP/FASID	2012	Ongoing
DEC. 12/50: TERMS OF REFERENCE OF THE INFPL STUDY GROUP That, the Terms of Reference and Work Programme of the INFPL Study Group be updated as at **Appendix 5.5G** to the Report on Agenda Item 5.5	Implement the Decision	MIDANPIRG	Updated TOR	October 2010	Completed
CONC. 12/51: INFPL IMPLEMENTATION DIFFICULTIES That, MID States be urged to complete the impact studies and file any difficulties arising in the implementation of INFPL to the ICAO MID Regional Office for posting on FITS.	Implement the Conclusion	ICAO States	State Letter Completed impact study File difficulties	April 2011 October 2012	Actioned SL dated 16 Feb 2011 (To be closed)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/52: ICAO NEW FLIGHT PLAN FORMAT IMPLEMENTATION That, MID States be urged to: a) secure necessary budget for the implementation of the ICAO New FPL Format; b) initiate necessary negotiation with their ATC systems manufacturers/ vendors for the implementation of necessary hardware/software changes, as soon as possible; c) develop National PFF related to the ICAO new FPL format project with clearly established milestones with timelines; and d) take all necessary measures to comply with the applicability date of 15 November 2012.	Implement the Conclusion	States	Secure resources	June 2012	Actioned SL dated 16 Feb 2011 (To be closed)
CONC. 12/53: QUESTIONNAIRE ON THE STATUS OF INFPL IMPLEMENTATION That, MID States be urged to reply to the Questionnaire on the Status of Implementation of Amendment 1 to the Procedures for Air Navigation Services-Air Traffic Management, Fifteenth Edition (PANS-ATM, Doc 4444) as at **Appendix 5.5J** to the Report on Agenda Item 5.5, by 20 February 2011.	Implement the Conclusion	States	Completed questionnaire	February 2011	Completed SL AN 6/2B – 11/027 dated 16 February 2011
CONC. 12/54: STRATEGY FOR THE IMPLEMENTATION OF INFPL That, MID Region Strategy for the implementation of INFPL be adopted as at **Appendix 5.5K** to the Report on Agenda Item 5.5	Implement the Conclusion	MIDANPIRG/12	Adopted Strategy	October 2010	Completed
CONC. 12/55: INFPL IMPLEMENTATION PLANS AND PROGRESS REPORT That, MID States be urged to send INFPL Implementation plans and progress report on the preparation for the implementation of INFPL to the ICAO MID Regional Office every (3) three months and whenever major progress is achieved.	Implement the Conclusion	States	Progress Report	Every 3 months	Ongoing

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/56: STRATEGY FOR THE IMPLEMENTATION OF GNSS IN THE MID REGION That, the Strategy for implementation of GNSS in the MID Region be updated as at **Appendix 5.5N** to the Report on Agenda Item 5.5.	Implement the Conclusion	MIDANPIRG/12	Adopted new Strategy	October 2010	Completed (To be replaced and superseded by PBN/GNSS TF/4 Draft Conc. 4/6)
CONC. 12/57: MID REGION PBN IMPLEMENTATION STRATEGY AND PLAN That, the MID Region PBN Implementation Strategy and Plan be updated as at **Appendix 5.5P** to the Report on Agenda Item 5.5.	Implement the Conclusion	MIDANPIRG/12	Approved Strategy	October 2010	Completed (To be replaced and superseded by PBN/GNSS TF/4 Draft Conc. 4/1)
CONC. 12/58: PBN IMPLEMENTATION PROGRESS REPORT That, for future reporting on the status of PBN implementation, MID States be urged to: a) use the excel sheet as at **Appendix 5.5Q** to the Report on Agenda Item 5.5 and PBN Implementation Progress Report Template as at **Appendix 5.5R** to the Report on Agenda Item 5.5; and b) submit progress reports to ICAO MID Regional Office every six months or whenever major progress is achieved.	Implement the Conclusion	States	Progress Report	Every 6 months	Ongoing SL dated 16 February 2011 (To be replaced and superseded by PBN/GNSS TF/4 Draft Conc. 4/3)
DEC. 12/59: TERMS OF REFERENCE OF THE PBN/GNSS TASK FORCE That, the Terms of Reference and Work Programme of the PBN/GNSS Task Force be updated as at **Appendix 5.5T** to the Report on Agenda Item 5.5.	Implement the Decision	MIDANPIRG	Updated TOR	October 2010	Completed (To be replaced and superseded by PBN/GNSS TF/4 Draft Dec. 4/8)
DEC. 12/60: LIST OF TASK FOR PBN/GNSS TASK FORCE That, the list of tasks for the PBN/GNSS Task Force be updated with new task assignments as at **Appendix 5.5U** to the Report on Agenda Item 5.5.	Implement the Decision	MIDANPIRG	PBN/GNSS TF/3 Report	October 2010	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/61: IMPLEMENTATION OF CONTINUOUS DESCENT OPERATIONS That, recognizing the efficiency and environmental benefits of Continuous Descent Operations (CDO), and the need to harmonize these operations in the interest of safety, MID States be encouraged to include implementation of CDO as part of their PBN implementation plans and to implement CDO in accordance with the ICAO CDO Manual Doc 9931.	Follow up development in MID Region/States	States	Progressive introduction of CDO operations in TMAs	2012	Actioned SL dated 16 February 2011
DEC. 12/62: DISSOLVE MID-FIT That, MID-FIT is dissolved and the matters related to data link activities are considered and followed by the CNS/ATM/IC SG.	Implement the Decision	MIDANPIRG	Dissolved MID-FIT	October 2010	Completed
CONC. 12/63: ADOPTION OF GOLD That, MID States be urged to: a) adopt Global Operational Data Link Document (GOLD) for data link operations; and b) contribute in future amendments to the GOLD as required.	Implement the Conclusion	MIDANPIRG States	Adopted GOLD	October 2010	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/64: TRAINING FOR THE NEW WAFS FORECASTS That, in order to facilitate the implementation of the new WAFS forecasts by the WAFS users in the MID States, WAFC Provider States in coordination with the World Meteorological Organization (WMO) be invited to organize in 2011 or 2012 a training seminar for the MID Region on the use of the new gridded WAFS forecasts for convective clouds, icing and turbulence	Implement the Conclusion	WAFC Provider States WMO	Training Seminar	2012	Ongoing (IOM Ref: AN 10/3 – 10/421 to WAFSOPSG Secretariat dated 14 Dec 2010) Training method to be considered at WAFSOPSG/7 (Sep 2012: reference WAFSOPSG/6 C6/12 and C6/13)
CONC. 12/65: FINALIZED SIGMET TEST PROCEDURES AND CONDUCTING OF REGULAR SIGMET TESTS IN THE MID REGION That, a) the MID SIGMET Test Procedures, at Appendix 5.6A to the Report on Agenda Item 5.6, be adopted and forwarded to States for implementation; b) MID States be urged to participate in the conducting of regular WS- and WV-SIGMET tests in 2011 onwards and nominate SIGMET Focal Points if they have not already done so; and c) the results of the SIGMET tests be reported to each MET Sub-Group meeting, with feedback provided on any identified deficiencies provided to States concerned with proposed corrective actions.	Implement the Conclusion	ICAO States	State Letter Nominate SIGMET Focal point MET SG/3 Report	January 2011 February 2011 May 2011	Complete SL AN 10/12 – 10/422 Dated 14 December 2010 (note MET SG/3 draft Conclusion 3/2)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/66: SIGMET GUIDE FOR THE MID REGION That, the ICAO MID Regional Office, circulate the working draft of the MID SIGMET Guide, as presented at **Appendix 5.6B** to the Report on Agenda Item 5.6, to MID States in order to: a) obtain the necessary WS-, WV- and WC-SIGMET headers for Appendix B of the document; and b) finalize the document in time for the MET SG/3 meeting.	Implement the Conclusion	ICAO	State Letter Draft SIGMET Guide	January 2011 May 2011	Ongoing SL AN 12/3 – 10/424 Dated 14 December 2010 (note MET SG/3 draft Conclusion 3/3)
CONC. 12/67: IMPROVING OPMET DATA IN THE MID REGION That, in order to improve the quality and availability of OPMET data in the MID Region, MID States be urged, if they have not already done so, to: a) fully implement ICAO Annex 3 provisions relating to OPMET data, including TAF; b) investigate the reasons for the absence of SIGMET messages and reconsider their procedures for SIGMET generation and transmission; c) consider the need for establishing local quality control and format verification procedures for OPMET data; and d) undertake all efforts to reduce the errors in OPMET data significantly, the aim of which should be that less than 5% of all issued OPMET data being incorrect.	Implement the Conclusion	States	Implement annex 3 provisions Establish QC for OPMET data	May 2011	Complete SL AN 10/11 – 10/425 Dated 14 December 2010
CONC. 12/68: HARMONIZATION OF PROCEDURES FOR OPMET DATA ISSUANCE That, in order to improve the timeliness and regularity of OPMET data (METAR and TAF) for AOP aerodromes in the MID Region: a) the ICAO MID Regional Office develop guidance material related to the issuance of OPMET data by 31 December 2010; and	Implement the Conclusion	ICAO	State Letter Guidance material	January 2011	Complete SL AN 10/11 – 10/426 Dated 14 December 2010

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
b) MID States be urged to implement common procedures in accordance with this guidance by MET SG/3.					
CONC. 12/69: ACTIVATION AND PROPOSED MEETING OF THE MID OPMET BULLETIN MANAGEMENT GROUP That, a) the MID OPMET Bulletin Management Group (BMG) be activated with the Terms of Reference at **Appendix 5.6C** to the Report on Agenda Item 5.6; b) the MID States participating in the OPMET BMG are urged to nominate appropriate experts on the group and inform the ICAO MID Regional Office accordingly; and c) the Rapporteur of the OPMET BMG, in coordination with the ICAO MID Regional Office, organize a meeting of the group immediately prior to MET SG/3.	Implement the Conclusion	ICAO BMG	State Letter Organize BMG meeting	January 2011 May 2011	Complete SL AN 10/11 – 10/427 Dated 14 December 2010 BMG/1 meeting held 18 December 2011 in Cairo
CONC. 12/70: REGIONAL SURVEY ON THE IMPLEMENTATION OF MET SERVICES AND FACILITIES That, the ICAO MID Regional Office utilise the questionnaire presented at **Appendix 5.6D** to the Report on Agenda Item 5.6 as the basis of a regional survey on the implementation of MET services and facilities in the MID Region in 2010, and at least every 18 months thereafter	Implement the Conclusion	ICAO	State Letter	January 2011	Ongoing SL AN 10/22 – 10/428 Dated 14 December 2010 Reminder letter to be sent end of 2011 for completion before MIDANPIRG/13

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 12/71: FACILITATING THE IMPLEMENTATION OF QMS FOR MET IN THE MID REGION That, MID States that have not yet implemented a Quality Management System (QMS) for meteorological (MET) service to international air navigation, be invited to take necessary action to expedite the implementation of QMS in accordance with Annex 3 provisions, taking into consideration the key recommendations at **Appendix 5.6E** to the Report on Agenda Item 5.6	Implement the Conclusion	ICAO	State Letter	January 2011	Completed SL AN 3/2.8 – 10/429 Dated 14 December 2010
DEC.12/72: VOLCANIC ASH CONTINGENCY PLAN FOR THE MID REGION That, the ATM/SAR/AIS Sub-Group and MET Sub-Group be invited to develop a draft Volcanic Ash Contingency Plan for the MID Region for consideration at MIDANPIRG/13.	Implement the Decision	ICAO MID	Draft Volcanic Ash contingency plan	May 2011	Ongoing Waiting on outcome from IVATF TF-ATM01 in June 2012
CONC. 12/73: REVIEW OF PART VI (MET) OF THE MID AIR NAVIGATION PLAN VOLUME II (FASID) That, in time for MET Sub-Group 3, the ICAO MID Regional Office, in coordination with the MID OPMET Bulletin Management Group (BMG), is invited to review and propose amendments, as necessary, to FASID Tables MET 2A, 2C, 4A and 4B related to OPMET exchange.	Implement the Conclusion	ICAO BMG	FASID Amendment	May 2011	Ongoing AP with assistance from BMG/1 expected before MIDANPIRG/13
CONC. 12/74: UPDATED TRAFFIC FORECASTING REQUIREMENTS IN THE MID REGION That, a) the ICAO MID Regional Office coordinate with other international and regional organizations; including IATA, the possibility of establishing a MID database to support regional traffic forecasting activities; b) MID States continue their support to the Traffic Forecasting Sub-Group by ensuring that their respective nominees to the	Update information to be provided by States	TF SG ICAO States	State Letter Meeting of the SG Traffic data	May 2011	On going

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
membership of the Sub-Group include, as much as possible, forecasting experts, air traffic management experts and, when required, financial analysts to carry out business case and cost/benefit analysis; and c) MID States continue to avail required FIR and other data to the Traffic Forecasting Sub-Group in the format agreed by the Sub-Group to facilitate the development of forecasts and other air navigation planning and implementation parameters.					
CONC.12/75: ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE MID REGION That, MID States be urged to: a) review their respective lists of identified deficiencies, define their root causes and forward an action plan for rectification of outstanding deficiencies to the ICAO MID Regional Office prior to 31 March 2011; b) use the online facility offered by the ICAO MID Air Navigation Deficiency Database (MANDD) for submitting online requests for addition, update, and elimination of air navigation deficiencies; c) accord high priority to eliminate all air navigation deficiencies with emphasis on those with priority "U"; in particular by allocating the necessary budget to ensure that their Civil Aviation Authorities have and retain a sufficient number of qualified technical personnel, who are provided with appropriate initial, on-the-job and recurrent training; and d) seek support from regional and international organizations (i.e. ACAC, GCC, etc.) for the elimination of identified air navigation deficiencies.	Implement the Conclusion	ICAO States	State Letter Feedback from States	January 2011	SL Ref.: AN2/2 – 11/123 dated 25 May 2011

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DGCA-MID/1 **CONC. 1/2: ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE MID REGION** That, States: a) accord high priority to the elimination of air navigation deficiencies; in particular by allocating the necessary budget to ensure that their Civil Aviation Authorities have and retain a sufficient number of qualified technical personnel, and provide appropriate initial, on-the-job and recurrent training; b) work cooperatively towards the elimination of common deficiencies; and c) consider the use of the Regional Safety Oversight Organizations (RSOOs) as an efficient mechanism for, inter-alia, the provision of appropriate training to technical staff and elimination of common deficiencies.					
CONC. 1/3: MIDDLE EAST REGIONAL AIRSPACE REVIEW (MIDRAR) That, a) States committed to the UAE declaration are encouraged to: i. support CANSO efforts to carry out a Middle East Regional Airspace Review (MIDRAR), in close coordination with ICAO and all concerned parties/stakeholders; ii. support the creation of the MIDRAR Team; and iii. provide necessary information, data and other resources, including Specialist input, as required					
CONC. 1/4: IMPLEMENTATION OF THE ICAO NEW FPL FORMAT That, considering the importance of timely implementation of the ICAO new Flight Plan Format, MID States are urged to provide necessary resources and support to expedite implementation of the ICAO New Flight Plan Format.					

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 1/5: MID REGION AIS DATABASE (MIDAD) That, a) Jordan and Bahrain take the lead in carrying out a study/business case pertaining to the establishment of a MID Region AIS Database (MIDAD), in close coordination with ICAO; b) States provide all necessary information and support for the achievement of the study; and c) Jordan and Bahrain present the outcome of the study to the appropriate MIDANPIRG subsidiary bodies (AIS/MAP TF and ATM/SAR/AIS SG).					
CONC. 1/6: CONTINGENCY PLANS That, for the interest of ensuring safety and continuity of civil aviation, MID States: a) accord high priority and secure necessary resources to update, complete and promulgate their contingency plans; and b) send copies of their contingency plans (even those which are still in draft format) to the ICAO MID Regional Office as soon as possible.					
CONC. **1/12:** ESTABLISHMENT OF HIGH LEVEL ENVIRONMENTAL REGIONAL GROUP That, in order to address the identified environmental concerns/challenges, States cooperate towards establishment of a High Level Environmental Regional Group.					

REPORT ON AGENDA ITEM 3: AIR NAVIGATION GLOBAL DEVELOPMENTS

3.1 The meeting noted that the Twelfth Air Navigation Conference (AN-Conf/12) will be held in Montreal from 19 to 30 November 2012. The meeting was apprised of the provisional agenda of the AN-Conf/12.

3.2 The meeting noted that the purpose of the AN-Conf/12 is to gain consensus, obtain commitments and formulate recommendations to achieve a harmonized global air navigation system for international civil aviation. The objective is to optimize the opportunities in technology and maturing work programmes toward common global objectives. The Conference will consider proposed Aviation System Block Upgrades (ASBUs) and the Communications, Navigation, Surveillance (CNS), Aeronautical Information Management (AIM) and avionics roadmaps for inclusion in the Global Air Navigation Plan. The Conference would also provide stakeholders with an opportunity to coalesce around major themes, set priorities and refine the way forward based on lessons learned. Special consideration would be given to utilization of existing capacity of enabling systems and planning for their expansion, taking into consideration user requirements.

3.3 The meeting further noted that Security and environment will be addressed within the scope of the AN Conf/12 as they have an important influence on the air navigation system. However, the larger issues related to security and the environment are addressed in other dedicated for a related to these fields of expertise such as the Committee for Aviation Environmental Protection (CAEP) and the Aviation Security Panel (AVSECP).

3.4 It was highlighted that ICAO is addressing the challenge of the integration, interoperability and harmonization of the systems leading to the concept of “One Sky” which if the theme of AN-Conf/12. The One Sky concept revolves around conceiving the notion globally, developing the implementation plans regionally, and implementing the infrastructure locally. It addresses international traffic flows from end to end with the purpose of increasing overall capacity, efficiency and improving safety, while also reducing the impact on the environment.

3.5 The AN-Conf/12 will allow to work together toward establishment of a global strategy for air navigation planning and implementation. Furthermore, it would set priorities, coalesce around major operational objectives to bring the global aviation community into agreement on an agenda to drive the next ten years of air navigation planning and implementation. It would allow ICAO to plan work programmes of panels and Planning and Implementation Regional Groups (PIRGs) toward finalization of operational improvements objectives and provide a stimulus to air navigation planning and implementation.

3.6 The meeting strongly encouraged States and International Organizations to actively participate in the AN-Conf/12.

3.7 The meeting recalled that ICAO hosted the Global Air Navigation Industry Symposium (GANIS) from 20 to 23 September 2011. The event was considered a great success, with over 500 participants from industry, States and international organizations in attendance. The Symposium was held as a platform to enable industry to provide feedback relating to the ASBU concept, prior to the AN-Conf/12.

3.8 During the Symposium, the GANIS Working Document (now renamed "ASBU Working Document"), which contains detailed explanations of the Block Upgrades concept and its components, was unveiled to industry. Following the GANIS, ICAO collected feedback from industry and States on the Working Document. This feedback was reviewed and used to develop an updated version of the ASBU Working Document.

3.9 The ASBUs concept will be included into the revision of the GANP and presented to the AN-Conf/12. The latest version of the ASBU Working Document, containing the detailed explanations of the blocks, can be found at the ICAO website at: www.icao.int/anconf12/asbu. The meeting urged MID States to provide feedback to ICAO on the ASBU Working Document by **16 February 2012**.

3.10 The 37th Session of the Assembly resolutions in particular A37/4 and A37/12 requested ICAO to review the GANP since GANP was last updated in 2005. The Assembly also requested to update the GANP to reflect harmonized series of operational upgrades. The intended timeframe to deliver the revised GANP, with the roadmaps incorporated, is AN-Conf/12.

3.11 The meeting noted that all Regions were requested to revise the Homogenous ATM Areas and major traffic flows/routing areas existing in Appendix I to the GANP. Accordingly, the meeting reviewed the updated major traffic flows related to the MID Region as at **Appendix 3A** to the Report on Agenda Item 3.

3.12 The meeting agreed that the air navigation global developments need to be taken into account in the development and monitoring of the MID Regional performance framework.

CNS/ATM/IC SG/6
Appendix 3A to the Report on Agenda Item 3

APPENDIX I

Homogeneous ATM areas and major traffic flows/routing areas

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
Africa-Indian Ocean (AFI) Region				
AR1	Europe — South America (EUR/SAM) (oceanic)	Atlantico [1], Canarias, Casablanca, Dakar Oceanic, Recife, Sal Oceanic	Oceanic en route low density in southern part and oceanic high density in northern part	Major traffic flow EUR/SAM
AR2	Atlantic Ocean interface between the AFI, NAT and SAM Regions	Accra, Dakar, Johannesburg Oceanic, Luanda, Sal	Oceanic en route low density	Homogeneous ATM area AFI/NAT/SAM
AR3	Europe — Eastern Africa routes including the area of the Indian Ocean	Addis Ababa, Antananarivo, Asmara, Cairo, Dar es-Salaam, Entebbe, Khartoum, Mauritius, Mogadishu, Nairobi, Seychelles, Tripoli	Continental en route/ oceanic low density	Major traffic flow AFI/EUR
AR4	Europe to Southern Africa	Algiers, Beira, Brazzaville, Cape Town, Gaborone, Harare, Johannesburg, Kano, Kinshasa, Lilongwe, Luanda, Lusaka, N'Djamena, Niamey, Tripoli,Tunis, Windhoek	Continental en route low density	Major traffic flow AFI/EUR
AR5	Continental Western Africa including coastal areas	Accra, Dakar, Kano, Ndjamena, Niamey, Roberts	Continental/oceanic low density	Homogeneous area AFI
AR6	Trans-Indian	Antananarivo, Bombay [1], Johannesburg Oceanic, Male [1], Mauritius, Melbourne [1], Seychelles	Oceanic high density	Homogeneous ATM area AFI/ASIA
Asia/Pacific (ASIA/PAC) Regions				
AR1	Asia/Australia and Africa	Bangkok, Chennai, Colombo, Jakarta, Kuala Lumpur, Malé, Melbourne, Mumbai, Singapore, Yangon [and African FIR/UIRs]	Oceanic low density	Major traffic flow AFI/ASIA/MID

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
AR2	Asia (Indonesia north to China, Japan and the Republic of Korea), Australia/New Zealand	Auckland, Bangkok, Beijing, Brisbane, Fukuoka, Guangzhou, Hanoi, Ho-Chi-Minh, Hong Kong, Honiara, Incheon, Jakarta, Kota Kinabulu, Kuala Lumpur, Manila, Melbourne, Nadi, Nauru, Oakland, Phnom-Penh, Port Moresby, Shanghai, Singapore, Taibei, Ujung Pandang, Vientiane, Wuhan, Yangon	Oceanic high density	Major traffic flow ASIA/PAC
AR3	Asia and Europe via north of the Himalayas	Almaty, Bangkok, Beijing, Fukuoka, Guangzhou, Hanoi, Ho-Chi-Minh, Hong Kong, Incheon, Kathmandu, Kunming, Lanzhou, Phnom-Penh, Pyongyang, Shanghai, Shenyang, ,Taibei, Ulaanbaatar, Urumqi, Vientiane, Wuhan, Yangon [and Russian Federation FIRs, and European FIRs]	Continental high density/continental low density	Major traffic flow ASIA/EUR/MID
AR4	Asia and Europe via south of the Himalayas	Bangkok, Colombo, Delhi, Dhaka, Hanoi, Ho-Chi-Minh, Hong Kong, Jakarta, Karachi, Kathmandu, Kota Kinabulu, Kolkata, Kuala Lumpur, Kunming, Lahore, Chennai, Manila, Mumbai, Phnom-Penh, Singapore, Ujung Pandang, Vientiane, Yangon [and Middle East/European FIR/UIRs]	Continental high density/oceanic high density	Major traffic flow ASIA/EUR/MID
AR5	Asia and North America via the Russian Far East and the Polar Tracks via the Arctic Ocean and Siberia	Anchorage, Beijing, Canadian FIRs, Fukuoka, Guangzhou, Hong Kong, Incheon, Pyongyang, Russian Far East of 80E, Shanghai, Shenyang, Wuhan and Ulaanbaatar	Continental low density/continental high density	Major traffic flow ASIA/EUR/NAM/NAT
AR6	Asia and North America (including Hawaii) via the Central and North Pacific	Anchorage, Fukuoka, Hong Kong and Manila, Oakland (at and north of a line drawn by LAX-HNL-Guam-MNL), Taibei, Vancouver	Oceanic low density	Major traffic flow ASIA/NAM/PAC
AR7	New Zealand/Australia and South America	Auckland, Brisbane, Nadi, Tahiti [and South America FIR/UIRs]	Oceanic low density	Major traffic flow ASIA/PAC/SAM
AR8	Australia/New Zealand, the South Pacific Islands and North America	Auckland, Brisbane and Port Moresby, Honiara, Nadi, Nauru, Oakland (southern region), Tahiti	Oceanic low density	Major traffic flow ASIA/NAM/PAC

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
AR9	South-East Asia and China, Republic of Korea, and Japan	Bangkok, Beijing, Fukuoka, Guangzhou, Hanoi, Ho-Chi-Minh, Hong Kong, Jakarta, Kota Kinabulu, Kuala Lumpur, Kunming, Manila, Phnom-Penh, Pyongyang, Shanghai, Shenyang, Singapore, Incheon, Taibei, Ujung Pandang, Vientiane, Wuhan, Yangon	Oceanic high density	Major traffic flow ASIA
Caribbean/South American (CAR/SAM) Regions				
AR1	Buenos Aires — Santiago de Chile	Ezeiza, Mendoza, Santiago	Continental low density	SAM intraregional major traffic flow
	Buenos Aires — São Paulo/ Rio de Janeiro	Ezeiza, Montevideo, Curitiba, Brasilia	Continental low density	SAM intraregional major traffic flow
	Santiago de Chile — São Paulo/Rio de Janeiro	Santiago, Mendoza, Cordoba, Resistencia, Asunción, Curitiba, Brasilia	Continental low density	SAM intraregional major traffic flow
	São Paulo/Rio de Janeiro Europe	Brasilia, Recife	Continental/oceanic low density	SAM/AFI/EUR interregional major traffic flow
AR2	São Paulo/Rio de Janeiro Miami	Brasilia, Manaus, Maiquetía, Curaçao, Kingston, Santo Domingo, Port-au-Prince, Havana, Miami	Continental/oceanic low density	CAR/SAM/NAM inter- and intraregional major traffic flow
	São Paulo/Rio de Janeiro New York	Brasilia, Belem, Paramaribo, Georgetown, Piarco, Rochambeau, San Juan (New York)	Continental/oceanic low density	CAR/SAM/NAM/NAT inter- and intraregional major traffic flow
AR3	São Paulo/Rio de Janeiro — Lima	Brasilia, Curitiba, La Paz, Lima	Continental low density	SAM intraregional major traffic flow
	São Paulo/Rio de Janeiro — Los Angeles	Brasilia, Porto Velho, Bogotá, Barranquilla, Panama, Central America, México, Mazatlan (Los Angeles)	Continental low density	CAR/SAM/NAM Inter- and interregional major traffic flow
	Mexico — North America	Mexico, Houston, Miami	Continental/oceanic high density	CAR/NAM interregional major traffic flow
AR4	Santiago — Lima — Miami	Ezeza, Resistencia, Cordoba, La Paz, Porto Velho, Bogotá, Barranquilla, Kingston, Havana, Miami	Continental/oceanic low density	CAR/SAM/NAM Inter- and intraregional major traffic flow
	Buenos Aires — New York	Ezeiza, Resistencia, Asunción, La Paz, Porto Velho, Manaus, Maiquetía, Curaçao, Santo Domingo, Miami (New York)	Continental/oceanic low density	CAR/SAM/NAM/NAT Inter- and intraregional major traffic flow
	Buenos Aires — Miami	Ezeza, Resistencia, Cordoba, La Paz, Porto Velho, Bogotá, Barranquilla, Kingston, Havana, Miami	Continental/oceanic low density	CAR/SAM/NAM Intra- and interregional major traffic flow
AR5	North of South America — Europe	Guayaquil, Bogotá, Maiquetía, Piarco (NATEUR)	Continental/oceanic low density	SAM/NAT/EUR interregional major traffic flow

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
AR6	Mexico — Europe	México, Havana, Miami (NATEUR)	Continental/oceanic high density	CAR/NAM/NAT/EUR interregional major traffic flow
	Central America — Europe	Central America, Panama, Kingston, Port-au-Prince, Curaçao, Santo Domingo, San Juan (EUR)	Oceanic high density	CAR/NAT/EUR Intra- and interregional major traffic flow
AR7	Santiago — Lima — Los Angeles	Santiago, Antofagasta, Lima, Guayaquil, Central America, México, Mazatlan	Oceanic low density	CAR/SAM/NAM Intra- and interregional major traffic flow
AR8	South America — South Africa	Ezeiza, Montevideo, Brasilia, Johannesburg (AFI)	Oceanic low density	SAM/AFI interregional major traffic flow
	Santiago de Chile — Easter Island — Papeete (PAC)	Santiago, Easter, Tahiti	Oceanic low density	SAM/PAC interregional major traffic flow
European (EUR) Region				
AR1	Within Western Europe	Wien, Bruxelles, Paris, Marseille, Reims, Bremen, Dusseldorf, Frankfurt, München, Milano, Genève, Zurich, London, Amsterdam	Continental very high density	Core area, homogeneous ATM area EUR
AR2	Western and Central Europe	ECAC States	Continental high density	Homogeneous ATM area
AR2	Europe to North America	Europe (TBD), UK (London, Scottish), Ireland (Shannon), France (Paris, Reims, Brest)	Continental high density	Major traffic flow linking Europe to North America via North Atlantic
AR3	Western Europe to Far East Asia via transpolar transit routes	Core Area, Norway (Bodø, Oslo, Stavenger, Trondheim), Finland (Tampere, Rovaniemi), Russian Federation (TBD), Japan	Continental high density/continental low density	Major traffic flow via ATS route A333 and all routes north of it
AR4	Western Europe to Far East Asia via trans-Siberian transit routes	Core Area, Poland (Warszawa), Baltic States (Tallinn, Riga, Vilnius), Finland (Tampere, Rovaniemi), Russian Federation (TBD), Japan	Continental high density/continental low density	Major traffic flow via ATS routes south of A333 (excluding), up to and including the ATS route R211
AR5	North America to Eastern Europe and Asia via cross-polar transit routes	Denmark (Søndrestrøm), Russian Federation (TBD), USA, Canada, Mongolia, China	Continental low density/oceanic low density	Major traffic flow via ATS routes linking North America with Eastern Europe and Asia through the airspace of the Russian Federation east of the ATS routes G476 and A74 up to the ATS route A218 (excluding)
AR6	North America to Southeast Asia via transeastern transit routes	Russian Federation (TBD), USA, Canada, China	Continental low density/oceanic low density	Major traffic flow via ATS routes linking North America with Southeast Asia through the airspace of the Russian Federation including ATS route A218 and all routes east of it

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
AR7	Europe to Central and Southeast Asia via trans-Asian transit routes	Baltic States (Tallinn, Riga, Vilnius), Finland (Tampere, Rovaniemi), Kazakhstan (TBD), Russian Federation (TBD), Mongolia, China	Continental low density	Major traffic flow via ATS routes linking European States with Central and Southeast Asia, aligned south of ATS routes B159, A222, B200 and A310, including ATS route G3
AR8	Europe to Middle Asia via Asian transit routes	Ukraine (TBD), Turkmenistan (TBD), Kazakhstan (TBD), Turkey, Armenia (Yerevan), Georgia (Tbilisi, Sukhumi), Azerbaijan (Baku), Uzbekistan (Samarkand, Tashkent, Nukus), Russian Federation (TBD), Iran, Afghanistan	Continental low density	Major traffic flow via ATS routes linking European States with Middle Asia, south of ATS route G3
North Atlantic (NAT) Region				
ARx	North America — Western/ Central Europe	Bodø, Gander, New York, Reykjavik, Santa Maria, Shanwick, Søndrestrøm	Oceanic high density/continental high density	Major traffic flow EUR/NAM/NAT MNPS airspace
ARx	North America — Caribbean	New York	Oceanic high density	Major traffic flow West Atlantic route system
Middle East (MID) Region				
AR1	Asia and Europe, Asia and the Middle East, Europe and the Middle East, via the northern Arabian Peninsula and Eastern Mediterranean	Amman, ~~Baghdad,~~ Bahrain, Beirut, ~~Cairo,~~ Damascus, Emirates, Jeddah, Kuwait, Muscat, ~~Tel Aviv~~	Continental high density	Mainly intraregional and MID to/from ASIA and EUR. Some overflying EUR/ASIA traffic
AR2	Egypt and the southern Arabian Peninsula to/from Europe, Africa ,Asia and North Africa	Cairo, Bahrain, Emirates, Jeddah, Muscat, Sana'a	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 ~~Seasonal pilgrim flights to and from Africa, Central, South and South East Asia~~
AR3	Asia and Europe, Asia and the Middle East, Europe and the Middle East, north of the Gulf	Teheran, ~~Kabul,~~Emirates	Continental high density	Major traffic flow ASIA/EUR
AR4	Gulf, Asia (Indian subcontinent) to/from North of Europe	Bahrain, Baghdad, Kuwait, Muscat, Emirates	Continental high density	MID to/from Asia and EUR
AR5	Gulf Area to/from Eastern, Central and West Africa	Bahrain, Muscat, Jeddah, Emirates	Continental low density (Seasonal high density)	Traffic flow Intraregional. Seasonal pilgrim flights to/from, East, Central, and West AFI
North America (NAM) Region				

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
NA-14	North America/ polar tracks	Domestic US FIRs (Chicago, Seattle, Cleveland, New York, Boston, Minneapolis, Salt Lake), Canadian FIRs (Montreal, Toronto, Winnipeg, Edmonton, Vancouver), Anchorage, Arctic, Anchorage Continental, Beijing, Guangzhou, Hong Kong, Pyongyang, Russian Far East FIRs, Shanghai, Shenyang, Taegu, Tokyo, Wuhan and Ulaanbaatar	Continental/oceanic low density Major traffic flow	One-directional flow ASIA/EUR/NAM/NAT
NA-15	Toronto — Cleveland, Chicago	Toronto, Cleveland, Chicago	Continental high density Major traffic flow	CAN-US East-west route
	Toronto — New York, Philadelphia, Washington	Toronto, Cleveland, New York, Washington	Continental high density Major traffic flow	CAN-US North-south route
	Montreal — New York	Montreal, Boston, New York	Continental high density Major traffic flow	CAN-US North-south route
	Anchorage, Vancouver Seattle — San Francisco — Los Angeles	Anchorage, Vancouver, Seattle, Oakland, Los Angeles	Continental high density Major traffic flow	CAN-US North-south route
NA-16 Canada East-west flows	Toronto — Winnipeg — Calgary — Regina — Vancouver	Winnipeg, Edmonton, Vancouver	Continental high density Major traffic flow	Major traffic flows in Canadian southern domestic airspace
	Toronto — Ottawa — Montreal — Halifax	Toronto, Montreal, Moncton	Continental high density Major traffic flow	Major traffic flows in Canadian southern domestic airspace
	Vancouver — Edmonton	Vancouver, Edmonton	Continental high density Major traffic flow	Major traffic flows in Canadian southern domestic airspace
	Edmonton — Calgary	Edmonton	Continental high density Major traffic flow	Major traffic flows in Canadian southern domestic airspace
	Winnipeg — Regina	Winnipeg	Continental high density Major traffic flow	Major traffic flows in Canadian southern domestic airspace
NA-17 US East-west flows	Boston/New York/Chicago Seattle	Boston, New York, Cleveland, Indianapolis, Chicago, Minneapolis, Salt Lake, Seattle	Continental high density Major traffic flow	Major traffic flows in domestic US airspace
	Boston/New York/Washington DC/Denver — San Francisco	Boston, New York, Cleveland, Indianapolis, Chicago, Kansas City, Salt Lake, Oakland	Continental high density Major traffic flow	Major traffic flows in US southern domestic airspace
	Boston/New York/Washington DC/Denver — Los Angeles	Boston, New York, Cleveland, Indianapolis, Chicago, Kansas City, Albuquerque, Los Angeles	Continental high density Major traffic flow	Major traffic flows in US southern domestic airspace
	Atlanta/Dallas/Phoenix — Los Angeles	Atlanta, Memphis, Fort Worth, Albuquerque, Los Angeles	Continental high density Major traffic flow	Major traffic flows in US southern domestic airspace
NA-17 US East-west flows	Atlanta/Dallas/Phoenix — San Diego	Atlanta, Memphis, Fort Worth, Albuquerque, Los Angeles	Continental high density Major traffic flow	Major traffic flows in US southern domestic airspace

Areas (AR)	*Homogeneous ATM areas and major traffic flows/routing areas*	*FIRs involved*	*Type of area covered*	*Remarks*
	Miami/Houston/Dallas/ Phoenix — San Diego	Miami, Houston, Fort Worth, Albuquerque, Los Angeles	Continental high density Major traffic flow	Major traffic flows in US southern domestic airspace
	Miami/Houston/Dallas/ Phoenix — Los Angeles	Miami, Houston, Dallas, Albuquerque, Los Angeles	Continental high density Major traffic flow	Major traffic flows in US southern domestic airspace
GM-1	Mexico — North America	Mexico, Houston, Miami; Albuquerque; Los Angeles	Continental/oceanic high density Major traffic flow	CAR/NAM interregional traffic flow
GM-2	Mexico — Europe	Mexico, Havana, Miami (NAT-EUR)	Continental/oceanic high density Major traffic flow	CAR/NAM/NAT/EUR interregional traffic flow

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CNS/ATM/IC SG/6
Report on Agenda Item 4

REPORT ON AGENDA ITEM 4: MID REGION AIR NAVIGATION PERFORMANCE BASED APPROACH

MID Region Performance Metrics and Performance Frame work Forms (PFFs)

4.1 The meeting recalled that Performance-Based Approach (PBA) adheres to strong focus on results through adoption of performance objectives and targets; collaborative decision making driven by the results; and reliance on facts and data for decision making. The assessment of achievements is periodically checked through a performance review, which in turn requires adequate performance measurement and data collection capabilities. In this regard, it was highlighted that the implementation of a PBA, should fulfill the following requirements: commitment (at the top); agreement on goals (desired results); responsibility (who is accountable); human resources and know-how (culture and skills); data collection, processing, storage and reporting; collaboration and coordination (with other partners) and cost implication (what does it cost).

4.2 The meeting recalled that MIDANPIRG/12 (Amman, Jordan, 17-21 October 2010) developed the following Conclusions related to performance monitoring of the air navigation systems in the MID Region:

CONCLUSION 12/47: MID REGION PERFORMANCE METRICS

That:

a) the following MID Region Metrics be adopted for performance monitoring of the air navigation systems:

MID Metric 1: Number of accidents per 1,000 000 departures;

MID Metric 2: Percentage of certified international aerodromes;

MID Metric 3: Number of Runway incursions and excursions per year;

MID Metric 4: Number of States reporting necessary data to the MIDRMA on regular basis and in a timely manner;

MID Metric 5: The overall collision risk in MID RVSM airspace;

MID Metric 6: Percentage of air navigation deficiencies priority "U" eliminated;

MID Metric 7: Percentage of instrument Runway ends with RNP/RNAV approach procedure; and

MID Metric 8: Percentage of en-route PBN routes implemented in accordance with the regional PBN plan.

b) the MIDANPIRG subsidiary bodies monitor the Metrics related to their work programmes; develop associated performance targets and provide feed-back to MIDANPIRG.

CONCLUSION 12/48: DATA COLLECTION FOR MID REGION PERFORMANCE METRICS

That, States be invited to:

a) incorporate the agreed MID Region Performance Metrics into their National performance monitoring process;

b) collect and process relevant data necessary for performance monitoring of the air navigation systems to support the regional Metrics adopted by MIDANPIRG; and

c) submit this data to the ICAO MID Regional Office on a regular basis.

4.3 The meeting noted that, as a follow-up action to the above MIDANPIRG/12 Conclusions, the ICAO MID Regional Office issued State Letter Ref.: AN 7/26.1-11/121 dated 24 May 2011, urging States to develop/update their National Performance Framework and report relevant data necessary for performance monitoring of the air navigation systems, with a view to update the Regional Performance Framework Forms (PFFs) and monitor the MID Region Performance Metrics. In this respect, the need for harmonization and avoidance of duplication of efforts with regard to the provision of data necessary for performance monitoring of the air navigation systems has been underlined.

4.4 In connection with the above, the meeting noted that the Air Navigation Commission, in reviewing different PIRG reports, noted that all the PIRGs were in the process of identifying metrics to measure regional performance in the relevant key performance areas. The Commission recognized that every PIRG requires their own region specific metrics. However, the ANC emphasized the need to have a set of performance metrics common to all ICAO regions to facilitate comparative analysis of overall regional development. Consequently, the Commission requested the Secretariat to complete the task of developing a set of performance metrics applicable to all ICAO Regions along with guidance for the collection of data (ANC Min 186/7 and AN-WP /8537 refers). In this respect, the meeting was informed that work is in progress for the development of a set of global Metrics mapped to the Aviation System Block Upgrades (ASBUs) for review by the ANC and presentation to the 12th Air Navigation Conference AN Conf/12 (Montreal, 19-30 November 2012).

4.5 Based on the above, the meeting reviewed the eight (8) MID Region Performance Metrics and agreed to the following:

- MID Metric 1 should be the responsibility of the MID Region Aviation Safety Group (RASG-MID);

- MID Metrics 2 and 3 are to be monitored by the AOP Sub-Group giving that States provide the ICAO MID Regional Office necessary data on the certified international aerodromes and number of runway incursions and excursions;

- MID Metrics 4 and 5 are to be monitored by the MIDRMA Board and the ATM/SAR/AIS Sub-Group, giving that States provide the MIDRMA with the necessary data on a regular basis and in a timely manner;

- MID Metrics 6 is to be processed by the ICAO MID Regional Office, using the MID Air Navigation Deficiency Database (MANDD) and the outcome of all the MIDANPIRG Subsidiary bodies related to air navigation deficiencies; and

- MID Metrics 7 and 8 are to be monitored by the PBN/GNSS Task Force, giving that States provide the ICAO MID Regional Office necessary data.

4.6 With regard to the development of performance targets, the meeting was apprised of the proposals made by the different MIDANPIRG subsidiary bodies and agreed to the following:

- Performance Target associated with MID Metric 4: **Minimum 80%** of States report necessary data to the MIDRMA on regular basis and in a timely manner;

- Performance Target associated with MID Metric 5: the overall collision risk in MID RVSM airspace meets the ICAO overall **TLS of 5 x 10^{-9}** fatal accidents per flight hour; and

- Performance Target associated with the MID Metrics 6: elimination of **15%** of the deficiencies priority "U".

4.7 In accordance with MIDANPIRG/11 Conclusion 11/70 – "Regional Performance Framework", the different MIDANPIRG subsidiary bodies continued work on the development and update of the Regional PFFs. The meeting reviewed and updated the PFFs related to AIM, ATM, CNS and MET are at Appendices **4A, 4B, 4C,** and **4D**, to the Report on Agenda Item 4. In this respect, the meeting agreed that the final version of the AGA PFFs which would be presented to MIDANPIRG/13 (Abu Dhabi, UAE, 22-26 April 2012) would be updated by the AOP SG/8 meeting (Cairo, Egypt, 13-15 February 2012). It was also underlined that the Regional PFFs could be further improved, giving that users provide their needs and expectations and States develop/update their National PFFs and report relevant data necessary for performance monitoring of the air navigation systems, as required. In this respect, in accordance with MIDANPIRG/11 Conclusion 11/71 – "National Performance Framework" and MIDANPIRG/12 Conclusion 12/48, the meeting urged States to develop/update their National Performance Framework and to send the reply to the State Letter Ref.: AN 7/26.1-11/121 dated 24 May 2011 to the MID Regional Office before **15 March 2012**, in order to provide MIDANPIRG/13 with a realistic picture of the progress achieved so far in the MID Region, with regard to the Performance Framework. It was clarified that the National Performance Framework, includes, inter-alia, the following:

- identification of the national objectives with measurable indicators and metrics, which support the regional objectives identified in the Regional PFFs;

- allocation of resources for the achievement of the agreed objectives, based on cost-benefit analysis;

- development of the National PFFs; and

- development of necessary procedures related to the collection and reporting of necessary data, performance measurement, human resources (training), coordination (internally and with neighbouring States, as appropriate), etc.

4.8 In connection with the above, the meeting noted with appreciation that Jordan has developed a National PFF related to the implementation of ADS-B, RNAV, GNSS, ILS Cat III, and ATFM. Nevertheless, the meeting highlighted that this does not fully fulfill the requirements related to the development of National Performance Framework, and accordingly, as for all the MID States, Jordan was urged to complete the development of their National Performance Framework and to provide the MID Regional Office an update on the progress achieved so far on the subject before **15 March 2012**.

4.9 Based on all the foregoing, the meeting agreed to the following Draft Conclusion to replace and superseded the MIDANPIRG/12 Conclusion 12/48:

DRAFT CONCLUSION 6/1: NATIONAL PERFORMANCE FRAMEWORK

That, States be urged to:

a) develop, update and/or complete their National Performance Framework, including the National Performance Framework Forms (PFFs), ensuring the alignment with and support to the regional performance objectives;

b) incorporate the agreed MID Region Performance Metrics into their National performance monitoring process; and

c) report relevant data necessary for performance monitoring of the air navigation systems to the ICAO MID Regional Office, on a regular basis, with a view to update the Regional PFFs and monitor the MID Region Performance Metrics.

4.10 The meeting recalled that the 37th ICAO Assembly resolution A37-19 calls upon States to develop and implement procedures to reduce aviation emissions. Accordingly, several operational improvements are being planned and implemented at global, regional and national levels.

4.11 Operational improvements are a key strategy that can be applied to deliver tangible reductions in aircraft fuel consumption. The Global Air Navigation Plan (Doc 9750) and the Operational Opportunities to Minimize Fuel Use and Reduce Emissions (Circular 303) are among several documents providing guidance regarding operational improvements being implemented to improve efficiency of the ATM System.

4.12 Implementation of operational improvements will generally have benefits in areas such as improved airport and airspace capacity, shorter cruise, climb and descend times through the use of more optimized routes, and an increase of unimpeded taxi times. These improvements have the potential to reduce fuel burn and lower levels of pollutants.

4.13 Calculation of aviation emissions is dependent on several different factors including the number and type of aircraft operations, the type and efficiency of the aircraft engines, the type of fuel used, the length of flight, the power setting, the time spent at each stage of flight, and the location (altitude) at which exhaust gases are emitted.

4.14 The main objective is to estimate and report fuel savings resulting from national or regional operational improvements through the use of a simple tool. In this respected the meeting noted that ICAO developed the ICAO Fuel Savings Estimation Tool – (IFSET), which can be accessed at http://www.icao.int/environmental-protection.

4.15 The meeting was apprised of the outcome of the IFSET workshop held in Cairo, Egypt 29 January 2012 which was supported by CANSO. The meeting agreed that the outcome of the workshop at **Appendix 4E** to the Report on Agenda Item 4, be considered when updating the Regional PFFs.

4.16 The meeting agreed to establish an Air Traffic Management Measurement Task Force (ATMM TF) dedicated to the measurement process, with terms of reference as at **Appendix 4F** to the Report on Agenda Item 4. Accordingly, the meeting agreed to the following Draft Decision:

DRAFT DECISION 6/2: ESTABLISHMENT OF THE AIR TRAFFIC MANAGEMENT MEASUREMENT TASK FORCE (ATMM TF)

*That, the ATMM TF be established with Terms of Reference (TOR) as at **Appendix 4F** to the Report on Agenda Item 4.*

4.17 The meeting agreed that MID States/ANSPs in the MID Region start reporting the benefits as they plan or implement any type of operational improvement. The meeting further agreed that the results be sent to ICAO every six month using the form proposed in **Appendix 4G** to the Report on Agenda Item 4.

4.18 Considering the need to have a clearly defined regional approach for using IFSET as a tool for estimating environment benefits, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/3: ESTIMATING ENVIRONMENT BENEFITS

That, in order to allow the ATMM TF and the CNS/ATM/IC SG to follow-up the implementation of the ATM operational improvements and estimate the fuel savings accrued from the corresponding improvements on regional basis

a) MID States be urged to:

i) use IFSET or a more advanced model/measurement capability available to estimate environment benefits accrued from operational improvements;

ii) send the IFSET reports/the accrued environmental benefits to ICAO MID Regional office on a bi-annual basis.

b) IATA to:

i) encourage users to support the programme; and

ii) consolidate users' inputs and report the accrued environmental benefits to ICAO MID Regional office on a bi-annual basis.

States Action plan for the reduction of CO_2 emission

4.19 The meeting was apprised of the outcome of the workshop on States action plans for CO_2 emission reduction which was held in Abu Dhabi, UAE in June 2011 to support MID States in the preparation and submission of their action plans. The workshop provided the participants with detailed information on how to develop their action plans and a hands-on training session on the ICAO interactive action plan website which will help States to submit their action plan electronically to ICAO.

4.20 Based on the above, the meeting urged States to follow up with respective departments to nominate a focal point for CO_2 emission and inform ICAO accordingly; and to submit the State action plans before 30 June 2012. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/4: STATE ACTION PLANS FOR CO_2 EMISSION

That, MID States be urged to:

a) send the contact details of their CO_2 emission focal point to the ICAO MID Regional office; and

b) submit their action plan for CO_2 emission to ICAO before 30 June 2012

MID Region Operational Improvements

4.21 The meeting noted that Aviation System Block Upgrades (ASBUs) comprise a suite of modules, each having the following essential qualities:

- A clearly-defined measurable operational improvement and success metric;
- Necessary equipment and/or systems in aircraft and on ground along, with an operational approval or certification plan;
- Standards and procedures for both airborne and ground systems; and
- A positive business case over a clearly defined period of time.

4.22 The meeting noted that a high-level briefing on ASBUs was held in Cairo on 30 January 2012. The meeting reviewed the operational improvements contained in the current version of ASBU Working Document and agreed to the need of identification of those operational improvements which are of relevance to the MID Region. However, it was highlighted that the whole concept of ASBU will be finalized by the AN-Conf/12 and accordingly the meeting identified the following operational improvement to be further reviewed and considered by the CNS/ATM/IC SG/7 meeting taking into consideration the outcome of both the ASBU workshop to be held in Cairo 30September – 04 October 2012 and the AN-Conf/12:

a) Improved Airport Accessibility

b) Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration -AIDC-

c) Service Improvement through Digital Aeronautical Information Management

d) Improved Operations through Enhanced En-Route Trajectories

e) Improved Flexibility and Efficiency in Descent Profiles (CDOs)

f) Improved Flexibility and Efficiency in Departure Profiles

g) Improved Runway Safety (A-SMGCS)

h) Improved Airport Operations through A-CDM

i) Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B

CNS/ATM/IC SG/6
Appendix 4A to the Report on Agenda Item 4

MID REGIONAL PERFORMANCE OBJECTIVES
AIM PERFORMANCE OBJECTIVES

TRANSITION FROM AIS TO AIM	
Benefits	
Safety	• Safety level improved
Environment	• Reduced emissions through use of optimum routes/trajectories
Capacity	• Increased capacity through better utilization of airspace
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• number of States having fully implemented WGS 84 • number of States having implemented eTOD for Areas 1 & 4 • Number of deficiency Priority "U" related to the AIS/MAP field • Number of States having implemented QMS • Number of States having developed eAIP • Number of States having developed a National Plan for the transition from AIS to AIM • Number of States having implemented an AIXM based AIS Database • Number of States having implemented an Integrated Aeronautical Information Database (IAID)

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
ATM SDM, AUO, CM	• improve the compliance with the AIRAC system, , including the use of the internet for the advance posting of the aeronautical information considered of importance to users.	B0-30	Ongoing	States	valid
	• complete WGS-84 implementation	B0-10 B0-65	2012	States	valid
	• monitor the implementation of WGS-84 until complete implementation of the system by all States and take remedial action, as appropriate	B0-10 B0-65	ongoing	ICAO & AIM TF	valid
	• foster the implementation of QMS based on the MID Region Methodology for the implementation of QMS and the Eurocontrol CHAIN deliverables	B0-30	Ongoing	ICAO & AIM TF & States	valid

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
	• monitor the implementation of QMS until complete implementation of the requirements by all MID States	B0-30	Ongoing	ICAO & AIM TF	valid
	• review and update the deficiencies in the AIS/MAP field and provide necessary guidance for their elimination	B0-30	Ongoing	ICAO & AIM TF	valid
	• plan for the transition from AIS to AIM in the MID Region	B0-30	2008-2016	ICAO & AIM TF & States	valid
	• monitor the implementation of AIS automation in the MID Region in order to ensure availability, sharing and management of electronic aeronautical information	B0-30	2008-2013	ICAO & AIM TF	valid
	• development of eAIPs by MID States	B0-30	Ongoing	States	valid
	• establishment of Integrated Aeronautical Information Database (IAID)	B0-30	2011-2016	States	valid
	• provision of AIM products and services based on the established IAID	B0-30 B1-25	2013-2020	States	valid
	• support the development of a MID Region AIS database (MIDAD)	B0-30	2011-2016	States & ICAO & AIM TF	valid
	• establishment of formal arrangements with approved data originators concerning aeronautical data quality	B0-30	2009-2016	States	valid
	• implementation of digital data exchange with originators	B0-30	2013-2018	States	valid
	• foster the integrated improvement of AIS/AIM through proper training and qualification of the AIS/AIM personnel in the MID Region and certification of the AIM Services	B0-30	2011-2016	ICAO & AIM TF & States	valid

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
	• provide Terrain and Obstacle data for area 1	B0-30 B0-85 B2-25	2008-2012	States	valid
	• provide Terrain and Obstacle data for area 4	B0-30 B0-85 B2-25	2008-2012	States	valid
	• assessment of Annex 15 requirements related to the provision of eTOD for area 2 and area 3	B0-30 B0-85 B2-25	2010-2012	States	valid
	• development of an action plan for the provision of eTOD for area 2 and area 3	B0-30 B0-85 B2-25	2013	States	valid
	• provide necessary Terrain and Obstacle data for area 2	B0-30 B0-85 B2-25	2015	States	valid
	• provide necessary Terrain and Obstacle data for area 3	B0-30 B0-85 B2-25	2015	States	valid
	• foster the implementation of Aerodrome mapping and electronic aeronautical charts in the MID Region	B0-30	2012-2016	ICAO & AIM TF & States	valid
Linkage to GPIs	GPI-5: Performance-based navigation GPI-11: RNP and RNAV SIDs and STARs GPI-9: Situational awareness GPI-18: Aeronautical Information GPI-20: WGS-84 GPI-21: Navigation systems				

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Appendix 4B to the Report on Agenda Item 4

MID REGIONAL PERFORMANCE OBJECTIVES
ATM PERFORMANCE OBJECTIVES

OPTIMIZATION OF THE ATS ROUTE STRUCTURE EN-ROUTE AIRSPACE	
Benefits	
Safety	• Improved safety of ATS routes
Environment	• reductions in fuel consumption and CO_2 emission
Capacity	• increase in airspace capacity • ability of aircraft to conduct flight more closely to preferred trajectories
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• number of RNAV 1 Routes implemented, in accordance with the MID Basic ANP • number of implemented ATS Routes from the MID ATS Route Catalogue • number of States having implemented RNAV 5 area in the level band FL160-FL460 • number of duplicate 5LNC eliminated • number of eliminated deficiency related to non-implementation of ATS Routes • number of concerned States implementing 20NM radar longitudinal separation • number of concerned States implementing 10NM radar longitudinal separation

	Strategy				
ATM Operational Concept Components	**Project/Tasks**	***Linkage to ASBU Module***	**Time Frame Start-End**	**Responsibility**	**Status**
AOM	***En-route airspace***				
	• develop Airspace Concept based on the MID PBN implementation plan, in order to design and implement a trunk route network, connecting major city pairs in the upper airspace and for transit to/from aerodromes, on the basis of PBN and, in particular, RNAV 5, taking into account interregional harmonization	B0-10 B0-20 B0-65 B0-101	ongoing	ATM/SAR/AIS SG (ARN TF)	valid
	• review user requirements for the establishment of ATS routes in the MID Region	B0-10 B0-20	Ongoing	ATM/SAR/AIS SG ARN TF	valid
	• monitor status of PBN implementation	B0-65	2010-2012	States	valid
	• review the implementation of pending ATS Routes and update the MID Basic ANP and the MID ATS Route catalogue	B0-10 B0-20 B0-65	Ongoing	ATM/SAR/AIS SG ARN TF	valid

	Strategy				
ATM Operational Concept Components	**Project/Tasks**	***Linkage to ASBU Module***	**Time Frame Start-End**	**Responsibility**	**Status**
	• follow–up with States on the implementation of pending ATS Routes and update the list of air navigation deficiencies, accordingly	B0-10 B0-20	On going	ATM/SAR/AIS SG ARN TF	valid
	• monitor implementation of 20NM Radar longitudinal separation between States	B0-101	2010-2013	Iraq, Iran and Yemen	Implemented by Bahrain; Jordan; Kuwait; Lebanon; Saudi Arabia; Syria and UAE
	• monitor implementation of 10NM Radar longitudinal separation between States	B0-101	2011-2016	Bahrain; Iraq; Jordan; Kuwait; Lebanon; Oman, Saudi Arabia; Syria, UAE and Yemen	Implemented between (Bahrain and UAE) and (Oman and UAE)
	• monitor the process of allocation of 5LNCs	B0-65	On going	ICAO	valid
	• elimination/Reduction of the use of duplicate 5LNCs	B0-65	On going	ICAO States	valid
linkage to GPIs	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/20: WGS-84				

OPTIMIZATION OF THE TERMINAL AIRSPACE	
Benefits	
Safety	• enhance safety in terminal air space
Environment	• reductions in fuel consumption and CO_2 emission
Capacity	• increase terminal capacity • ability of aircraft to conduct flight more closely to preferred trajectories
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories • implementation of PBN routes in terminal airspace • implementation of SID and STARS
	Performance Measurement
Performance Metrics:	• number of States implemented PBN routes in terminal airspace • total Number of PBN routes in MID region terminal airspace • number States implemented SID and STARS • percentage of CO_2 reduction of implemented new routes

	Strategy				
ATM Operational Concept Components	**Project/Tasks**	***Linkage to ASBU Module***	**Time Frame Start-End**	**Responsibility**	**Status**
AOM, AO	***In terminal airspace***				
	• develop terminal Airspace Concept taking into consideration the MID PBN impl. plan.	B0-65	2012-2014	States	valid
	• formulate safety plan (assessment and monitoring)	B0-65	2012-2014	States, MPST	valid
	• support for operational approvals	B0-65	On going	MPST	valid
	• publish national regulations for aircraft and operators approval using PBN manual as guidance and considering available foreign approval material	B0-65	On going	States	valid
	• training on PBN	B0-65	On going	States MPST	valid
	• system performance measuring (measurement and monitoring plan)	B0-65	On going	States, ATM/SAR/AIS SG	valid
	• implement SIDs and STARs	B0-65	2009-2016	States	valid
	• monitor implementation progress in accordance with MID PBN implementation roadmap and States implementation plan	B0-65	2009-2016	States, ATM/SAR/AIS SG	valid
Linkage to GPIs	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: Functional integration of ground systems with airborne systems.				

	ENHANCE CIVIL/MILTARY COORDINATION AND CO-OPERATION
	Benefits
Safety	• ensure safe and efficient action in the event of unlawful interference
Environment	• reductions in fuel consumption and CO2 emission • allow a more efficient ATS route structure; and
Capacity	• increase airspace capacity
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• reduction of the number of ATS routes not implemented due to Military restrictions • increase the number of CDRs implemented in accordance with user requirements • reduction of the number of incident related to uncoordinated flights operating over high seas • percentage of CO2 reduction of implemented new PBN approaches • number of ATS routes not implemented due to Military restrictions • number of Conditional Routes (CDR) implemented in accordance with user requirements • number of reported incident related to uncoordinated flights operating over high seas

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
AOM, AUO	• establish civil/military coordination bodies at national level	B0-10 B0-65 B0-35	2008-2014	States	valid
	• implement collaborative civil/military airspace planning at national level	B0-10 B0-65 B0-35	On going	States	valid
	• develop a regional strategy and an Action Plan for implementation of flexible use of airspace in a phased approach beginning with more dynamic sharing of restricted airspace while working towards full integration of civil and military aviation activities	B0-05 B0-10 B0-65 B0-35	2009-2013	ATM/SAR/AIS SG ARN TF	valid
	• implement FUA	B0-35	2009- 2016	States	valid
	• monitor FUA implementation progress	B0-35	On going	ATM/SAR/AIS SG	valid
Linkage to GPIs	GPI/1: flexible use of airspace, GPI/7: Dynamic and flexible ATS route management, GPI/8: Collaborative airspace design and management				

REGIONAL PERFORMANCE OBJECTIVES RVSM OPERATIONS IN THE MID REGION	
Benefits	
Safety	• safety level maintained or improved
Environment	• reductions in fuel consumption and emissions;
Capacity	• increased capacity through better utilization of airspace
Cost effectiveness	• fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• number of States reporting necessary data to the MIDRMA on regular basis and in a timely manner • percentage of the RVSM approved aircraft in the MID Region with known height-keeping monitoring results • Overall Risk of Collision in the MID RVSM airspace

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
	• develop an Action Plan for the implementation of RVSM within Baghdad FIR		2009-2010	BFRI WG	completed
	• develop necessary planning material related to RVSM implementation in Baghdad FIR		2009-2011	BFRI WG MIDRMA ICAO	completed
	• ensure that Iraq met all RVSM implementation requirements		2010-2011	BFRI WG MIDRMA ICAO	completed
	• implement RVSM within Baghdad FIR		2011	Iraq ICAO MIDRMA	completed
	• develop Baghdad FIR Post RVSM Implementation Safety Report		2011-2012	Iraq MIDRMA	valid
	• monitor RVSM operations in the MID Region		Ongoing	MIDRMA, MIDRMA Board, ATM/SAR/AIS SG ICAO	valid
	• develop MID RVSM Safety Monitoring Reports (SMR) with a view to demonstrate that safety objectives continue to be met		Ongoing	MIDRMA	valid
	• assess MID RVSM SMRs and take action as required		Ongoing	ATM/SAR/AIS SG MIDRMA Board MIDANPIRG	valid
linkage to GPIs	GPI-2: Reduced Vertical Separation Minima				

IMPLEMENTATION OF THE NEW ICAO FPL FORM	
Benefits	
Safety	• enhance safety by use of modern capabilities onboard aircraft
Environment	• reductions in fuel consumption and CO_2 emission utilizing proper flight planning and aircraft capabilities are known in advance to ANSP
Capacity	• ability of air navigation service providers to make maximum use of aircraft capabilities • ability of aircraft to conduct flights more closely to their preferred trajectories • optimized demand and capacity balancing through the efficient exchange of information
Cost effectiveness	• facilitate utilization of advanced technologies thereby increasing efficiency
	Performance Measurement
Performance Metrics:	• status of implementation of ICAO new FPL provisions • status of updates in the FITS • number of States meeting the deadline for implementation of the ICAO new FPL provisions • number of States providing the focal points and initiated impact studies

	Strategy			
ATM Operational Concept Components	**Projects/Tasks**	**Timeframe Start/End**	**Responsibility**	**Status**
SDM	• Planning and implementation of transition elements	2009-2012	INFPL SG	valid
	• States to assign focal points and form and internal nucleus team	2009 - 2010	States	valid
	• ensure that enabling regulatory (regulations procedures, AIP etc..) provisions are developed	2009- 2012	States	valid
	• ensure that the automation and software requirements of local systems are fully adaptable to the changes envisaged in the new FPL form	2009 - 2012	States	valid
	• ensure that issues related to the ability of all system to pass information correctly and to correctly identify the order in which messages are received, to ensure that misinterpretation of data does not occur	2009- 2012	States	valid
	• analyze each individual data item within the various fields of the new flight plan form, comparing the current values and the new values to verify any problems with regard to applicability of service provided by the facility itself or downstream units	2009 – 2011	INFPL SG States	valid

	Strategy			
ATM Operational Concept Components	**Projects/Tasks**	**Timeframe Start/End**	**Responsibility**	**Status**
	• ensure that there are no individual State peculiarities or deviations from the flight plan provisions	2009- 2012	States	valid
	• ensure that the accepting ATS Reporting Office accepts and disseminates all aircraft capabilities and flight intent to all the downstream ACCs as prescribed by the PANS-ATM provisions	2009 – 2012	INFPL SG States	valid
	• plan the transition arrangements to ensure that the changes from the current to the new ICAO FPL form occur in a timely and seamless manner and with no loss of service	2009-2012	States INFPL SG	valid
	• in order to reduce the chance of double indications it is important that any State having published a specific requirement(s) which are now addressed by the amendment should withdraw those requirements in sufficient time to ensure that aircraft operators and flight plan service providers, after 15 November 2012, use only the new flight plan indications.	2009- 2012	States	valid
	• internal testing	2009 – June 2012	States	valid
	• external testing and transition into operation	1 April to 30 June 2012	States	valid
	• airspace users validation and filling of NEW FPLs if appropriate	1 July to 14 November 2012	States and users	valid
	• Plan and ensure the training of relevant stakeholders (air traffic controllers, etc)	2009 - 2012	States	valid
	• develop and make available, guidance material for users, including but not limited to ANSP personnel	2009 - 2011	INFPL SG	valid

	Strategy			
ATM Operational Concept Components	**Projects/Tasks**	**Timeframe Start/End**	**Responsibility**	**Status**
	• establish and enhance as appropriate a central depository (FITS) in order to track the implementation status	Ongoing	ICAO	Completed
	• inform the ICAO regional offices on an ongoing basis	Ongoing- Dec 2012	States	Valid
linkage to GPIs	GPI/5 RNAV and RNP (Performance-based- navigation, GPI/9 Situational awareness, GPI/16 Decision Support systems and alerting systems, GPI/17 Data link application, GPI/18 Aeronautical Information GPI/21 Navigation systems and GPI/23 Aeronautical radio spectrum.			

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CNS PERFORMANCE OBJECTIVES

REGIONAL PERFORMANCE OBJECTIVES RADIO SPECTRUM MANAGEMENT AND PROCESSES TO PROTECT THE AERONAUTICAL SPECTRUM	
Benefits	
Safety	• Protection and availability of required spectrum for safety of air systems specially GNSS
Environment	• Supports ATM for the optimized use of technologies to reduce effect on environment
Capacity	• proper administration of the allocated aviation spectrum • resolve air Space communications
Cost effectiveness	• use of advance technologies to reduce costs
	• **Performance Measurement**
Performance Metrics:	• number of aviation experts participate in and satisfactory results of WRC-12 • number of States coordinate with TRA to support the ICAO position • current Aviation Frequency spectrum is protected to extent possible • availability of Frequency Spectrum for Future Aeronautical utilization • number of States deleted their State name from the foot notes affecting aviation spectrum

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
AOM, AUO, ATMSDM	• implement frequency spectrum management tool	B0-65	2008-2013	ICAO States	valid
	• harmonize Regional coordination for the protection of the aviation spectrum at WRC , and beyond	B0-65	Ongoing	ICAO, CNS SG States	valid
	• promote the participation of Civil Aviation Experts in State's delegation to ITU WRC Meetings	B0-65 B1-90	Ongoing	ICAO CNS SG	valid
	• Civil Aviation Spectrum experts attend WRC, be part of their National delegation and coordinate with TRA	B0-65 B1-90	Ongoing	States	valid
	• disseminate ICAO policy statements of requirements for aeronautical radio frequency spectrum for WRC	B0-65 B1-90	Ongoing	ICAO	complete

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
	• deletion of MID States name from footnote affecting Aviation spectrum and inform ICAO Mid Regional Office	B0-65 B1-90	Ongoing	States	valid
	• ICAO attend WRC to provide necessary support to the delegation for the support of the aviation spectrum	B0-65 B1-90	Ongoing	ICAO	valid
	• organize workshop for the Regional support to ICAO position		Sep 2010	ICAO	complete
	• attend Regional Workshop along with the National TRA		Sep 2010	States	complete
	• increase awareness and Ensure frequency Spectrum availability for future aviation needs	B0-65 B1-90	Ongoing	ICAO/States	valid
Linkage to GPIs	GPI-23: Aeronautical radio spectrum				

REGIONAL PERFORMANCE OBJECTIVE IMPROVEMENT OF AERONAUTICAL TELECOMMUNICATION NETWORK INFRASTRUCTURE RELATED TO ATN IMPLEMENTATION	
Benefits	
Safety	• improve safety with reliable means of communication
Environment	• ATN communication improve air space usage thus benefiting the environment
Capacity	• better coordination using more reliable networks
Cost effectiveness	• improvement in operational efficiency
	Performance Measurement
Performance Metrics:	• Number of deficiency Priority "U" related to the ATN • status of the development of the Regional Plan • number of States follow the implementation Plan

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
AO, TS, CM, AUO	• develop Regional ATN Planning document	B0-25 B0-40	2008-2013	ATN/IPS WG	valid
	• review of ATN implementation issues and develop coordinated solutions	B0-25	2009-2013	ATN/IPS WG and CNS SG	valid
	• develop conformance procedures and check list for AMHS	B0-25	2009-2011	ATN/IPS WG and CNS SG	Completed
	• develop information Security policy and Guidance	B0-25	2009-2013	ATN/IPS WG and CNS SG	valid
	• coordinate and monitor implementation to be harmonized and interoperable globally	B0-25 B0-40	On going	ATN/ IPS WG and CNS SG	valid
	• implement agreed G-G ATN application	B0-25	On going	States	valid
	• monitor and report deficiencies to support the agreed MID METRICS	B0-25 B0-40	On going	ATN/IPS WG and CNS SG	Valid
	• support other MIDANPIRG Subsidiary bodies for ATN infrastructure requirement	B0-25	2008-2016	ATN/IPS WG and CNS SG	Valid

REGIONAL PERFORMANCE OBJECTIVES IMPLEMENTING ADVANCED TECHNOLOGIES TO SUPPORT DATA LINK SERVICES	
Benefits	
Safety	• improved safety through use of data links
Environment	• Reduced emissions through use of optimum routes/trajectories
Capacity	• Increased capacity through better utilization of airspace
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• number of States developed data link implementation plan • number of States Implemented data links

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
AO, TS, CM, AUO DCB, ATMSDM	• identify requirement and harmonize implementation plan for data link to ensure interoperability between States and Regions	B0-40	2010-2013	CNS/ATM/IC SG CNS SG	valid
	• technical audit of available supporting infrastructure	B0-25 B0-40	2010-2013	CNSATM/IC SG	valid
	• implement available technologies that bring immediate benefits (D-ATIS, CPDLC, ADS-C, ADS-B) and inform ICAO MID Regional Office	B0-25 B0-40	On going	States , user	valid
	• Coordinate ADS-B implementation plan and concept of operations with other ICAO regions	B0-05 B0-40 B0-85 B0-86	2011-2013	CNS/ATM/IC SG CNS SG	valid
	• monitor and report deficiencies to support agreed MID Metrics	B0-05	On going	All MIDANPIRG Subsidiary bodies	valid
Linkage to GPIs	GPI-22: Communications Infrastructure GPI-17: Data Link Application				

REGIONAL PERFORMANCE OBJECTIVES IMPLEMENTATION OF GNSS IN THE MID REGION	
Benefits	
Safety	• reduced navigational errors • additional navigational capabilities brings more safety
Environment	• supports the implementation of PBN which in turn bring benefits to environment
Capacity	• optimal use of advanced technologies • optimization of infrastructure
Cost effectiveness	• operational efficiency
Performance Metrics:	• alignment of GNSS Implementation strategy with PBN • status of Implementation of GNSS • number of States Implemented GNSS • number of report on trails and demo on GNSS

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
AO, TS, CM, AUO AOM,	• carry out GNSS trials, demonstrations and test beds	B0-65	On going	States, ICAO	valid
	• determine the most appropriate augmentation system for the MID Region	B0-65	2009-2013	PBN/GNSS TF CNS/ATM/IC CNS SG	valid
	• define and implement required infrastructure /procedure according to regional PBN implementation plan	B0-65 B0-10	On going	States PBN/GNSS TF CNS/ATM/IC CNS SG	valid
	• monitor implementation progress	B0-65	On going	PBN/GNSS TF	valid
	• monitor and report deficiencies to support agreed MID METRICS	B0-65	On going	All MIDANPIRG Subsidiary bodies	valid
Linkage to GPIs	GPI-21: Navigation Systems GPI-9: Situational Awareness				

REGIONAL PERFORMANCE OBJECTIVES IMPROVE SITUATIONAL AWARENESS	
Benefits	
Safety	• safe reduced separation
Environment	• Sharing surveillance data will benefit the user for optimum flight routes bringing reductions in fuel consumption and CO_2 emission
Capacity	• operational Efficiency • ability of aircraft to conduct flight more closely to preferred trajectories • increase in airspace capacity
Cost effectiveness	• reductions in fuel consumption
	Performance Measurement
Performance Metrics:	• number of States implement required surveillance infrastructure • number of States sharing surveillance data • Number of deficiency Priority "U" related to surveillance infrastructure

	Strategy				
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
AOM, AUO, ATMSDM	• prepare Plan for introduction of new surveillance systems	B0-80 B0-85	2011-2013	States, ICAO PBN/GNSS TF CNS/ATM/IC CNS SG	valid
	• organize workshop for developing MID surveillance roadmap	B0-80 B0-85	2009-2011	ICAO	completed
	• MID States participate actively in the workshop to reach its objective	B0-80 B0-85	2011	States	completed
	• follow up on the Regional Surveillance systems in MID Regional ANP and FASID	B0-80 B0-85	2008-2013	CNS SG	valid
	• Study and identify applicable multilateration applications in the MID Region	B0-80 B0-85	2011-2013	CNS SG	valid
	• monitor and report deficiencies In order to support agreed MID Metrics	B0-80 B0-85	On going	ATN/IPS WG and CNS SG	valid
Linkage to GPIs	GPI-9: Situational Awareness				

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MID REGIONAL PERFORMANCE OBJECTIVES
MET PERFORMANCE OBJECTIVES

IMPLEMENT INTERNATIONAL AIRWAYS VOLCANO WATCH (IAVW), INTERNATIONAL TROPIOCAL CYCLONE WATCH (ITCW), AND IMPROVE THE QUALITY OF METEOROLOGICAL WARNINGS AND ADVISORIES	
Benefits	
Safety	• Improve in-flight safety by providing information on volcanic ash, tropical cyclone and other hazardous weather by way of meteorological advisories and warnings
Environment	• Reduced emissions through use of optimum routes/trajectories (achieved by optimizing flight routes with respect to volcanic ash, tropical cyclone and other hazardous weather phenomena by way of meteorological advisories and warnings)
Capacity	• Increased capacity through better utilization of airspace
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• TBD

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
MET	• Monitor and provide assistance in the regional implementation of meteorological warnings and advisories that include volcanic ash (VA) and tropical cyclone (TC) advisories and meteorological warnings and advisories based on current and future requirements	B0-xx	Ongoing	MET SG	In progress
	• Track and investigate deficiencies in the format and dissemination of meteorological advisories and warnings and propose remediation plans and provide information to ICAO and WMO groups for possible assistance	B0-xx	Commence in 2012	BMG	In progress
	• Conduct periodic tests for SIGMET on VA, TC, and phenomena other than VA and TC in view of assessing improvements in their implementation	B0-xx	ongoing	MET SG & BMG	In progress

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
	• Provide guidance and/or training related to the implementation of meteorological advisories and warnings, including the Regional SIGMET Guide as they related to the Annex 3 amendment cycle	B0-xx	Ongoing	MET SG	In progress
	• Develop contingency plan for volcanic ash with reference to developments made by the IVATF and WMO scientific steering committee	B0-xx	2012-2013	MET SG	To begin
Linkage to GPIs	GPI-19 – Meteorological Systems				

Refernces: *Annex 3*; *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691); *Handbook on the International Airways Volcano Watch (IAVW) Operational Procedures and Contact List* (Doc 9766); *Manual on Low-level Wind Shear* (Doc 9817); *MID Regional SIGMET Guide; EUR OPMET Data Management Handbook (ICAO EUR Doc 018) – reference SIGMET test in Appendix C section 11*

DEVELOP REGIONAL MET REQUIREMENTS TO SUPPORT ATM	
Benefits	
Environment	• Improve efficiency of ATM and airlines by providing tailored regional MET products needed to optimize flight routes in all weather conditions
Capacity	• Increased capacity through better utilization of airspace
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• TBD

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
MET	• Conduct MET seminar in coordination with WMO in 2013 or 2014 depending on regional and global developments related to MET requirements to support ATM	B0-xx	2013-2014	MET SG	future
	• Assess aviation meteorological services, systems and architecture in the region and how they can integrate weather information into decisión support tools	B0-xx	2013+	MET SG	future
	• Investigate sub-regional exchange of MET information (e.g. weather radar data) and associated agreements that facilitate ATM operations particularly over busy routes that overlap different FIRs	B0-xx	2013+	MET SG	future
	• Facilitate implementation of Meteorological Services for the Terminal Area (under development by WMO)	B0-xx	2014+	MET SG	future
Linkage to GPIs	GPI-19 – Meteorological Systems				

References: *Manual on co-ordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377)*

IMPROVE OPMET EXCHANGE EFFICIENCY	
Benefits	
Environment	• Increase OPMET availability and reliability needed for flight planning (efficiency) and in-flight re-planning (safety)
Capacity	• Increased capacity through better utilization of airspace
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• TBD

Strategy					
ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
MET	• Improve the availability of OPMET data at the Regional OPMET Data Banks (RODB)	B0-xx	ongoing	BMG	In progress
	• Improve the inter-regional OPMET exchange	B0-xx	ongoing	BMG	In progress
	• Consider development of and maintenance of regional ROBEX tables and guidance material	B0-xx	ongoing	BMG	In progress
	• Facilitate and provide guidance to the implementation new/modified standards before applicability date and carry out post implementation review to ensure that standardized procedures are followed	B0-xx	ongoing	BMG	In progress
	• Conduct periodic quality checks and OPMET monitoring to improve the quality and timeliness of OPMET in the MID Region	B0-xx	ongoing	BMG in coordination with EUR DMG	In progress
	• Facilitate and monitor the migration to AIM and new MET codes (e.g. XML) for METAR/SPECI, TAF and SIGMET	B0-xx	ongoing	BMG & MET SG & RO	In progress
Linkage to GPIs	GPI-19 – Meteorological Systems				

Refernces: *SADIS User Guide, Asia/Pacific ROBEX Handbook; Asia/Pacific OPMET Data Banks Interface Control Document; EUR OPMET Data Management Handbook 4th Edition December 2010 – revised January 2012*

IMPLEMENT WAFS AND ASSOCIATED DEVELOPMENTS	
Benefits	
Environment	• Improve the regional implementation of weather forecasts (including upper winds and upper-air temperatures, direction, speed and height of maximum winds and tropopause heights, as well as turbulence, icing, cumulonimbus) used by airlines and ATM needed to optimize flight routes which will provide an increase in efficiency and reduced carbon
Capacity	• Increased capacity through better utilization of airspace
Cost effectiveness	• Fuel cost reduction through use of optimum routes/trajectories
	Performance Measurement
Performance Metrics:	• TBD

Strategy

ATM Operational Concept Components	**Projects/Tasks**	***Linkage to ASBU Module***	**Timeframe Start/End**	**Responsibility**	**Status**
MET	• Assist the regional implementation of new gridded products for turbulence, icing and CB forecasts	B0-xx	2012-2013	MET SG	In progress
	• Facilitate in organizing regional training of new gridded products for turbulence, icing and cumulonimbus forecasts	B0-xx	2012-2013	ICAO & WMO	In progress
	• Monitor the implementation of WIFS for backup purposes to SADIS noting the planned cessation of ISCS-G2 broadcast in June 2012	B0-xx	ongoing	MET SG	In progress
	• Promote the implementation of Secure SADIS FTP service	B0-xx	By Nov 2012	MET SG	In progress
	• Promote the migration from WAFS upper-air forecasts in GRIB1 to GRIB2 format	B0-xx	Preferably by 5 July 2012 but no later than Nov 2013	MET SG	In progress
	• Monitor the implementation status of WAFS within the MID Regions, and report to MET SG	B0-xx	2012+	MET SG	To begin
	• Report WAFS training needs of MID States to MET SG	B0-xx	2012+	MET SG	To begin
Linkage to GPIs	GPI-19 – Meteorological Systems				

Refernces: *Annex 3*; *http://www.icao.int/anb/wafsopsg/*; *http://www.icao.int/anb/sadisopsg*; *Asia/Pac WAFS Implementation Plan and Procedures (http://www.bangkok.icao.int/edocs/WAFS_Service_Reference_v1.pdf)*

CNS/ATM/IC SG/6
Appendix 4E to the Report on Agenda Item 4

OUTCOME OF THE IFSET WORKSHOP

- The workshop increased awareness on the environmental issues and the need for states to develop states action plans to reduce CO2 emissions.
- Understating the ICAO requirements and the importance of reporting environmental benefits of operational improvements.
- The participants learned how to install the IFSET and were trained on the use of the ISFSET
- Exercise on different scenarios were conducted and reports were generated

Highlights for CNS/ATM/IC SG

- Identify and Develop programs with airspace users that will minimize fuel consumption, reduce operational costs and environmental impact
- Support ATS Planning/Procedure offices in the design and implementation of fuel efficient routes and terminal area procedures
- Work with ATS training institutions to ensure awareness of fuel conservation techniques are incorporated into basic ATS training
- Liaise with the fuel managers of locally based airlines or other aviation organizations to understand fuel and environmental issues of local importance
- Liaise with local air operators and other users to support the development of efficient ATC procedures and training programs for controllers and ATC managers including the environmental impact of inefficient ATC practices
- Continuously sensitize ATS staff and management about the cost of fuel – both in dollar terms, and environmental impact - and its impact on the operating efficiency of airspace users
- Encourage the establishment of familiarization flight for ATC controllers and visits to ATC centers by pilots
- Encourage the establishment of a program to visit operator dispatch and flight planning offices, to better understand the factors affecting scheduling and flight mission management

(Operational Improvement and associated environmental benefits for inclusion in PFF)

CNS/ATM/IC SG/6
Appendix 4F to the Report on Agenda Item 4

AIR TRAFFIC MANAGEMENT MEASUREMENTS TASK FORCE

1. TERMS OF REFERENCE

a) follow-up the implementation of the ATM operational improvements required in the Regional Air Navigation Plan (ANP) or in national plans and to place special emphasis on identifying and estimating the fuel savings accrued from the corresponding improvements;

b) carry out permanent coordination with various MIDANPIRG contributory bodies in order to ensure appropriate integration of all tasks contributing to the estimation of environment benefits related to the implementation of the ANP or national operational improvements;

c) harmonize, at a regional level, the estimation of the environment benefits from operational improvements in order to reach consistent results;

d) take into consideration the material prepared by ICAO, develop proposals to keep and upgrade the ICAO Fuel Savings Estimation Tool (IFSET) as necessary; and

e) the ATM/M TF will Report its progress to CNS/ATM/IC SG.

1.2 **Work programme for the ATM/M Task Force shall be to:**

a) improve Airport Accessibility;

b) improve operations through enhanced En-Route trajectories; and

c) improve flexibility and efficiency in Decent Profiles (PBN/CDO)

2. COMPOSITION

2.1 The Task Force is composed of:

a) MIDANPIRG Member States;
b) ACAC, CANSO, IACA, IATA, and IFALPA as observers; and
c) other representatives from industry and user Organizations could participate as observers whenever required.

CNS/ATM/IC SG/6
Appendix 4G to the Report on Agenda Item 4

TABLE TO REPORT ENVIRONMENTAL BENEFITS OF OPERATIONAL IMPROVEMENTS

Region	State	Current fuel burn (Kg)	Current CO2 emissions (Kg)	Op. Improvement	Savings-Fuel (Kg)	Savings-CO2 (Kg)	Savings-Fuel-%	Savings CO2-%	Tool
EURNAT	France	1	3.16	RNAV in FIR and TMA	7182902	22697970.32	7182902	7182902	IFSET
EURNAT			3.16			3.16	#DIV/0!	1	IFSET
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	
			3.16			3.16	#DIV/0!	1	

REPORT ON AGENDA ITEM 5: REGIONAL AIR NAVIGATION PLANNING AND IMPLEMENTATION ISSUES

5.1 The meeting was apprised of the outcome of the PBN/GNSS TF/3 meeting (Cairo, 30 November – 02 December 2010) and PBN/GNSS TF/4 meeting (Cairo, 02-04 October 2011).

5.2 The meeting recalled the 36th Assembly Resolution A36-23 urged the Planning and Implementation Regional Groups (PIRGs) and States, inter alia, to complete a States PBN implementation plan by 2009 to achieve specific implementation goals starting with 2010. Accordingly, the MID Regional PBN Implementation Strategy and Plan were developed in October 2008 and adopted by MIDANPIRG/11 in February 2009 in order to allow sufficient time for the MID States to complete the development of their States PBN Implementation plans by December 2009. Furthermore, the meeting recalled that A36-23 resolution was superseded by resolution A37-11.

5.3 The meeting noted that the modification of Assembly Resolution A36/23 with A37/11 basically means that aerodromes that do not have any operations of aircraft equipped with APV are exempted to introduce APV procedures. On one side this could be interpreted as a relaxation of the resolution, on the other hand, it is bolstering of Safety, the reason being that it was reported that many States had the excuse of not having APV equipped aircraft to particular aerodromes, not doing anything on improvement of the approach procedures. This means that even when there are GNSS equipped aircraft, they left old (less safe) approach procedures. Now with A37/11, even for those runways that are not served with APV aircraft there has to be at least a GNSS procedure with LNAV only.

5.4 In light of completion of ICAO CDO Manual Doc 9931, which Standardized the development and implementations of CD operations, the meeting noted that MIDANPIRG/12 agreed to Conclusion 12/61: Implementation of Continuous Descent Operations

5.5 Based on the above, the PBN/GNSS TF/4 revised the MID Regional PBN Implementation Strategy and plan to include the new requirement as per Resolution A37/11. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/5: MID REGIONAL PBN IMPLEMENTATION STRATEGY AND PLAN

*That, the MID Regional PBN Implementation Strategy and Plan be updated as at **Appendix 5A** to the Report on Agenda Item 5.*

5.6 The meeting was of the view that prompt action by the Region and States is required to accelerate PBN planning, development and implementation to a pace of at least achieving closer to the ICAO Resolution implementation targets.

5.7 Based on the above, the meeting agreed that a comprehensive Regional Support Strategy is required and should include the following objectives;

- Promotion of PBN to decision makers within States to create the political will to invest and devote the necessary resources for PBN implementation;

- Establishing a regional working-level team or forum to identify implementation needs and to direct and/or organize the appropriate resources that will deliver PBN solutions to States;
- Formulation of cooperative arrangements to assist States in PBN implementation; and

- Development of additional support mechanisms that create skills and capabilities within States to implement and to sustain PBN operations

5.8 Based on the above, the meeting agreed to establish MID PBN Support Team (MPST). The meeting agreed on three areas of work for the MPST (1) promote PBN and convince Stakeholders to support PBN (2) Gap Analysis and States PBN Implementation Plan update/improvement (3) Implementation of PBN.

5.9 The meeting noted that UAE had requested Go Team visit which was conducted from 16-20 January 2011. Accordingly the meeting agreed that UAE be the champion of MPST, and IATA to support. Furthermore, the meeting encouraged MID States that are advanced in PBN implementation to participate in the work of MPST.

5.10 The meeting developed the MPST Terms of Reference (TOR) as at ***Appendix* 5B** to the Report on Agenda Item 5. Accordingly, the meeting agreed to the following Draft Decision:

DRAFT DECISION 6/6: ESTABLISHMENT OF MID PBN SUPPORT TEAM (MPST)

That, MPST be established with TOR as at ***Appendix 5B*** *to the Report on Agenda Item 5.*

5.11 The meeting noted the Go Team recommended that each ICAO Region develops the Go Team capabilities within the Region in order to assist MID States in the Implementation of PBN. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/7: MID PBN SUPPORT TEAM (MPST)

That,

a) ICAO MID Regional Office provide the leadership;

b) UAE be the champion for the MPST;

c) IATA fully commit and support the MPST; and

d) MID States assign members to MPST and allocate necessary resources.

5.12 The meeting reviewed the status of the MID Region State PBN implementation plan and PBN Implementation focal points as at **Appendices 5C** and **5D** to the Report on Agenda Item 5.

5.13 The meeting noted that MIDANPIRG/12 meeting agreed on conclusion 12/58 *PBN IMPLEMENTATION PROGRESS REPORT*, urging MID States to keep the ICAO MID Regional office updated using the spreadsheet and the progress report. In this regard the meeting received the progress reports from the following States (Bahrain, Egypt, Jordan, Qatar, Saudi Arabia and UAE). In order to monitor the progress of implementation of PBN in the Region the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/8: PBN IMPLEMENTATION PROGRESS REPORT

That, for future reporting on the status of PBN implementation, MID States be urged to:

*a) use the excel sheet as at **Appendix 5E** to the Report on Agenda Item 5,and PBN Implementation Progress Report Template as at **Appendix 5F** to the Report on Agenda Item 5; and*

b) submit progress reports to ICAO MID Regional Office every six months and whenever major progress is achieved starting January 2012.

5.14 The meeting recalled that the frequency Interference-free operation of Global Navigation Satellite System (GNSS) is essential. The meeting further recalled that the frequency band 1 559 - 1 610 MHz, is used for elements of GNSS.

5.15 The meeting noted that the International Telecommunication Union (ITU) process, where footnotes No. **5.362B** and **5.362C** allowing the operation of the fixed service in some States on a primary basis until 1 January 2010 and on a secondary basis until 1 January 2015. The above band is allocated, on a worldwide, primary basis, to the Aeronautical Radio Navigation service (ARNS) and to the Radio Navigation-Satellite Service (RNSS).

5.16 The meeting recalled that Studies undertaken indicate that a geographical separation distance exceeding line-of-sight (in the order of 400 km) between aircraft using GNSS and stations of the fixed service is required to ensure safe operation of GNSS.

5.17 The meeting noted that the following MID States (*Egypt, Iraq, Jordan, Qatar, Sudan, Syrian and Yemen)* have their States names under footnotes 5.362C. Accordingly, the meeting urged these States to delete their names from the footnote. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/9: PROTECTION OF GNSS SIGNAL

That, MID States that are listed in the footnotes 5.362B and 5.362C be urged to take necessary measures to delete their names from these footnote as soon as possible.

5.18 The meeting reviewed and updated the Strategy for the implementation of GNSS in the MID Region to be in line with Resolution A37-11. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/10: STRATEGY FOR THE IMPLEMENTATION OF GNSS IN THE MID REGION

*That, the Strategy for implementation of GNSS in the MID Region be updated as at **Appendix 5G** to the Report on Agenda Item 5.*

5.19 The meeting encouraged MID States to conduct GNSS studies, workshops and seminars, since GNSS is the only sensor that supports all PBN navigation specifications. The meeting agreed that the questionnaire at **Appendix 5H** to the Report on Agenda Item 5 be used by the ICAO MID Regional Office to conduct a survey on the implementation of GNSS in the MID Region, and agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/11: GNSS SURVEY

*That, MID States complete the GNSS questionnaire at **Appendix 5H** to the Report on Agenda Item 5 and send it to the ICAO MID Regional Office before 01 September 2012.*

5.20 The meeting was apprised of the outcome of the INFPL SG*/3 meeting (Cairo, 22-23 June 2011).

5.21 The meeting recalled that MIDANPIRG/12 meeting reviewed the Questionnaire on the Status of INFPL Implementation and agreed to Conclusion 12/53: *Questionnaire On The Status Of INFPL Implementation.*

5.22 The meeting noted that Ten (10) States (Bahrain, Egypt, Iran, Jordan, Lebanon, Libya, Oman, Qatar, Saudi Arabia and UAE) provided the replies to the questionnaires which were analyzed by as at **Appendix 5I** to the Report on Agenda Item 5.

5.23 Based on the information gained from the INFPL Implementation Seminar held in Cairo, 19-21 June 2011, the meeting noted that even manual flight plan system requires an update to the procedures, training and documentation.

5.24 The meeting was apprised of States concern on some erroneous flight plan filing on the current flight plan system, the meeting reiterated the request to Bahrain and UAE to provide information of any improvement in the flight plan filing which is to be presented to the INFPL SG*/4 meeting.

5.25 The meeting reviewed and updated the MID Region Strategy for the implementation of the INFPL as at **Appendix 5J** to the Report on Agenda Item 5 and agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/12: REVISED STRATEGY FOR THE IMPLEMENTATION OF INFPL

*That, the revised MID Region Strategy for the implementation of INFPL be adopted as at **Appendix 5J** to the Report on Agenda Item 5.*

5.26 The meeting noted that ACAC and ICAO organized a joint INFPL implementation workshop/seminar which was generously hosted by the General Authority of Civil Aviation in Saudi Arabia, 16-18 January 2012, with ninety four (94) participants from eleven (11) States and three (3) organizations. The meeting supported the outcome of the workshop/seminar at **Appendix 5K** to the Report on Agenda Item 5 and agreed that the INFPL SG*/4 meeting take appropriate action on them and report to MIDANPIRG/13.

5.27 The meeting was apprised of the proposal for amendment of the Regional Supplementary Procedures (Doc 7030) issues by ICAO HQ, which will be effective as of 15 November 2012.

5.28 The meeting reviewed and updated the status of preparedness for the implementation of the INFPL by MID States. In this respect, the meeting noted the difficulties raised by Iran with regard to the procurement of the necessary hardware/software for the timely implementation of the INFPL.

5.29 The meeting noted that the European region has a large number of operational mode S radars. As a result some MID States experienced IC code conflicts. Accordingly MIDANPIRG/12 meeting agreed that ICAO MID Regional Office should coordinate and formalize the process of IC code allocation for the ICAO MID region with EUROCONTROL.

5.30 The meeting was apprised of agreement that MICA cell in EUROCONROL will provide the MICA web based application and support to the MID Region as done in the EUR Region.

5.31 The meeting reviewed the draft document at **Appendix 5L** to the Report on Agenda Item 5 laying down recommendations and requirements for an efficient support of the MICA cell to the allocation of IC codes for MID States. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 6/13: MID REGION PROCESS FOR MODE S IC CODES ALLOCATION

*That, the process for the allocation of IC codes for Mode S radars in the MID Region be adopted as at **Appendix 5L** to the Report on Agenda Item 5.*

5.32 The meeting was apprised of the MID Surveillance Workshop that was successfully hosted by the General Authority of Civil Aviation (GACA) in Jeddah, Saudi Arabia, (08-10 May 2011), with the objective to provide MID States with a better understanding of evolving aeronautical surveillance infrastructure/technology to enhance situational awareness and harmonize the implementation in the MID Region.

5.33 The meeting noted that the MID Region Surveillance strategy and timelines for the ADS-B out implementation was developed during the workshop, as at **Appendix 5M** to the Report on Agenda Item 5. Furthermore, the meeting reviewed the MID Region Strategy for the Implementation of ADS-B out.

5.34 The meeting recalled MIDANPIRG/12 meeting views for a programme on surveillance data information sharing to be carried out by all MID States in order to significantly reduce surveillance gaps, and agreed to *Conclusion 12/46: Exchange of Surveillance data.* The meeting was apprised of the status of implementation of surveillance data sharing in the MID Region and encouraged all MID States to share surveillance data.

5.35 The meeting noted that IATA developed an online survey for Aircraft Equipage and requested MID States to encourage none IATA members to reply to the survey. Furthermore, the meeting agreed that IATA provides an update to the CNS/ATM/IC SG/7 meeting on the subject.

5.36 The meeting recalled that MIDANPIRG/12 meeting urged MID States to strictly adhere to the 24-bit aircraft addresses allocated to their States as listed in Annex 10, Volume III, Part I, Chapter 9, Table 9-1, and maintain databases for all the 24bit aircraft address allocation pertaining to their States and send the assigned allocations to ICAO MID Regional Office and MID RMA for inclusion in their databases as soon possible. However the meeting noted that allocation list were not received. Accordingly, the meeting reiterated the following Draft Conclusion emanating from CNS SG/4.

DRAFT CONCLUSION 6/14: ALLOCATION OF 24 BIT AIRCRAFT ADDRESS

That, MID States be urged to:

a) allocate 24 bit aircraft address according to Annex 10, Volume III, Part I, Chapter 9, Table 9-1 (allocation of aircraft addresses to States);

b) send the allocation list to ICAO MID Regional Office and MID RMA by 30 March 2012; and

c) provide ICAO MID Regional Office and MID RMA with regular updates to the allocation list.

5.37 The meeting agreed that as a follow-up to the above Draft Conclusion, and in order to expedite the required action, the ICAO MID Regional Office issue a State Letter by 15 February 2012, with the view to present an updated status to MIDANPIRG/13.

5.38 The meeting noted that Bahrain published AIC 008/11 "Mode S Operation in OBBB FIR" effective 1 August 2011. Despite this publication and specific NOTAM requirements, the meeting noted the concerns raised by Bahrain related to the difficulties faced by their Air Traffic Control with aircraft using incorrect Mode S settings.

5.39 The meeting agreed that Bahrain and IATA should coordinate to resolve the above-mentioned difficulties.

5.40 The meeting noted that the Gulf Cooperation Council (GCC) Air Navigation Committee identified the need for the establishment of a GCC States air navigation systems database and developed an associated excel sheet containing relevant CNS infrastructure details of individual GCC States. The meeting Further noted the request of Saudi Arabia to establish a MID Region Air Navigation Systems database. The meeting appreciated the GCC initiative; however, it was highlighted that the concept of a Regional Air Navigation Systems database is premature and need to be integrated within the larger concept of the regional performance framework (operational improvements, PFFs, etc) and the air navigation planning. Furthermore, the meeting noted the benefits of maintaining the excel sheet and agreed that this will be referred to the CNS SG/5 meeting for appropriate action.

CNS/ATM/IC SG/6
Appendix 5A to the Report on Agenda Item 5

MID REGIONAL PERFORMANCE-BASED NAVIGATION IMPLEMENTATION STRATEGY AND PLAN

1. EXECUTIVE SUMMARY

1.1 The MID Regional Performance Based Navigation (PBN) Implementation Strategy and Plan has been produced in line with Resolution A 36/23 adopted by ICAO Assembly in its 36th Session held in September 2007.

1.2 This version of the MID Regional PBN implementation strategy and plan include the modification of assembly resolution A36/23 by the 37th assembly which is now A37-11. The modification of resolution A36/23 by A 37/11 means that even for those runways that are not served with APV aircraft there has to be at least a GNSS procedure with LNAV only. The Regional Plan addresses the strategic objectives of PBN implementation based on clearly established operational requirements, avoiding equipage of multiple on-board or ground based equipment, avoidance of multiple airworthiness and operational approvals and explains in detail contents relating to potential navigation applications.

1.3 The plan envisages pre- and post-implementation safety assessments and continued availability of conventional air navigation procedures during transition. The plan discusses issues related to implementation which include traffic forecasts, aircraft fleet readiness, adequacy of ground-based CNS infrastructure etc. Implementation targets for various categories of airspace for the short term (2008 – 2012) and for the medium term (2013 – 2016) have been projected in tabular forms to facilitate easy reference. For the long term (2016 and beyond) it has been envisaged that GNSS will be the primary navigation infrastructure. It is also envisaged that precision approach capability using GNSS and its augmentation system will become available in the long term.

2. EXPLANATION OF TERMS

2.1 The drafting and explanation of this document is based on the understanding of some particular terms and expressions that are described below:

2.1.1 **MID Regional PBN Implementation Strategy and Plan -** A document offering appropriate guidance for air navigation service providers, airspace operators and users, regulating agencies, and international organizations, on the evolution of navigation, as one of the key systems supporting air traffic management, and which describes the RNAV and RNP navigation applications that should be implemented in the short, medium and long term in the MID Region.

2.1.2 **Performance Based Navigation -** Performance based navigation specifies RNAV and RNP system performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in an airspace.

2.1.3 **Performance requirements -** Performance requirements are defined in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept. Performance requirements are identified in navigation specifications which also identify which navigation sensors and equipment may be used to meet the performance requirement.

3. ACRONYMS

3.1 The acronyms used in this document along with their expansions are given in the following List:

AACO	Arab Air Carrier Association
ABAS	Aircraft-Based Augmentation System
ACAC	Arab Civil aviation Commission
AIS	Aeronautical Information System
APAC	Asia and Pacific Regions
APCH	Approach
APV	Approach Procedures with Vertical Guidance
ATC	Air Traffic Control
Baro VNAV	Barometric Vertical Navigation
CDO	Continuous Decent Operations
CNS/ATM	Communication Navigation Surveillance/Air Traffic Management
CPDLC	Controller Pilot Data Link Communications
DME	Distance Measuring Equipment
FASID	Facilities and Services Implementation Document
FIR	Flight Information Region
FMS	Flight Management System
GBAS	Ground-Based Augmentation System
GNSS	Global Navigation Satellite System
GLS	GBAS Landing System
IATA	International Air Transport Association
IFALPA	International Federation of Air Line Pilots' Associations
IFATCA	International Federation of Air Traffic Controllers' Associations
IFF	Identification Friend or Foe
INS	Inertial Navigation System
IRU	Inertial Reference Unit
MIDANPIRG	Middle East Air Navigation Planning and Implementation Regional Group
MID RMA	Middle East Regional Monitoring Agency
MLAT	Multilateration
PANS	Procedures for Air Navigation Services
PBN	Performance Based Navigation
PIRG	Planning and Implementation Regional Group
RCP	Required Communication Performance
RNAV	Area Navigation
RNP	Required Navigation Performance
SARP	Standards and Recommended Practices
SBAS	Satellite-Based Augmentation System
SID	Standard Instrument Departure
STAR	Standard Instrument Arrival
TMA	Terminal Control Area
VOR	VHF Omni-directional Radio-range
WGS	World Geodetic System

4. INTRODUCTION

Need for the roadmap

4.1 The Performance Based Navigation (PBN) concept specifies aircraft RNAV system performance requirements in terms of accuracy, integrity, availability, continuity and functionality needed for the proposed operations in the context of a particular airspace concept, when supported by the appropriate navigation infrastructure. In this context, the PBN concept represents a shift from sensor-based to performance –based navigation.

4.2 The implementation of RVSM on 27 NOV 2003 in the MID Region brought significant airspace and operational benefits to the Region. However, the realization of new benefits from RVSM have reached a point of diminishing returns. The main tool for optimizing the airspace structure is the implementation of PBN, which will foster the necessary conditions for the utilization of RNAV and RNP capabilities by a significant portion of airspace users in the MID region.

4.3 In view of the need for detailed navigation planning, it was deemed advisable to prepare a PBN Roadmap to provide proper guidance to air navigation service providers, airspace operators and user, regulating agencies, and international organization, on the evolution of performance base navigation, as one of the key systems supporting air traffic management, which describes the RNAV and RNP navigation applications that should be implemented in the short and medium term in the MID Region.

4.4 Furthermore, the MID PBN roadmap will be the basic material for the development of a boarder MID air navigation strategy, which will serve as guidance for regional projects for the implementation of air navigation infrastructure, such as SBAS, GBAS, GLS etc., as well as for the development of national implementation plans.

4.5 The PBN Manual (Doc 9613) provides guidance on RNAV/RNP navigation specifications and encompasses two types of approvals: airworthiness, exclusively relating to the approval of aircraft, and operational, dealing with the operational aspects of the operator. RNAV/RNP approval will be granted to operators that comply with these two types of approval.

4.6 After the implementation of PBN as part of the airspace concept, the total system needs to be monitored to ensure that safety of the system is maintained. A system safety assessment shall be conducted during and after implementation and evidence collected to ensure that the safety of the system is assured.

Benefits of Performance-Based Navigation

a) Reduces need to maintain sensor- specific routes and procedures, and their associated costs.

b) Avoids need for development of sensor- specific operations with each new evolution of navigation systems; the present requirement of developing procedures with each new introduction is often very costly.

c) Allows more efficient use of airspace (route placement, fuel efficiency, noise abatement).

d) In true harmony with the way in which RNAV systems are used.

e) Facilitates the operational approval process for operators by providing a limited set of navigation specification intended for global use.

f) Improved airport and airspace arrival paths in all weather conditions, and the possibility of meeting critical obstacle clearance and environmental requirements through the application of optimized RNAV or RNP paths.

g) Reduced delays in high-density airspaces and airports through the implementation of additional parallel routes and additional arrival and departure points in terminal areas.

h) For the pilots, the main advantage of using this system is that the navigation function is performed by highly accurate and sophisticated onboard equipment and thus allowing reduction in cockpit workload, with increase in safety.

i) For Air Traffic Controllers, the main advantage of aircraft using a RNAV system is that ATS routes can be straightened as it is not necessary for the routes to pass over locations marked by conventional NAVAIDS.

j) RNAV based arrival and departure routes can complement and even replace radar vectoring, thereby reducing approach and departure controllers' workload.

k) Increase of predictability of the flight path.

Goals and Objectives of PBN Implementation

4.7 The MIDANPIRG/11 meeting required that PBN be implemented in a strategic manner in the MID Region and accordingly established the PBN/GNSS Task Force which, *inter alia*, was required to follow up developments related to PBN and develop an implementation strategy. The 36th Session of ICAO Assembly adopted Resolution A36-23: *Performance based navigation global goals*, which, amongst others, highlighted global and regional harmonization in the implementation of PBN. Accordingly, the MID PBN Implementation Regional Plan has the following strategic objectives:

(a) To ensure that implementation of the navigation element of the MID CNS/ATM system is based on clearly established operational requirement.

(b) To avoid unnecessarily imposing the mandate for multiple equipment on board or multiple systems on ground.

(c) To avoid the need for multiple airworthiness and operational approvals for intra and inter-regional operations.

(d) To avoid an eclipsing of ATM operational requirements by commercial interests, generating unnecessary costs States, international organization, and airspace users.

(e) To explain in detail the contents of the MID air navigation plan and of the MID CNS/ATM plan, describing potential navigation application.

4.8 Furthermore, the MID PBN roadmap will provide a high-level strategy for the evolution of the navigation applications to be implemented in the MID region in the short term (2008-2012), medium term (2013-2016). This strategy is based on the coverage of area navigation (RNAV) and required navigation performance (RNP), which will be applied to aircraft operations involving instrument approaches, standard departure (SID) routes, standard arrival (STAR) routes, and ATS routes in oceanic and continental areas.

4.9 The MID PBN implementation regional plan is developed by MID States together with the international and Regional organizations concerned, and is intended to assist the main stakeholders of the aviation community to plan a gradual transition to the RNAV and RNP concepts. The main stakeholders of the aviation community that benefit from this roadmap are:

- Airspace operators and users
- Air navigation service providers
- Regulating agencies
- International and Regional organizations
- Military Authorities

4.10 The plan is intended to assist the main stakeholders of the aviation community to plan the future transition and their investment strategies. For example, airlines and operators can use this Regional Plan to plan future equipage and additional navigation capability investment; air navigation service providers can plan a gradual transition for the evolving ground infrastructure, Regulating agencies will be able to anticipate and plan for the criteria that will be needed in the future.

Planning principles

4.11 The implementation of PBN in the MID Region shall be based on the following principles:

(a) develop strategic objectives and airspace concepts as described in the PBN manual (Doc 9613) to justify the implementation of the RNAV and/or RNP concepts in each particular airspace;

(b) States conduct pre- and post–implementation safety assessments to ensure the application and maintenance of the established target level of safety;

(c) development of airspace concept, applying airspace modelling tools as well as real-time and accelerated simulations, which identify the navigation applications that are compatible with the aforementioned concept; and

(d) continued application of conventional air navigation procedures during the transition period, to guarantee the operation by users that are not RNAV- and/or RNP–equipped.

(e) operational requirement and Stake holder consultation

(f) early implementation is encouraged based on operational requirements and States readiness.

4.12 Planning Documentation: The implementation of PBN in the MID Region will be incorporated into the Regional Supplementary Procedures (Doc 7030) as approved by the ICAO Council. The States' PBN implementation plan will include a concise and detailed schedule of implementation for all phases of flight which will be endorsed through Regional agreement processes and considered by the Council as requirements for incorporation in the Air Navigation Plan (ANP).

5. PBN OPERATIONAL REQUIREMENTS AND IMPLEMENTATION STRATEGY

5.1 Introduction of PBN should be consistent with the Global Air Navigation Plan. Moreover, PBN Implementation shall be in full compliance with ICAO SARPs and PANS and be supported by ICAO Global Plan Initiatives.

5.2 In November 2006 the ICAO Council accepted the second amendment to the Global Air Navigation Plan for the CNS/ATM System, which has been renamed the Global Air Navigation Plan (Doc 9750), referred to as the Global Plan. A key part of the Global Plan framework are Global Plan Initiatives (GPIs), which are options for air navigation system improvements that when implemented, result in direct performance enhancements. The GPIs include implementation of performance based navigation (PBN) and navigation system. The introduction of PBN must be supported by an appropriate navigation infrastructure consisting of an appropriate combination of Global Navigation Satellite System (GNSS), self-contained navigation system (inertial navigation system) and conventional ground-based navigation aids.

5.3 It is envisaged that for the short term and medium term implementation of PBN, the establishment of a backup system in case of GNSS failure or the development of contingency procedures will be necessary.

En-route

5.4 Considering the traffic characteristic and CNS/ATM capability of the region, the en-route operation can be classified as Oceanic, Remote continental, Continental, and local/domestic. In principle, each classification of the en-route operations should adopt, but not be limited to single RNAV or RNP navigation specification. This implementation strategy will be applied by the States and international organizations themselves, as coordinated at regional level to ensure harmonization.

5.5 In areas where operational benefits can be achieved and appropriate CNS/ATM capability exists or can be provided for a more accurate navigation specification, States are encouraged to introduce the more accurate navigation specification on the basis of coordination with stakeholders and affected neighbouring States.

Terminal

5.6 Terminal operations have their own characteristics, taking into account the applicable separation minima between aircraft and between aircraft and obstacles. It also involves the diversity of aircraft, including low-performance aircraft flying in the lower airspace and conducting arrival and departure procedures on the same path or close to the paths of high-performance aircraft.

5.7 In this context, the States should develop their own national plans for the implementation of PBN in TMAs, based on the MID PBN Regional Implementation Plan, seeking the harmonization of the application of PBN and avoiding the need for multiple operational approvals for intra- and inter-regional operations, and the applicable aircraft separation criteria.

Approaches

5.8 During early implementation of PBN, IFR Approaches based on PBN should be designed to accommodate mixed-equipage (PBN and non-PBN) environment. ATC workload should be taken into account while developing approach procedures. One possible way to accomplish this is to co-locate the Initial Approach Waypoint for both PBN and conventional approaches. States should phase-out conventional non-precision approach procedures at a certain point when deemed operationally suitable and taking in consideration GNSS integrity requirements, and planning for CDO implementation.

5.9 Recognizing the efficiency and environmental benefits of CDO, and the need to harmonize these operations in the interest of safety, MID States are encouraged to include implementation of CDO as part of their PBN implementation plans and to implement CDO in accordance with the ICAO CDO Manual Doc 9931.

Implementation Strategy

5.10 In order to address the operational requirements, the following PBN Implementation & Harmonisation Strategy for the ICAO MID Region is formulated as follows:

a) Implementation of any RNAV or RNP application shall be in compliance with ICAO PBN Manual (Doc 9613).

b) Implementation of RNAV5/RNAV1 depending on operational requirements for continental en-route and local/domestic en-route applications at least until 2016.

c) Implementation of RNAV1/Basic-RNP-1 depending on operational requirements for terminal applications at least until 2016.

d) Implementation of RNAV-10 for oceanic/remote continental until at least 2016.

e) The use of RNAV 5 / RNAV 1 specification by RNP specifications (e.g. advanced-RNP-1) for the use in the en-route and terminal airspace to commence by 2016.

f) implementation of approach procedures with vertical guidance (APV) (Baro-VNAV and/or augmented GNSS), including LNAV only minima, for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016 with intermediate milestones as follows: 30 per cent by 2010, 70 per cent by 2014; and

g) implementation of straight-in LNAV only procedures, as an exception to f) above, for instrument runways at aerodromes where there is no local altimeter setting available and where there are no aircraft suitably equipped for APV operations with a maximum certificated take-off mass of 5 700 kg or more;

h) The use of NDB for approach operations shall be terminated not later than 2012.

i) The operation of CDO to commence 2013;

j) The RNP AR Approaches to commence depending on States operational requirement starting 2012.

6. CURRENT STATUS AND FORECAST

MID Traffic Forecast

6.1 The GEN part of FASID (Part II) provides the information and data of the following traffic forecasts and trends:

- air traffic demand for air navigation systems planning
- Passenger traffic
- Aircraft movements
- Major city-pairs traffic

6.2 The forecast data as well as the figures contained in the FASID document are the results of the regular meetings of, MIDANPIRG Traffic Forecasting Sub-group, which had in last meeting in April 2007. Notably however, in the past two years, air traffic growth trend for the MID Region has signalled a significantly higher aircraft fleet and traffic growth than was previously forecast.

6.3 World scheduled traffic measured in terms of Passenger-kilometers Performed (PKPs) is forecast to increase at a "most likely" average annual rate at 4.6 per cent for the period 2005-2025. International traffic is expected to increase at 5.3 per cent per annum.

6.4 The airlines of the Middle East regions are expected to experience the highest growth in passenger traffic at 5.8 per cent per annum through to the year 2025 compared to the world average of 4.6%.

6.5 World scheduled freight traffic measured in terms of tonne-kilometres performed is forecast to increase at a "most likely" average annual rate of 6.6 per cent for the period 2005-2025. International freight traffic is expected to increase at an average annual growth rate of 6.9 per cent.

6.6 Air freight traffic of the airlines of Middle East region is expected to remain higher than the world average at 7.8 per annum.

6.7 The following major route groups to, from and within the Middle East Region have been identified:

- Between Middle East - Europe
- Between Middle East - Africa
- Between Middle East - Asia/Pacific
- Between Middle East - North America
- Intra Middle East

6.8 Movement forecasts for the major route groups for the 2007-2025 periods are depicted in **Table 1**.

TABLE 1

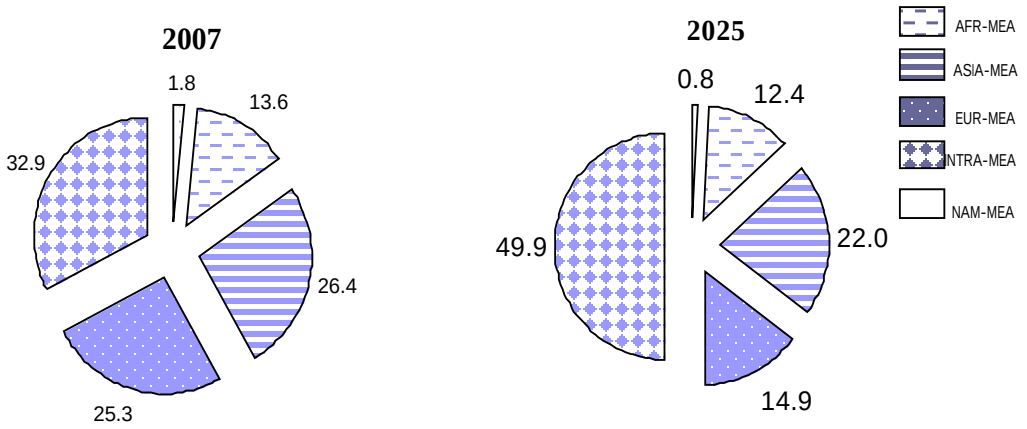
AIRCRAFT MOVEMENTS FORECAST TO THE YEAR 2025

	Actual	Forecast	Average Annual Growths (per cent)
	2007	2025	2007-2025
AFR-MEA	84933	291159	7.1
ASIA-MEA	165364	514979	6.5
EUR-MEA	158346	350380	4.5
INTRA MEA	205769	1170709	10.1
NAM-MEA	11075	18703	3.0
TOTAL	625487	2345929	7.6

6.9 The total aircraft movements to/from and within the Middle East region are estimated to increase from some 625000 in 2007 to around 2346000 in 2025 at an average annual growth rate of 7.6 per cent. The resulting movements' shares for the year 2025 are depicted in **Figure 1**.

FIGURE 1

SHARES OF SELECTED ROUTE GROUPS IN AIRCRAFT MOVEMENTS



Aircraft Fleet Readiness

6.10 IATA had circulated survey and will be compiling the results in report which could be referred to for details

CNS Infrastructure

Navigation infrastructure

Global Navigation Satellite System (GNSS)

6.11 Global Navigation Satellite System (GNSS) is a satellite-based navigation system utilizing satellite signals, such as Global Positioning System (GPS), for providing accurate and reliable position, navigation, and time services to airspace users. In 1996, the International Civil Aviation Organization (ICAO) endorsed the development and use of GNSS as a primary source of future navigation for civil aviation. ICAO noted the increased flight safety, route flexibility and operational efficiencies that could be realized from the move to space-based navigation.

6.12 GNSS supports both RNAV and RNP operations. Through the use of appropriate GNSS augmentations, GNSS navigation provides sufficient accuracy, integrity, availability and continuity to support en-route, terminal area, and approach operations. Approval of RNP operations with appropriate certified avionics provides on-board performance monitoring and alerting capability enhancing the integrity of aircraft navigation.

6.13 GNSS augmentations include Aircraft-Based Augmentation System (ABAS), Satellite-Based Augmentation System (SBAS) and Ground-Based Augmentation System (GBAS).

6.14 Multilateration (MLAT) employs a number of ground stations, which are placed in strategic locations around an airport, its local terminal area or a wider area that covers the larger surrounding airspace. Multilateration requires no additional avionics equipment, as it uses replies from Mode A, C and S transponders, as well as military IFF and ADS-B transponders. MLAT is under consideration by several MID States (Bahrain, Egypt, Oman and UAE).

Other PBN Infrastructure

6.15 Other navigation infrastructure that supports PBN applications includes INS, VOR/DME, DME/DME, and DME/DME/IRU. These navigation infrastructures may satisfy the requirements of RNAV navigation specifications, but not those of RNP.

6.16 INS may be used to support PBN en-route operations with RNAV-10 and RNAV 5 navigation specifications.

6.17 VOR/DME may be used to support PBN en-route and Arrival STAR operations based on RNAV 5 navigation specification.

6.18 Uses of DME/DME and DME/DME/IRU may support PBN en-route and terminal area operations based on RNAV 5, and RNAV 1 navigation specifications. Validation of DME/DME coverage area and appropriate DME/DME geometry should be conducted to identify possible DME/DME gaps, including identification of critical DMEs, and to ensure proper DME/DME service coverage.

Note.- The conventional Navaid infrastructure should be maintained to support non-equipped aircraft during a transition period until at least 2016.

Surveillance Infrastructure

6.19 For RNAV operations, States should ensure that sufficient surveillance coverage is provided to assure the safety of the operations. Because of the on-board performance monitoring and alerting requirements for RNP operations, surveillance coverage may not be required. Details on the surveillance requirements for PBN implementation can be found in the ICAO PBN Manual and ICAO PANS-ATM (Doc 4444), and information on the current surveillance infrastructure in the MID can be found in ICAO FASID table.

Communication Infrastructure

6.20 Implementation of RNAV and RNP routes includes communication requirements. Details on the communication requirements for PBN implementation can be found in ICAO PANS-ATM (Doc 4444), ICAO RCP Manual (Doc 9869), and ICAO Annex 10. Information on the current communication infrastructure in the MID can also be found in ICAO FASID table.

7. IMPLEMENTATION ROADMAP OF PBN

ATM Operational Requirements

7.1 The Global ATM Operational Concept: Doc 9854 makes it necessary to adopt an airspace concept able to provide an operational scenario that includes route networks, minimum separation standards, assessment of obstacle clearance, and a CNS infrastructure that satisfies specific strategic objectives, including safety, access, capacity, efficiency, and environment.

7.2 In this regard, the following programmes will be developed:

a) Traffic and cost benefit analyses
b) Necessary updates on automation
c) Operational simulations in different scenarios
d) ATC personnel training
e) Flight plan processing
f) Flight procedure design training to include PBN concepts and ARINC-424 coding standard

g) Enhanced electronic data and processes to ensure appropriate level of AIS data accuracy, integrity and timeliness
h) WGS-84 implementation in accordance with ICAO Annex 15
i) Uniform classification of adjacent and regional airspaces, where practicable
j) RNAV/RNP applications for SIDs and STARs
k) Coordinated RNAV/RNP routes implementation
l) RNP approach with vertical guidance
m) Establish PBN approval database

7.3 The above programmes should conform to the performance objectives and regional action plan supporting the regional implementation plan (roadmap).

Short Term (2008-2012)

En-route

7.4 During the planning phase of any implementation of PBN routes, States should gather inputs from all aviation stakeholders to obtain operational needs and requirements. These needs and requirements should then be used to derive airspace concepts and to select appropriate PBN navigation specification.

7.5 In this phase, the current application of RNAV 10 is expected to continue for Oceanic and Remote continental routes.

7.6 For Continental routes, the applications of RNAV 5 and RNAV 1 navigation specifications are expected. Before the PBN concept was established , the MID Region adopted the Regional implementation of RNP 5. Under the PBN concept it is now required that RNP 5 will change into RNAV 5. Based on operational requirements, States may choose to implement RNAV 1 routes to enhance efficiency of airspace usages and support closer route spacing, noting that appropriate communication and surveillance coverage is provided. Details of these requirements are provided in the PBN manual (Doc 9613) and PANS-ATM (Doc 4444).

7.7 **Operational approval**. Operators are required to have operational approval for RNAV 5. Depending on operational requirement RNAV 1 for terminal operations and RNAV 10 for Oceanic/Remote Continental operations.

7.8 Application of RNAV 5 or RNAV 1 for continental en-route will be mandated by the end of 2012.

Terminal

7.9 In selected TMAs, the application of RNAV-1 in a surveillance environment can be supported through the use of GNSS or ground navigation infrastructure, such as DME/DME and DME/DME/IRU. In this phase, mixed operations (equipped and non-equipped) will be permitted.

7.10 In a non- surveillance environment and/or in an environment without adequate ground navigation infrastructure, the SID/STAR application of Basic-RNP 1 is expected in selected TMAs with exclusive application of GNSS.

7.11 **Operational approval**. Operators are required to have operational approval for RNAV 1. In addition, operators are required to have Basic RNP 1 approval when operating in procedural control TMAs.

Note: In order to avoid unnecessary approvals, operators equipped with GNSS should apply for combined RNAV 1 and Basic RNP 1.

Approach

7.12 The application of RNP APCH procedures is expected to be implemented in the maximum possible number of airports, primarily international airports. To facilitate transitional period, conventional approach procedures and conventional navigation aids should be maintained for non-equipped aircraft.

7.13

7.14 States should promote the use of APV operations (Baro-VNAV SBAS) to enhance safety of RNP approaches and accessibility of runways.

7.15 The application of RNP AR APCH procedures should be limited to selected airports, where obvious operational benefits can be obtained due to the existence of significant obstacles.

7.16 **Operational approval requirements**. Operators shall plan to have operational approval for RNP APCH with VNAV operations (Baro-VNAV). Depending on operational need, aircraft shall also meet the RNP AR APCH specification.

SUMMARY TABLE AND IMPLEMENTATION TARGETS

SHORT TERM (2008-2012)		
Airspace	***Navigation Specification Preferred***	***Navigation Specification Acceptable***
En-route – Oceanic	RNAV 10	RNAV 10
En-route - Remote continental	RNAV 5, RNAV 10	RNAV 10
En-route – Continental	RNAV 5, RNAV 1	
En-route - Local / Domestic	RNAV 5, RNAV 1	
TMA – Arrival	RNAV 1 in surveillance environment and with adequate navigation infrastructure. Basic RNP 1 in non-surveillance environment	
TMA – Departure	RNAV 1 in surveillance environment and with adequate navigation infrastructure. Basic RNP 1 in non- surveillance environment	
Approach	RNP APCH with Baro VNAV in all possible airports; RNP AR APCH in airport where there are obvious operational benefits. Implementation of straight-in LNAV only procedures, as an exception	

Implementation Targets

- Implementation of approach procedures with vertical guidance (APV) (Baro-VNAV and/or augmented GNSS), including LNAV only minima, for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016 with intermediate milestones

as follows: 30% by 2010, and 50 % by 2012; and priority should be given to airports with most significant operational benefits

- RNAV 1 SIDs/STARs for 30% of international airports by 2010 and 50% by 2012 and priority should be given to airports with RNP Approach

Medium Term (2013-2016)

En-route

7.17 Noting the current development of route spacing standards for RNAV 1, in this phase, it is expected that the implementations of all existing RNAV/RNP routes are consistent with PBN standards. However, in order to ensure implementation harmonization, States are urged to implement their RNAV/RNP routes based on a Regional agreements and consistent PBN navigation specifications and separation standards.

7.18 With regard to oceanic remote operations, it is expected that with the additional surveillance capability, the requirement for RNAV 10 will disappear, and be replaced by navigation specifications for continental en-route applications.

7.19 **Operational approval**. Operators are required to have operational approval for RNAV 5 and RNAV 1.

Terminal

7.20 RNAV 1 or Basic RNP 1 will be fully implemented in all TMAs by the end of this term.

7.21 **Operational approval**. Operators are required to have operational approval for RNAV 1/Basic RNP 1 approval.

Note: In order to avoid unnecessary approvals, operators equipped with GNSS should apply for combined RNAV 1 and Basic RNP 1

Approach

7.22 In this phase, full implementation of RNP APCH with Baro VNAV or APV SBAS for all instrument runways is expected. These applications may also serve as a back-up to precision approaches.

7.23 The extended application of RNP AR Approaches should continue for airports where there are operational benefits.

7.24 The introduction of application of landing capability using GNSS is expected to guarantee a smooth transition toward high-performance approach and landing capability.

7.25 **Operational approval requirements**. Operators are required to have operational approval for RNP APCH with VNAV operations (Baro VNAV). Depending on operations, aircraft shall also meet RNP AR specification.

7.26 Application of RNAV 1 or Basic RNP-1 for all terminal areas and APV/Baro VNAV or APV/SBAS for all instrument runway ends, either as the primary approach or as a back-up for precision approaches will be mandated by 2016.

SUMMARY TABLE AND IMPLEMENTATION TARGETS

MEDIUM TERM (2013-2016)		
Airspace	***Navigation Specification (preferred)***	***Navigation Specification (/acceptable)***
En-route – Oceanic	RNAV 10	RNAV 10
En-route - Remote continental	NIL	RNAV 10
En-route – Continental	RNAV 1, RNAV 5	RNAV 1, RNAV 5
En-route - Local / Domestic	RNAV 1 , RNAV 5	RNAV 1, RNAV 5
TMA – (Arrival, Departure)	RNAV1 or RNP 1 application	RNAV 1 or RNP 1 application
Approach	RNP APCH (with Baro VNAV) and APV Expansion of RNP AR APCH where there are operational benefits Introduction of landing capability using GNSS and its augmentations	RNP APCH (with Baro VNAV) and APV Expansion of RNP AR APCH where there are operational benefits Introduction of landing capability using GNSS and its augmentations
Implementation Targets ▪ RNP APCH with Baro VNAV or APV or LNAV in 100% of instrument runways by 2016 ▪ RNAV 1 or RNP 1 SID/STAR for 100% of international airports by 2016 ▪ RNAV 1 or Basic RNP 1 SID/STAR at busy domestic airports where there are operational benefits ▪ Implementation additional RNAV/RNP routes ▪ CDO Implementation will commence in this term		

Long Term (2016 and Beyond)

7.27 In this phase, GNSS is expected to be a primary navigation infrastructure for PBN implementation. States should work co-operatively on a multinational basis to implement GNSS in order to facilitate seamless and inter-operable systems and undertake coordinated Research and Development (R&D) programs on GNSS implementation and operation.

7.28 Moreover, during this phase, States are encouraged to consider segregating traffic according to navigation capability and granting preferred routes to aircraft with better navigation performance.

7.29 Noting the current development of Advanced RNP-1 navigation specification, it is expected that this navigation specification will play an important role in the long term implementation of PBN for enroute and terminal operations.

7.30 With the expectation that precision approach capability using GNSS and its augmentation systems will become available, States are encouraged to explore the use of such capability where there are operational and financial benefits.

7.31 During this term the use of Advanced RNP-1 for terminal and en-route will be mandated by a date to be determined.

7.32 Implementation of CDO in all International Airports is recommended.

8. TRANSITIONAL STRATEGIES

8.1 During the transitional phases of PBN implementation, sufficient ground infrastructure for conventional navigation systems must remain available. Before existing ground infrastructure is considered for removal, users should be consulted and given reasonable transition time to allow them to equip appropriately to attain equivalent PBN-based navigation performance. States should approach removal of existing ground infrastructure with caution to ensure that safety is not compromised, such as by performance of safety assessment, consultation with users through regional air navigation planning process and national consultative forums. Moreover, noting that navigation systems located in a particular State/FIR may be supporting air navigation in airspaces in other States/FIRs States are required to cooperate and coordinate bilaterally, multilaterally and within the framework of Regional agreements, in the phasing out of conventional ground based navigation systems and maintaining the serviceability of required navigation aids for area navigation (e.g. DME).

8.2 States should ensure that harmonized separation standards and procedures are developed and introduced concurrently in all flight information regions to allow for a seamless transition towards PBN.

8.3 States should cooperate on a multinational basis to implement PBN in order to facilitate seamless and inter-operable systems and undertake coordinated R&D programs on PBN implementation and operation.

8.4 States are encouraged to consider segregating traffic according to navigation capability and granting preferred routes to aircraft with better navigation performance, taking due consideration of the need of State/Military aircraft.

8.5 States should encourage operators and other airspace users to equip with PBN avionics. This can be achieved through early introductions of RNP approaches, preferably those with vertical guidance.

8.6 ICAO MID Region Regional Office should provide leadership supporting implementation and transition towards PBN.

8.7 States should have PBN operational approval process.

8.8 Early Implementation of PBN are encouraged.

9. SAFETY ASSESSMENT AND MONITORS

Methodology

Need for Safety Assessment

9.1 To ensure that the introduction of PBN en-route applications within the MID Region is undertaken in a safe manner and in accordance with relevant ICAO provisions, implementation shall only take place following conduct of a safety assessment that has demonstrated that an acceptable level of safety will be met. This assessment may also need to demonstrate levels of risk associated with specific PBN en-route implementation. Additionally, ongoing periodic safety reviews shall be undertaken where required in order to establish that operations continue to meet the target levels of safety.

Roles and Responsibilities

9.2 To demonstrate that the system is safe, it will be necessary that the implementing agency – a State or group of States - ensures that a safety assessment and, where required, ongoing monitoring of the PBN en-route implementation are undertaken. The implementing agency may have the capability to undertake such activities or may seek assistance from the Middle East Regional Monitoring Agency (MID RMA). The latter course of action is preferred as the MID RMA would be in a position to establish the necessary monitoring and data collection activity in an effective manner. Furthermore, the MIDANPIRG/10 meeting in April 2007 adopted the revised terms of reference of the MID RMA, whose scope includes safety monitoring of RNP/RNAV.

9.3 In undertaking a safety assessment to enable en-route implementation of PBN, a State, implementing agency or the MID RMA shall:

(a) Establish and maintain a database of PBN approvals;

(b) Monitor aircraft horizontal-plane navigation performance and the occurrence of large navigation errors and report results appropriately to the MID RMA;

(c) Conduct safety and readiness assessments and report results appropriately to the MID RMA;

(d) Monitor operator compliance with State approval requirements after PBN implementation; and

(e) Initiate necessary remedial actions if PBN requirements are not met.

9.4 The duties and responsibilities of the MID RMA as well as the agreed principles for its establishment are available from the ICAO MID Regional Office.

10. PERIODIC REVIEW OF IMPLEMENTATION ACTIVITIES

Procedures to Modify the Regional Plan

10.1 Whenever a need is identified for a change to this document, the Request for Change (RFC) Form should be completed and submitted to the ICAO MID Regional Office. The Regional Office will collate RFCs for consideration by the PBN/GNSS Task Force (ATM/SAR/AIS Sub-group of MIDANPIRG).

10.2 When an amendment has been agreed by a meeting of the PBN/GNSS Task Force, a new version of the PBN Regional Plan will be prepared, with the changes marked by an "|" in the margin, and an endnote indicating the relevant RFC, to enable a reader to note the origin of the change. If the change is in a table cell, the outside edges of the table will be highlighted. Final approval for publication of an amendment to the PBN Regional Plan will be the responsibility of MIDANPIRG.

Appendix A – Practical Examples of tangible benefits (living document)

Egypt/ Bahrain / UAE with figures will be provided and inserted here.

Practical examples of tangible benefits derived from the implementation of PBN are:

- Increased airspace safety through the implementation of continuous and stabilized descent procedures using vertical guidance;

- Provision of runway-aligned final approach path which may not be possible from conventional navigation;

- Reduced aircraft flight time due to the implementation of optimal flight paths, with the resulting savings in fuel, noise reduction, and enhanced environmental protection;

- Improved airport and airspace arrival paths in all weather conditions, and the possibility of meeting critical obstacle clearance and environmental requirements through the application of optimized RNAV or RNP paths;

- Implementation of more precise approach, departure, and arrival paths that will reduce dispersion and will foster smoother traffic flows;

- Reduced delays in high-density airspaces and airports through the implementation of additional parallel routes and additional arrival and departure points in terminal areas;

- Reduction of lateral and longitudinal separation between aircraft to accommodate more traffic;
- Decrease ATC and pilot workload by utilizing RNAV/RNP procedures and airborne capability and reduce the needs for ATC-Pilot communications and radar vectoring;

- Increase of predictability of the flight path; and

- Reduction of maintenance and flight inspection costs associated with conventional navigation aids

Appendix B – Reference documentation for developing operational and airworthiness approval regulations/procedures

General Guidelines for Obtaining Airworthiness and Operational Approvals for PBN Navigation Specifications, Version 1.0, International Air Transport Association, August 2008. (URL - http://www2.icao.int/en/pbn/ICAO%20Documentation/ICAO%20Documentation/State%20letter%2007.22%20Guidance%20material%20for%20the%20issuance%20of%20performance%20based%20navigation%20(PBN)%20operational%20approvals.pdf

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CNS/ATM/IC SG/6
Appendix 5B to the Report on Agenda Item 5

PROPOSED TERMS OF REFERENCE FOR
MID PBN SUPPORT TEAM (MPST)

1. TERMS OF REFERENCE

a) promote PBN and convince Stakeholders to support PBN;

b) gap Analysis and PBN Implementation Plan update/improvement; and

c) implementation of PBN. This would result in the engagement at a working level to coordinate and provide assistance to States.

2. WORK PROGRAMME

a) promotion of PBN by increasing awareness and education to motivate States to invest and implement

b) make use of the PBN Go Team Visit to the UAE, and adapt this to provide the support at a greater frequency

c) Collection of required data and practices to maintain data integrity

d) Conducting safety assessments

e) Completion and improvement of PBN implementation plans

f) Guidance to establish the regulatory framework, approvals process and other mechanisms necessary for implementation and sustainment of PBN capabilities

g) Provide guidance and assistance to operators in obtaining operational approval for utilising RNP and other PBN procedures

h) assist in operational approval

i) Providing guidance to States in PBN en-route implementation, airspace route design and harmonization across FIRs

j) Undertake other functions relevant to implementation of PBN as assigned by the PBN/GNSS TF and report to PBN/GNSS TF

3. COMPOSITION OF THE TASK FORCE

Experts from MID Region States, UAE as champion, IATA support and representative from Industry, International/Regional Organizations may be invited when required.

CNS/ATM/IC SG/6
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STATUS OF MID STATES PBN IMPLEMETATION PLAN

State	**Plan Submission**	**Plan Status**	**Percentage of Implementation Short term (2012)**		**Remark**
			En route %	TMA %	
Bahrain	Submitted		10	40	
Egypt	Submitted	Draft	100	80	need user input
Iran	Not submitted				Only PBN approach and Terminal implementation status received
Iraq	Not submitted				
Jordan	Submitted		100		Restriction on levels
Kuwait	Submitted				
Lebanon	Not submitted				Only PBN approach and Terminal implementation status received
Oman	submitted		100	7	
Qatar	Submitted		10	40	
Saudi Arabia	submitted				
Syria	Submitted	Draft			
UAE	submitted		100	60	
Yemen	Submitted	Draft			

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PBN IMPLEMENTATION FOCAL POINT

STATE	NAME	TITLE	ADDRESS	EMAIL	FAX	TEL	MOBILE
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<STATE> PBN APPROACH and TERMINAL IMPLEMENTATION STATUS

UPDATED: 29/02/2008

NO	ICAO REGION	ICAO DESIG	AIRPORT NAME[5]	COUNTRY	INTL (Y/N)[1]	RUNWAY	INST RWY Y/N	RESTRICTIONS	APPROACH LNAV/VNAV[2]	APPR EFF DATE[6]	RNAV/RNP SID[3]	SID EFF DATE[6]	RNAV/RNP STAR[4]	STAR EFF DATE[6]	COMMENTS
1	MID	OOMS	MUSCAT	OMAN	Y	08	Y		LNAV	May-07	RNAV-1	Dec-10	RNAV-1	Dec-10	
2	MID	OOMS	MUSCAT	OMAN	Y	26	Y		LNAV/VNAV	May-07	RNAV-1	Dec-10	RNAV	May-07	

ABOVE IS ONLY AN EXAMPLE. IT IS NOT MEANT TO SHOW THE ACTUAL IMPLEMENTATION AT THAT AIRPORT

Notes:

1. If the aerodrome is used for international operations, including as an alternate, enter 'Y', if not, enter 'N'
2. If LNAV only, enter LNAV. If LNAV/VNAV only enter LNAV/VNAV. If both enter BOTH. If RNP AR, enter RNP AR.If there is an RNP AR to the same runway that also has an LNAV and/or LNAV/VNAV the enter the RNP AR on a separate line for that runway.
3. If RNAV or RNP SID exists for this runway, note navigation specification, RNAV 1, RNAV 2, or Basic-RNP 1. If not based on a PBN navigation specification, enter RNAV.
4. If RNAV or RNP STAR exists for this aerodrome note navigation specification, RNAV-1, RNAV 2, or Basic-RNP 1. If not based on a PBN navigation specification, enter RNAV.
5. Should list all instrument aerodromes and runway ends in the State, as well as non-instrument runway ends that are used by aircraft in excess of 5700 kg MTOW. Leave blank blocks L-N as appropriate, if PBN or RNAV approaches, SIDs or STARs are not implemented or planned to be implemented yet as part of the State PBN Implementation Plan
6. Enter actual effective date or proposed future effective date as month-year

UPDATED 2/29/2012

<STATE> PBN APPROACH AND TERMINAL IMPLEMENTATION STATUS

NO	ICAO REGION	ICAO DESIG	AIRPORT NAME[5]	COUNTRY	INTL (Y/N)[1]	RUNWAY	INST RWY Y/N	RESTRICTIONS IF ANY	APPROACH LNAV/VNAV[2]	APPR EFF DATE[6]	RNAV/RNP SID[3]	SID EFF DATE[6]	RNAV/RNP STAR[4]	STAR EFF DATE[6]	COMMENTS
1															
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3															
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48															
49															
50															

1. If the aerodrome is used for international operations, including as an alternate, enter 'Y', if not, enter 'N' **2.** If LNAV only, enter LNAV. If LNAV/VNAV only enter LNAV/VNAV. If both enter BOTH. If RNP AR, enter RNP AR. If there is an RNP AR to the same runway that also has an LNAV and/or LNAV/VNAV the enter the RNP AR on a separate line for that runway. **3.** If RNAV or RNP SID exists for this runway, note navigation specification, RNAV 1, RNAV 2, or Basic-RNP 1. If not based on a PBN navigation specification, enter RNAV. **4.** If RNAV or RNP STAR exists for this aerodrome note navigation specification, RNAV-1, RNAV 2, or Basic-RNP 1. If not based on a PBN navigation specification, enter RNAV. **5.** Should list all instrument aerodromes and runway ends in the State, as well as non-instrument runway ends that may be used by aircraft in excess of 5700 kg MTOW. Leave blank blocks L-N as appropriate, if PBN or RNAV approaches, SIDs or STARs are not implemented or planned to be implemented yet as part of the State PBN Implementation Plan. **6.** Enter actual effective date or proposed future effective date as month-year

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PBN IMPLEMENTATION PROGRESS REPORT

State: (Name of State) Date: (DD/MM/YY)

Designation of PBN Focal Point
Reference: MID State Letter Ref AN 6/28 – 149 dated 21 April 2008 and follow up letter Ref AN6/28 – 293 dated 10 August " in order to facilitate necessary follow-up and coordination, to provide a PBN Implementation Focal Point by 21 August 2008 "

Status: (Nominated/ To be Nominated)
Focal Point: (Name, Designation, Mailing Address, Email, Phone, Fax)

State PBN Implementation Plan
Reference: ICAO Assembly Resolution 37/11: Performance-based navigation global goals

Recognizing that not all States have developed a PBN implementation plan by the target date of 2009; *The Assembly: Urges* all States to implement RNAV and RNP air traffic services (ATS) routes and approach procedures in accordance with the ICAO PBN concept laid down in the Performance-based Navigation (PBN) Manual (Doc 9613);

Status: (Adopted / To be adopted) by (name of a national body) and (Reviewed / To be reviewed) by ICAO *PBN/GNSS* TF

Approach Operations
Reference: ICAO Assembly Resolution A37/11

"*States complete a PBN implementation plan to achieve:* implementation of approach procedures with vertical guidance (APV) (Baro-VNAV and/or augmented GNSS), including LNAV only minima, for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016 with intermediate milestones as follows: 30 per cent by 2010, 70 per cent by 2014 and implementation of straight-in LNAV only procedures, as an exception, for instrument runways at aerodromes where there is no local altimeter setting available and where there are no aircraft suitably equipped for APV operations with a maximum certificated take-off mass of 5 700 kg or more.

Implementation Targets (# of RWY Ends)			**Completed** (# of RWY Ends)		**On Progress** (# of RWY Ends)	
Y2012	Y2014	Y2016	LNAV	LNAV/VNAV	LNAV	LNAV/VNAV
10			8			

Note(s): (States may include information on recent publications of new PBN approach procedures.)

Arrival and Departure Operations
Reference: ICAO Assembly Resolution A37/11

Implementation Targets (# of Int'l Airports)			**Completed** (# of Int'l Airports)		**On Progress** (# of Int'l Airports)	
Y2012	Y2014	Y2016	Arrival	Departure	Arrival	Departure

Note(s): (States may include information on recent publications with new PBN arrival/departure procedures.)

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REVISED STRATEGY FOR THE IMPLEMENTATION OF GNSS IN THE MID REGION

The following is the Strategy for the implementation of GNSS aligned with PBN in the MID Region:

Considering that:

a) Safety is the highest priority.

b) Elements of Global Air Navigation Plan on GNSS and requirements for the GNSS implementation will be incorporated into the CNS part of FASID.

c) GNSS Standards and Recommended Practices (SARPs), PANS and guidance material for GNSS implementation are available.

d) Human, environmental and economic factors will affect the implementation.

e) The availability of avionics, their capabilities and the level of user equipage.

f) The development of GNSS systems including satellite constellations, augmentation systems and improvement in system performance.

g) The airworthiness and operational approvals allowing the current GNSS applied for en-route and non-precision approach phases of flight without the need for augmentation services external to the aircraft.

h) The effects of ionosphere on GNSS and availability of mitigation techniques;

i) The PBN concept and the availability of PBN guidance material

j) The monitoring of the GNSS signal according to ICAO Document 9849 (GNSS Manual) and other related ICAO documents

k) States pay fair cost for GNSS to service providers (according to ICAO provisional policy guidance on GNSS cost allocation

The general strategy for the implementation of GNSS in the MID Region is detailed below:

1) Introduction of GNSS Navigation Capability should be consistent with the Global Air Navigation Plan.

2) Implementation of GNSS and Augmentations should be in full compliance with ICAO Standards and Recommended Practices and PANS.

3) Assessment of the extent to which the GNSS system accessible in the Region can meet the navigational requirements of ATM service providers and aircraft operators in the Region.

4) Introduce the use of GNSS with appropriate augmentation systems, as required, for en-route navigation and Implementation of approach procedures with vertical guidance (Baro-VNAV and/or augmented GNSS), including LNAV only minima, for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016 with intermediate milestones as follows: 30 per cent by 2010, 70 per cent by 2014 as per 37th ICAO General Assembly resolutions 37-11 and according to Regional PBN Implementation Plan

5) States, in their planning and introduction of GNSS services, take full advantage of future benefits accrued from using independent core satellite constellations, other GNSS elements

and their combinations, and avoid limitations on the use of specific system elements.

6) Facilitate the use of GNSS; as enabler for PBN for en-route, terminal, approach and departure navigation. States should coordinate to ensure that harmonized separation standards and procedures are developed and introduced concurrently in adjacent flight information regions along major traffic flows to allow for a seamless transition to GNSS based navigation.

7) States should to the extent possible work co-operatively on a multinational basis under ICAO MID Office guidance to implement GNSS in order to facilitate seamless and inter-operable systems and undertake coordinated R&D programmes on GNSS implementation and operation.

8) States consider segregating traffic according to navigation capability and granting preferred routes to aircraft that are appropriately equipped for PBN to realize the benefits of such equipage taking due consideration of the need of State aircraft.

9) ICAO and States should undertake education and training programs to provide necessary knowledge in AIM, PBN, GNSS, Augmentation systems and operational application.

10) States establish multidisciplinary GNSS implementation teams, using section 5.2.2 and Appendix C of ICAO Document 9849, GNSS Manual.

11) States, in their planning for implementation of GNSS services, provide effective spectrum management and protection of GNSS frequencies to reduce the possibility of unintentional interference.

12) During transition to GNSS, sufficient ground infrastructure for current navigation systems must remain available. Before existing ground infrastructure is considered for removal, users should be given reasonable transition time to allow them to equip accordingly.

13) States should approach removal of existing ground infrastructure with caution to ensure that safety is not compromised, such as by performance of safety assessment, consultation with users through regional air navigation planning and plan for complete decommissioning of NDBs by 2012.

14) Implement GNSS with augmentation as required for APV where operationally required in accordance with the MID Regional and National PBN Implementation plans.

15) States continue their efforts to implement GNSS applications for en-route, APV and TMA operations. Attention should be accorded to meeting all GNSS implementation requirements, including establishment of GNSS legislation, regulatory framework, and approval procedure.

Notes:

GNSS (and ABAS using RAIM in particular) is available on a worldwide basis, not much needs to be done in terms of infrastructure assessment. Nonetheless, the responsibility for providing services based on GNSS within the airspace of a particular State remains within that State.

A decision on whether or not to develop a status monitoring and NOTAM system for ABAS operations should be made by taking into account the nature of PBN approvals. In many cases ABAS operations are predicated on having a full complement of traditional NAVAIDs available for back-up when ABAS cannot support service.

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GNSS ASSESSMENT SURVEY

The following GNSS survey has been developed by ICAO to assess the Regional (Global) level of GNSS implementation and to determine the role that States would like ICAO to assume

Please return the completed survey to icaomid@cairo.icao.int by 30 June 2012

State Name:

Contact Name:

Contact email:

1) Has your State developed a plan to implement GNSS -- □Yes □No
2) Was the GNSS Manual (Doc 9849) used as a reference when considering the implementation of GNSS □Yes □No
3) Has the basic GNSS regulation been promulgated in your State -- □Yes □No

4) a-Has your administration received requests from domestic aircraft operators to provide GNSS-based services -- □Yes □No

   b-Has your administration received requests from international aircraft operators to provide GNSS-based services -- □Yes □No

5) What is the level of WGS – 84 survey completion in your State
   a. For Waypoints -- _____%
   b. For Airports -- _____ %

6) What percentage of aircraft are equipped with GNSS avionics ____%

7) a- What is the number of runways in your State that meet instrument standards but do not have an instrument approach _____

   b- What is the number of runways in your State that are only served by a circling procedure

8) In your State, how many PBN approach procedures are promulgated based on
   a. GNSS -- _____
   b. Conventional navigation-aids _____

9) How many ILS systems are equipped with marker beacons only (no DME) for aircraft to perform altitude/distance cross checks? _____
10) Do you allow the use of FMS GPS based computed distance checks? -- □Yes □No

11) Does your State plan to implement ADS-B -- □Yes When _____ □No

12) Does your State plan to implement Multirateration -- □Yes When _____ □No

13) What is the Status of the following systems in your State

a. ADS-C -- Equipped □Yes □No Operational □Yes □No
b. CPDLC -- Equipped □Yes □No Operational □Yes □No
……..

14) Does your State have any plans to implement augmentation systems

a. SBAS -- □Yes When _____□No
b. GBAS -- □Yes When _____□No

15) What role would your State like ICAO to assume in your GNSS Programme

_____
_____

16) Any comments

_____
_____

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QUESTIONNAIRE ANALYSIS

State	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Bahrain	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Egypt	No	Yes	Not yet	Yes	Yes	Yes	Yes	Not yet under development
Iran	Yes there are problems (120+training)	Yes as mentioned in Q1	No under development	Yes	Yes no doubts	Yes	Yes	Not yet under development
Iraq								
Jordan	No problems	Yes	Yes under development	Yes fully understand	Yes fully understand	Yes	Yes, and understand fully the impact	Defined action plan WP11
Kuwait								
Lebanon	No problem	Yes we will accept flight plan filing exceeding 120 hours	Planning to do so the issue under discussion	Yes	Yes	Yes	Yes	In progress we establish a committee and it is working on defining the action plan.
Libya	No problems	Yes	No under development	--	Yes	Yes	Yes	Under development
Oman	No	Yes	Yes under development	Yes	Yes	Yes	Yes	Under development
Qatar	No Problem	Yes	Yes under development	Yes	Yes	Yes	Yes	Under development
Saudi Arabia	No problems at this time	As it applies to ATM system	Yes will have Dual	Yes	Yes and will have dual functionality	Yes	Yes *expect additional automation and procedural*	Under development

State	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
							impact	
Sudan								
Syria								
UAE	No	Yes	Yes—ANSPs to include software in upgrades or new systems.	Yes	Yes	Yes—Most ANSPs including this upgrade with the automated system upgrades	Yes	Under development—National workshop Q1 2012.
Yemen								

Q1- *In your compliance to the changes in Amendment 1, is there any part of Amendment 1 in which your State identifies any major problem to comply?*
Q2- Has your State considered the accommodation of the 120 hour filing provision outlined in Amendment 1?
Q3- Have you considered a strategy for transitioning NEW FPL and related messages to the PRESENT/EXISTING format?
Q4- Do you know about the regional actions defined in MID Regional Strategy for implementation of this amendment?
Q5- Do you understand the phased transition approach?
Q6- Do you intend to comply with the dates contained in Phase 2 (transition) of the approach (i.e., you plan to be ready to begin accepting NEW format FPLs and related messages between 1 April and 30 June 2012)?
Q7- Have you considered the automation and/or procedural impacts involved in the implementation of Amendment 1?
Q8- Has your State defined an action plan for carrying out the different aspects of this implementation?

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MID REGION
STRATEGY FOR THE IMPLEMENTATION OF ICAO NEW FLIGHT PLAN FORMAT AND SUPPORTING ATS MESSAGES

Recognizing that:

1) Dynamic information management will assemble the best possible integrated picture of the historical, real-time and planned or foreseen future state of the ATM situation and provide the basis for improved decision making by all ATM community members, further more for the ATM system to operate at its full potential, pertinent information will be available when and where required;

2) The *Global Air Traffic Management Operational Concept* (Doc 9854) requires information management arrangements that provide accredited, quality-assured and timely information to be used to support ATM operations and will use globally harmonized information attributes;

3) ATM Requirement 87 in the *Manual of Air Traffic Management System Requirements* (Doc 9882) provides that 4-D trajectories be used for traffic synchronization applications to meet ATM system performance targets, explaining that automation in the air and on the ground will be used fully in order to create an efficient and safe flow of traffic for all phases of flight;

4) The amended ICAO Flight Plan and associated ATS Message formats contained in Amendment 1 to the Fifteenth Edition of the PANS ATM (Doc 4444, applicable 15 November 2012) have been formulated to meet the needs of aircraft with advanced capabilities and the evolving requirements of automated air traffic management systems, while taking into account compatibility with existing systems, human factors, training, and cost;

5) The ICAO new flight plan Format introduces considerable changes related, inter-alia, to Performance Based Navigation (PBN), Automatic Dependent Surveillance - Broadcast (ADS-B) and Global Navigation Satellite Systems (GNSS), while maintaining a high degree of commonality with the existing flight plan format;

6) The complexities inherent in automated computer systems preclude the adoption of a single regional transition date and transitions to the new flight plan provisions will therefore occur throughout the declared transition period;

7) The risk of not updating all MID States automated systems as planned and before the implementation date of 15 November 2012; and

8) The risk of all users simultaneously commencing “NEW” on the common implementation date without proper testing with the States.

The MID Region implementation of Amendment 1 to the PANS-ATM shall:

1) Ensure that all States and airspace users implement the full provisions of Amendment 1 to PANS-ATM 15th Edition with applicability date of 15 November 2012, not just selected aspects of the provisions;

2) Acknowledge that States not implementing the full provisions of Amendment 1 are obligated to publish the non compliance in State AIP as a ‘significant difference’ well in advance of the 15 November 2012 applicability date and will be included on the MIDANPIRG List of Deficiencies in the CNS/ATM Fields; and

3) Ensure that, from 15 November 2012, all States and airspace users accept and disseminate 'NEW' flight plan and associated ATS message formats only and capabilities for 'PRESENT' flight plan provisions are discontinued.

The MID Regional transition to the PANS-ATM Amendment 1 provisions shall:

1) Comply with the guidance provided by ICAO as described in the ICAO guidance material in State Letter AN 13/2.1-09/9, dated 6 February 2009; titled "Guidance for implementation of flight plan information to support Amendment 1 of the Procedures for Air Navigation Services — Air Traffic Management, Fifteenth Edition (PANS-ATM, DOC 4444)";

2) States must ensure coordination with adjacent States for testing and transition and inform other interested stakeholders as appropriate;

3) Ensure that the INFPL SG undertakes coordination to facilitate harmonization with implementations in neighboring regions;

4) Eliminate or minimize State specific constraints and, if constraints continued to be ~~are~~ identified as necessary, implementation of such constraints should be agreed on a regional basis or sub regional basis in preference to an individual State basis;

5) Declare a preparation transition period from 1 January 2012 until 14 November 2012, comprising;

- Before 31 March 2012 - ANSPs software delivery and internal testing,
- 1 April to 30 June 2012 – ANSPs external testing and
- 1 July to 14 November 2012 – airspace users testing;

6) Encourage ANSPs and airspace users to coordinate appropriate implementation methodologies in order to ensure that migration to 'NEW' could be done without problems on the agreed and declared implementation date;

7) Encourage States and users to immediately commence preparations to implement Amendment 1 provisions preferably not later than declared preparation period and report progress to the INFPL SG periodic meetings;

8) States Implementing NEW Format should have the capability to process both PRESENT and NEW formats during transition period;

9) MID States shall not support PRESENT format after 15 November 2012;

10) Strategic Support Teams (SST) to be identified and resourced to support those States who are behind the regional Implementation Plan, and;

11) Establish State and Regional coordination cells. Guidelines will be provided to align with the joint ICAO and IATA management center in ICAO HQ Montreal planned around the applicability date.

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Outcome of Joint ACAC – ICAO INFPL Implementation Seminar

- States who have not done so to allocate the necessary resources to implement the provisions of amendment 1.
- Launch of training campaigns within States with specified time lines

  (Engineers, Ops , ATC, Military , Airlines, maintenance etc..)
- Consider Regional Testing Schedule
- Following were identified as members of Regional Support Team (Bahrain, Lebanon, Saudi Arabia, Jordan, UAE and IATA)
- Interregional issues to be handled through concerned ICAO Regional office
- Make use of ICAO support through Strategic Support Teams /Interested States in obtaining support should file a request
- States to Share their experience (testing doc, training, etc.)
- States to consider collective negotiations with vendors and should seeks assistance from representative organization (CANSO, IATA, IFATCA, etc.) to conclude agreement with vendors
- INFPL SG/4 to prepare standard briefing to be distributed to all MID States for distribution to all airlines registered in their States.
- Development of standard Regional rejection procedures for flight plan (Jordan by INFPL SG/4)
- Development of common test plan to ensure that states will conduct (carry out) all necessary tests to validate INFPL SG/4
- States unable to accept INFPL are encourage to request support from other States willing to provide the conversion and to conclude the necessary LOA.

CNS/ATM/IC SG/6
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EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

Requirements for the coordinated allocation and use of Mode S Interrogator Codes in the ICAO Middle East Region

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The following table identifies all management authorities who have successively approved the present issue of this document.

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EXECUTIVE SUMMARY

The introduction of SSR Mode S interrogators requires a coordinated approach to the allocation and implementation of the Interrogator Codes.

Provisions regarding the implementation and monitoring of Mode S IC allocations have been defined by ICAO.

In ICAO European region, the management of the plan is exercised by EUROCONTROL on behalf of the European regional office of ICAO. EUROCONTROL has put in place a cell (MICA Cell) to perform the allocation of the Interrogator Codes. To support the coordinated allocation and implementation of the Interrogator Code to Mode S interrogators in ICAO European region, a process (Mode S IC Allocation process) has been formalized.

Mode S radars are also installed in ICAO Middle East region. The operational coverage of some of these radars is overlapping coverage of Mode S radars installed in ICAO European Region. In order to avoid any Mode S Interrogator Code conflict with radar already operational in Mode S, it is therefore critical to coordinate the Mode S Interrogator Code Allocation in ICAO Middle East region in close cooperation with the ICAO Middle East regional office.

The purpose of this document is to lay down recommendations and requirements for an efficient support of the EUROCONTROL MICA Cell to the allocation of Mode S Interrogator Code by the ICAO Middle East regional office.

The Mode S IC Allocation process applied in Europe will also be applied for IC Allocation to Mode S radars in the Middle East ICAO region. This process is based on 168 days (approximately 6 months) cycles, aligned on AIRAC effective dates. The IC allocation to Mode S radars in ICAO Middle East region and ICAO European region will be processed together during the same MICA cycles. This document also details the role and responsibilities of ICAO Middle East regional office and Mode S operators.

In addition, the IC Allocation in Europe relies on required Mode S radar performances and airborne carriage. The last par of this document introduces recommended functionalities for Mode S interrogators and transponders which could compromise future IC Allocations if not implemented in that region.

1. Introduction

1.1 Purpose of the document

The purpose of this document is to lay down recommendations and requirements for an efficient support of the EUROCONTROL MICA Cell to the allocation of Mode S Interrogator Code by the ICAO Middle East regional office.

1.2 Mode S Interrogator Code

Whilst traditional Secondary Surveillance Radar (SSR) station sends interrogations that are replied by all aircraft within its beam, Mode S interrogator transmits addressed interrogations to each aircraft within its coverage.

In Mode S protocol each aircraft and each interrogator must be uniquely identified. Mode S Interrogators are identified by an Interrogator Code.

To secure the safety of the air traffic surveillance system, it is essential that the radar coverage areas of two Mode S interrogators using the same Interrogator Code do not overlap, except if they are grouped in a cluster or if other appropriate operational mitigations are in place.

Interrogator Codes can be either Interrogator Identifiers (II) or Surveillance Identifiers (SI). The design of the Mode S system limits the number of Interrogator Codes available (excluding II zero) to 15 II codes and 63 SI codes. Compared to the number of Mode S interrogators which might be deployed in a region, the number of IC is low.

The introduction of SSR Mode S interrogators requires a coordinated approach to the allocation and implementation of the Interrogator Codes.

1.3 Abbreviations

IC	Interrogator Code
II	Interrogator Identifier
MICA	Mode S Interrogator Code Allocation
MICoG	Mode S Interrogator Code Coordination Group
MID	Middle East
SI	Surveillance Identifier
SSR	Secondary Surveillance Radar

1.4 Definitions

1. **Cluster**: A set of Mode S interrogators connected all together in the same network and using the same Interrogator Code to share track information in order to allow aircraft acquisition already acquired by other stations in the same cluster.
2. **Eligible Mode S interrogator**: fixed Mode S interrogator for which at least one of the following conditions is satisfied:
    a. the interrogator relies, at least partly, on Mode S all call interrogations and replies for Mode S targets acquisition; or

   b. the interrogator locks out acquired Mode S targets in reply to Mode S all call interrogations, permanently or intermittently, in part or totality of its coverage; or
   c. the interrogator uses multisite communications protocols for data link applications.

3. **Eligible Interrogator Code**: any code among the II codes and the SI codes, except
   a. II code 0
   b. the Interrogator Code(s) reserved for military entities including intergovernmental organisations in particular North Atlantic Treaty Organisation (II code 15 is currently reserved in Europe for NATO management)
4. **Interrogator Code Conflict**: uncoordinated coverage overlap of two or more Mode S interrogators operating on the same interrogator code, potentially resulting in aircraft remaining undetected by at least one of the Mode S interrogators.
5. **Lockout**: protocol that allows the suppression of Mode S all call replies to Mode S all call interrogations transmitted on a specific IC.
6. **Lockout Map**: Mode S interrogator configuration file defining where and how to apply lockout to Mode S targets.
7. **MICA web**: the Mode S Interrogator Code Allocation (MICA) web application is used to coordinate and manage IC Allocation to Mode S radars in the ICAO European region and in the ICAO Middle East region. The access to the web application is managed through the Eurocontrol OneSkyOnline portal.
8. **Mode S All Call interrogations**: messages that are normally used by Mode S interrogators to acquire Mode S targets entering their coverage area.
9. **Mode S interrogator**: system composed of antenna and electronics, supporting detection and tracking of individual aircraft through the Mode S protocol.
10. **Mode S Operator**: a person, organisation or enterprise operating or offering to operate a Mode S interrogator, including:
    a. air navigation service providers
    b. Mode S interrogators manufacturers
    c. airport operators
    d. military units operating Mode S interrogators on any other interrogator code than II code 0
    e. research establishments
    f. any other entity entitled to operate a Mode S interrogator
11. **Mode S target**: a platform equipped with a Mode S transponder.

1.5 References

ICAO Annex 10 to the Convention on International Civil Aviation

Aeronautical Telecommunications

Volume IV Surveillance and Collision Avoidance Systems

1.6 Document structure

Chapter 2 describes how the IC Allocation coordination is organized in ICAO European region. The IC Allocation status in the ICAO European region and ICAO Middle East region is also provided in this chapter.

Chapter 3 presents the IC Allocation process that is applied in the ICAO European region to process Interrogator Code requests for new Mode S radars. This process will also be applied to the ICAO Middle East region.

Chapter 4 summarizes the role and responsibilities of ICAO Middle East regional office and Mode S operators in the IC Allocation process applied in the ICAO European region.

Chapter 5 provides some guidance for IC allocation in ICAO Middle East Region. In particular the Mode S radar performances are discussed.

2. IC Allocation Coordination in Europe

2.1 Organization

Provisions regarding the implementation and monitoring of Mode S IC allocations have been defined by ICAO.

In European ICAO region, the management of the plan is exercised by EUROCONTROL on behalf of the European regional office of ICAO.

EUROCONTROL has put in place a cell (MICA Cell) to perform the allocation of the Interrogator Codes. In addition a working arrangement (MICoG) has been created to oversee the allocation process and provide guidance to the MICA Cell. MICoG members are the Focal Points representing the National Regulatory Authorities of European States and those international organisations applying for Interrogator Codes.

The Focal Points are also responsible for the coordination of all matters concerning the IC allocations between the MICA Cell and the Mode S Operators in their area of oversight.

The Figure 1 here blow depicts the co-ordination for IC Allocation to Mode S radars in ICAO European region.

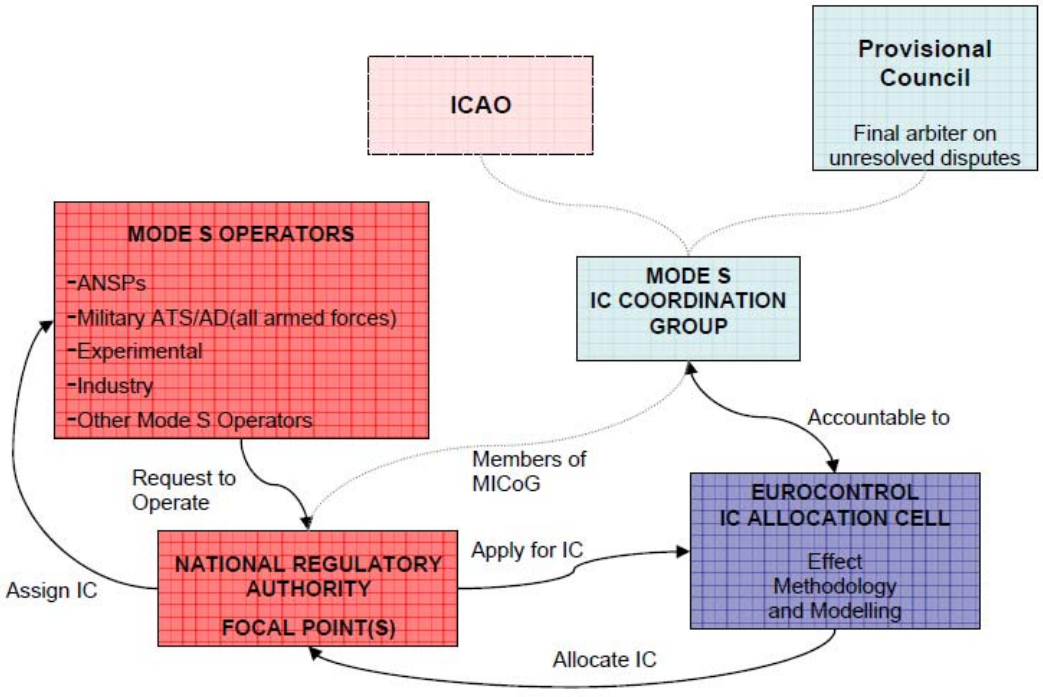


Figure 1: Mode S IC Allocation Coordination in Europe

2.2 IC Allocations Framework

IC allocation started with deployment of the first Mode S stations in Europe. The deployment of more Mode S stations required a coordinated process which was formalized in 2005:

Mode S Interrogator Codes Allocation Process 1.0

29 September 2005

From that date, the Mode S IC allocation is managed in cycle of 6 months.

To enforce the requirements and responsibilities on each participant, the following European Regulation was issued in 2009:

> ***COMMISSION REGULATION (EC) No 262/2009 of 30 March 2009***
>
> ***laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky***

For countries belonging to the European Union, the European Regulation supersedes the Eurocontrol document depicting the Mode S Interrogator Codes Allocation Process.

In addition, a web application, called MICA web, has been developed to improve the processing and coordination of IC Allocation to Mode S radars in the European region.

2.3 IC Allocation Status

At the end of MICA Cycle 13 (September 2011), 247 Mode S radars were allocated an Interrogator Code, either an II code or an SI code, in the European region.

The Figure 2 here below depicts the IC Allocation Status in the European region at the end of MICA Cycle 13.

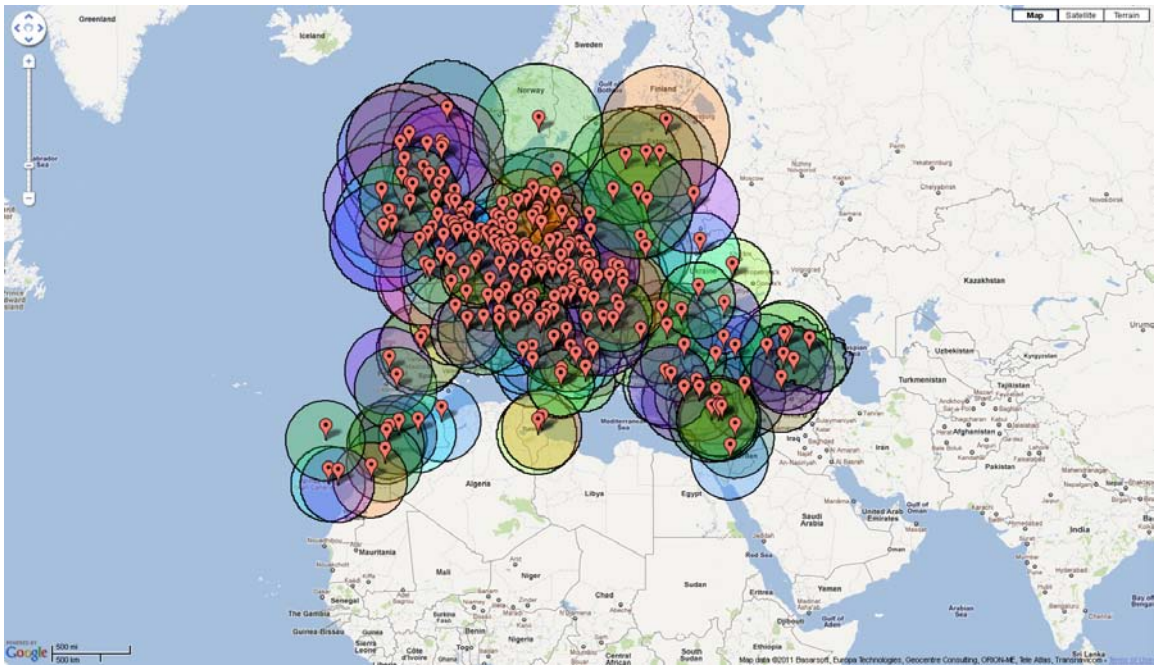


Figure 2: IC Allocation Status in European region at the end of MICA Cycle 13

Mode S radars are also installed in ICAO Middle East region. The operational coverage of some of these radars is overlapping coverages of Mode S radars installed in ICAO European Region. In order to avoid any Mode S Interrogator Code conflict with radar already operational in Mode S, it is therefore critical to coordinate the Mode S Interrogator Code Allocation in ICAO Middle East region in close cooperation with the ICAO Middle East regional office.

Until now, the allocation of Interrogator Codes to Mode S radars in ICAO MID region has been done on an ad-hoc basis.

At the end of MICA Cycle 13 (September 2011), 32 Mode S radars were allocated an II code in the Middle East region.

The Figure 3 here below depicts the IC Allocation Status in the Middle East region at the end of MICA Cycle 13.

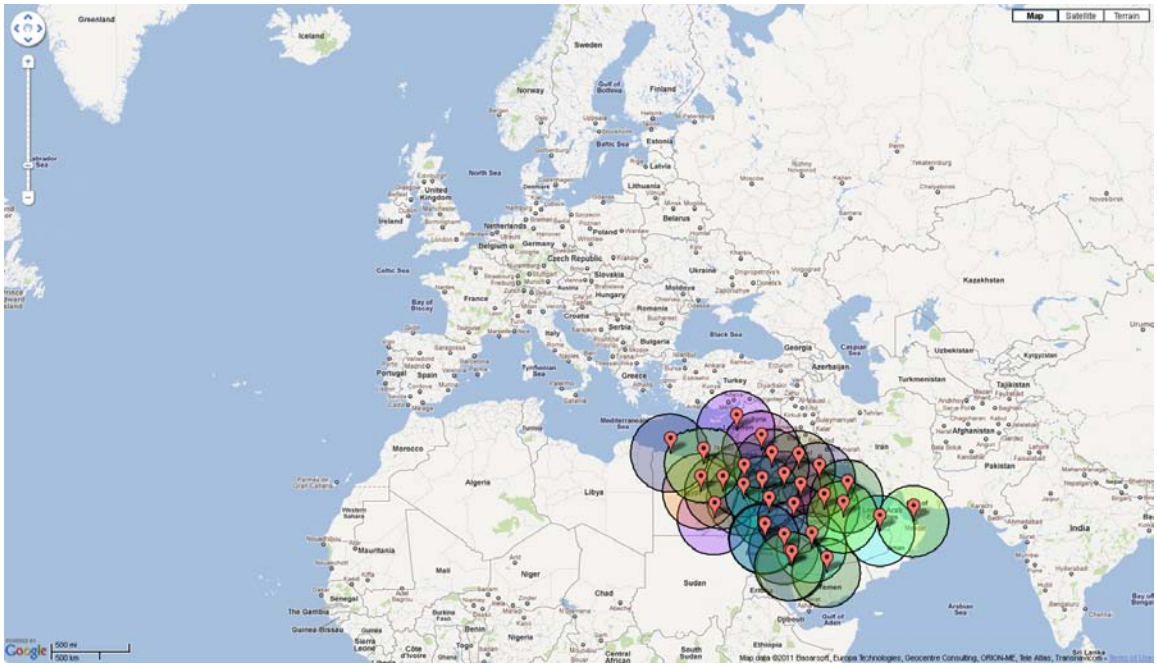


Figure 3: IC Allocation Status in Middle East region at the end of MICA Cycle 13

The purpose of this document is then to lay down recommendations and requirements for an efficient support of the MICA cell to the allocation of IC by the ICAO MID office in the ICAO Middle East Region.

3. Mode S IC Allocation Process

The Mode S IC Allocation process applied in Europe and described hereafter will also be used for IC Allocation to Mode S radars in the Middle East ICAO region.

> *If, for some reasons, the Mode S IC Allocation process cannot directly be applicable to the ICAO Middle East region, then differences will be highlighted.*

The MICA web is the main interface of the Mode S IC Allocation process. Register users can submit applications to get an IC for new Mode S radars, they can also retrieve the issued allocations. In addition, there is a conflict report mechanism to help Mode S operators to investigate potential Mode S conflicts. As a consequence, all Focal Points shall be registered on the MICA web. It is highly recommended for Mode S operators to also be registered in order to have direct access to their allocations and to be able to investigate quicker IC conflicts.

3.1 IC allocation cycle

The IC allocation to Mode S radars in Middle East region will be processed together with IC allocation to Mode S radars in European region during the same MICA cycles.

The Mode S IC Allocation cycles are based on AIRAC effective dates. MICA cycles are as follows:

- There are only two allocation effective dates per year (at 168 days intervals).
- Applications to request the allocation of an Interrogator Code must be received at least 168 days before the effective AIRAC date; that is before the requirements freeze date (see Figure 4 her below).
- Applications received after the requirements freeze date will not be processed until the next allocation cycle, unless they can be accommodated through the ad-hoc process.
- Draft allocation or change proposals are published by the MICA Cell, for review by the Focal Points, 140 days in advance of the corresponding effective date.
- The draft proposals publication is followed by a 28 days review period.
- The allocations are then published 98 days in advance of the effective date.
- Focal Points from affected states have 14 days to acknowledge the new allocation plan and to transmit allocation details to Mode S Operators as necessary.
- All changes implemented through the cyclic IC allocation process shall be completed before the cycle effective date. The effective date is the latest implementation date and will correspond with the requirements freeze date for the next allocation cycle.

Note: Other systems such as radar data processing systems may need to be updated concurrently during the implementation period, e.g. to reflect a possible change in radar coverage maps.

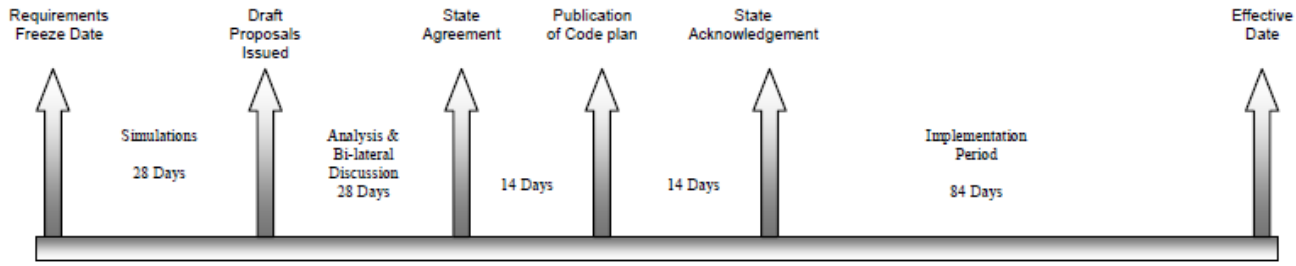


Figure 4: Mode S IC Allocation Cycle

3.2 Ad-hoc allocation process

The MICA Cell will deal with urgent applications on an ad-hoc basis, but will not guarantee an optimal allocation. In particular, no change will be made to the existing Mode S allocations during the ad-hoc process.

As no existing issued Mode S allocation can be impacted by the ad-hoc process, this process is faster than the Mode S IC Allocation cycle.

3.3 Applications

Requests for the allocation of a Mode S Interrogator Code have to be made by the Mode S Operators to the appropriate National Authority of the European Region which is empowered to issue, amend or revoke approvals to operate Mode S interrogators, or by a properly designated authority in the case of international organisations.

> *The ICAO Middle East Regional Officer will act as the Focal Point for all Mode S Operators within the ICAO Middle East region. As a consequence, he will be responsible to collect applications from all Mode S Operators in ICAO Middle East region.*

Applications shall be submitted at least 168 days before the target effective date to give adequate time to be processed by the MICA Cell and any difficulties to be resolved. Focal Points and Mode S Operators are advised to take the allocation period into consideration when developing implementation plans.

Applications for IC allocation should be submitted online on the MICA web by the Focal Point for European region.

Applications can also be submitted by the Mode S Operator on the MICA web. In that case, the applications shall be reviewed and acknowledged online by the responsible Focal Point.

Requests for IC allocation can still be submitted by the Focal Point by e-mail accompanied by the appropriate form which has been developed for that purpose. Nevertheless the online submission on the MICA web is preferred.

The operators must provide the necessary information to perform the IC allocation. An IC application shall include the following key items:

a. Mode S interrogator name
b. Mode S interrogator use (operational or test)
c. Mode S interrogator position in Lat/Long (in degree, minute, seconds format)
d. Mode S interrogator planned date of first Mode S transmission
e. requested Mode S coverage
f. SI code capability
g. ‘II/SI code operation’ capability
h. coverage map capability

In the application, the requested Mode S coverage, provided in range per sector, is defining the required operational coverage. A Mode S Operator can communicate additional specific operational requirements to the MICA Cell, through his Focal Point.

If the Mode S interrogator position is a sensitive information (e.g. military radars), that position can be approximate to the minute.

3.4 Allocation Simulations

During the Allocation Simulation period, the MICA Cell is creating allocation proposals for all applications under process in the current MICA cycle. Existing IC allocations may also be impacted.

The MICA Cell may need guidance from and coordination with Focal Points and/or Mode S Operators to complete its work. Focal Points and Mode S Operators points of contact should be available to provide assistance to the MICA Cell during the Allocation Simulation period, particularly if they submitted applications processed in the corresponding MICA cycle.

Points of contact of Mode S Operators who are not registered on the MICA web shall be explicitly provided by the responsible Focal Point.

3.5 Allocation Proposals

At the end of the simulations period, the MICA Cell issues IC allocation proposals. The proposals cover new allocations as well as existing allocation changes required to provide IC allocations to new Mode S interrogators.

All the allocation proposals are available online on the MICA web and can be accessed by all Focal Points. Allocation proposals for radars of a given organisation can also be accessed by Mode S operators from the same organisation.

3.6 Allocation Review

Focal Points have 28 days to review the allocation proposals. An acknowledgement is required from affected States only.

Each Focal Point has to accept or reject allocations proposed for Mode S radars installed or planned to be in the country under his responsibility. To fulfil that task, the Focal Points are responsible to check the acceptability of the allocation proposals with the corresponding Mode S Operators.

> *The ICAO Middle East Regional Officer will have to accept or reject all allocation proposals for Mode S radar installed or planned to be in the ICAO Middle East region. To fulfil that task, he will have to check the acceptability of the allocation proposals with the corresponding Mode S Operators.*

The Focal Points should accept or reject allocation proposals directly on the MICA web. There is an Accept button and a Refuse button at the bottom of each Allocation Proposal.

In case an allocation proposal is refused, the following may happen:

- The MICA Cell produces an updated proposal within the initial 14 days of the review period; or
- As a last resort, the controversial proposals are withdrawn, to be processed in the next allocation cycle.

The Focal Points can also raise an objection for any other allocation proposal. In that case, a comment will have to be provided to explain the objection. In that case, the allocation proposal may be updated.

Given that the MICA Cell consults Focal Points and Mode S Operators during the simulations period, objections raised during the review period should be limited.

3.7 Allocation Publication

84 days before the effective date, the MICA Cell publishes official IC allocations.

All the issued IC allocations are available online on the MICA web.

The Focal Point is responsible to ensure that all Mode S Operators under his responsibility and impacted by the Mode S IC Allocation cycle are aware of the new issued allocations. In particular, he is responsible to deliver the IC allocation details to the Mode S Operators. It should be noted that Mode S operators registered on the MICA web have also access to IC allocations issued for their organisation.

The Focal Point has to acknowledge issued IC allocations under his responsibility directly on the MICA web. There is an Acknowledge button at the bottom of each issued IC allocation. By doing this action, the Focal Point confirms that Mode S Operators have been informed.

3.8 Output of the Allocation Process

The allocation activity of the MICA Cell is referred to as being the Interrogator Code allocation. However, an allocation is in fact granting the right to an interrogator to lockout on a given code over a given area. This implies that the output of the allocation process is not only a code, but also a matching coverage.

The coverage associated with the code allocation is defined in the allocation form on the MICA web and can be expressed as:

- A Mode S responsibility map (in the European Mode S Coverage Map ICD format); or
- A sectored range around the radar position.

The MICA Cell allocates both lockout and surveillance coverage, the former always being inscribed within the latter.

The lockout coverage provided by the MICA Cell is reduced compared to the surveillance coverage. As the lockout timer of an aircraft takes 18 seconds to time-out, the purpose here is to ensure that an aircraft which was locked out by neighbouring radar on the same code is unlocked when entering the surveillance coverage of the next radar.

For a sectored range around the radar position, the allocated lockout coverage is reduced by 5 NM, compared to the surveillance coverage. For a Mode S responsibility map, the lockout coverage is reduced by 1 cell, compared to the surveillance coverage.

NOTES: Mode S Operators are encouraged to support the use of European Mode S coverage maps. Lacking support for such maps will require the MICA Cell to allocate coverage expressed as sectored ranges, which may result in less optimal overall coverage.

3.9 Allocation Changes

Existing allocations may be impacted by the MICA Cycle in order to provide IC allocations to new Mode S interrogators.

Interrogator Code and coverage maps changes need to be carefully coordinated in order to avoid potential conflicts.

The MICA Cell identifies all Mode S Operators and ATM systems impacted by a given change and inform their relevant Focal Points. In addition to the issued Allocations, MICA Cell provides an implementation sequence, which is the time-bounded sequence of implementation of Interrogator Code allocations with which Mode S Operators need to comply to avoid temporary interrogator code conflicts

The Focal Points are responsible to provide this implementation sequence to all impacted Mode S Operators. These Mode S Operators are then responsible for the organisation of the necessary coordination. The Mode S Operators are required to advise their Focal Point of the agreed arrangements in advance of implementation. MICA Cell should also been informed.

3.10 Discrete Code Allocation

3.10.1 II code and mobile radar

II Code 0 has been reserved by ICAO for operation without an assigned code. Mode S interrogators using II Code 0 in accordance with the ICAO Standards and Recommended Practices do not need to be subject to the coordinated allocation process.

Discrete code allocations are not made to mobile installations for which special modes of acquisition on II code 0 are used.

3.10.2 Cluster

Fixed operational interrogators are normally allocated a single Interrogator Code, unless they are operated in a cluster. In the latter case, a second IC may be allocated to the cluster for fallback modes of operation, and to test and integrate new cluster interrogators.

3.10.3 Test, Research and Development Mode S interrogators

Test systems are normally allocated a shared Interrogator Code (currently II 14). This may typically not be a conflict-free situation and Mode S targets acquisition cannot be guaranteed when several test systems operate concurrently. Mode S Operators of Mode S test systems who need to conduct temporary trials requiring a conflict free situation are responsible for the bilateral coordination with other Mode S Operators of Mode S test system.

However, applications for IC Allocation to test systems still need to be done according to the agreed IC Allocation Process.

Operation on any other code without prior coordination and allocation is prohibited as it could severely interfere with other Mode S surveillance systems and consequently impact civil and military ATC and AD operations.

Mode S IC Allocations to test systems on II code 14 and Mode S Operators point of contacts are available on the MICA web.

3.10.4 Specific code for specific military operations

II code 15 is currently reserved in Europe for NATO management. It is not available for allocation as part of the process run by Eurocontrol. SI codes matching II code 15 (SI 15, SI 31, SI 47 and SI 63) are not reserved for NATO but are currently not used either for allocation.

Discussions are ongoing about the possibility to reserve SI codes matching II code 15 for military use. The management of these codes would be done by NATO.

Mode S interrogators affected by the discussion are exclusively the non-fixed, deployable military installations.

Fixed military radars are still eligible to get a discrete Interrogator Code following the normal Mode S IC Allocation process.

ICAO Middle East regional office has to decide how to use II code 15.

Note: there is currently discussion to reserve II code 15 for military application everywhere in the world.

ICAO Middle East regional office has to decide how to use SI codes matching II code 15.

3.11 Dispute Resolution

Dispute may happen during the Mode S IC Allocation process. Discussions with the impacted Mode S operator(s) and the responsible Focal Point(s) may be sufficient to find a solution.

If no solution is found, a final arbiter to unresolved dispute is required.

The ICAO Middle East regional officer is responsible to manage disputes inside the ICAO Middle East region.

Final arbiter has to be identified to resolve disputes that could occur between countries of ICAO European region and ICAO Middle East region.

3.12 MICoG working arrangement

MICoG working arrangement has been created to oversee the allocation process and provide guidance to the MICA Cell. MICoG members are the Focal Points representing the National Regulatory Authorities of European States and those international organisations applying for Interrogator Codes.

As Focal Point for all countries in ICAO Middle East region, the ICAO Middle East regional officer is invited to be a MICoG member and to attend MICoG meetings (twice a year).

ICAO Middle East regional office should determine the necessity to meet Middle East Mode S operators at regular interval to discuss about technical problems and other topics related to Mode S radar installation in ICAO Middle East region. The MICA cell would not participate to Middle East Mode S operators meetings.

The ICAO Middle East regional officer could submit problems encountered in ICAO Middle East region during the MICoG meeting.

4. Role and Responsibilities for IC allocation in ICAO Middle East Region

4.1 Requirements for Mode S Operators in ICAO Middle East Region

1. 'Mode S Operator' means a person, organisation or enterprise operating or offering to operate a Mode S interrogator, including:
    a. air navigation service providers
    b. Mode S interrogators manufacturers
    c. airport operators
    d. military units operating Mode S interrogators on any other interrogator code than II code 0
    e. research establishments
    f. any other entity entitled to operate a Mode S interrogator
2. Mode S Operators should be registered on the MICA web.
3. Mode S Operators shall only operate an eligible Mode S interrogator, using an eligible Interrogator Code, if they have received an Interrogator Code allocation, for this purpose, from the ICAO Middle East regional office.

4. All Mode S Operators intending to operate, or operating, an eligible Mode S interrogator for which no Interrogator Code allocation has been provided shall submit an Interrogator Code application to the ICAO Middle East regional office. **Except if using II=0 …..mobile interrogators**

An IC application shall include the following key items:

a. Mode S interrogator name
b. Mode S interrogator use (operational or test)
c. Mode S interrogator position in Lat/Long (in degree, minute, seconds format); if the radar position is a sensitive information (e.g. military radars), the position can be approximate to the minute
d. Mode S interrogator planned date of first Mode S transmission;
e. requested Mode S coverage
f. SI code capability
g. 'II/SI code operation' capability
h. coverage map capability

Discrete code allocations are not made to mobile installations for which special modes of acquisition on II code 0 are used.

Interrogator Code 0 has been reserved by ICAO for operation without an assigned code. Mode S interrogators using Interrogator Code 0 in accordance with the ICAO Standards and Recommended Practices do not need to be subject to the coordinated allocation process.

The use of II Code 0 can be approved at National Regulatory level.

Mode S applications could be submitted directly on the MICA web by registered Mode S

Operators; or will have to be submitted by e-mail to the ICAO MID Focal Point accompanied by the appropriate application form which has been developed for the purpose.

5. Mode S Operators shall comply with the key items of the Interrogator Code allocations they receive.

   Mode S IC allocations could be retrieved directly from the MICA web by registered Mode S Operators; or will have to be provided by the ICAO MID Focal Point to the Mode S Operators by e-mail.

6. Mode S Operators shall ensure that each of their Mode S interrogators uses exclusively its allocated Interrogator Code, its allocated surveillance coverage and its allocated lockout coverage.

7. Coordination with other Mode S Operators may be required prior to implement the latest issued allocation in Mode S radars in order to avoid potential conflicts. The Mode S Operators shall organize the necessary coordination in collaboration with the ICAO MID Focal Point.

   The MICA Cell will identify all Mode S Operators and ATM systems impacted by a given change and will provide to the ICAO MID Focal Point the implementation sequence to follow. The ICAO MID Focal Point will be responsible to provide this implementation sequence to all impacted Mode S Operators. These Mode S Operators will then be responsible for the organisation of the necessary coordination. The Mode S Operators will be required to advise the ICAO MID Focal Point of the agreed arrangements in advance of implementation. MICA Cell should also been informed.

8. Mode S Operators should provide a point of contact in case of conflict.

9. Mode S Operators should restrict transmitter power to the minimum necessary to meet the operational requirement, within the technical constraints of the interrogator.

4.2 Requirements for the ICAO Middle East Regional Office

1. The ICAO Middle East Regional Officer will be the Mode S IC Allocation Focal Point for all countries in ICAO Middle East region.

2. ICAO Middle East regional office shall be responsible to coordinate and manage Mode S IC Allocation both for civil and military in ICAO Middle East region.

3. The ICAO MID Focal Point shall be responsible for the coordination of all matters concerning the IC allocations between the MICA Cell and the Mode S Operators in ICAO Middle East region.

4. The ICAO Middle East regional office shall be responsible to identify which Mode S Operators from ICAO MID Region to register on the MICA web application. Requests coming directly from Mode S Operators won't be accepted if they are not fully supported by the ICAO MID Regional Officer.

5. The ICAO Middle East regional office shall collect the IC applications for all countries in the ICAO Middle East region.

   The ICAO MID Focal Point will have to collect application forms received by e-mail.

   This point is not relevant if the application has been directly created on the MICA web by the Mode S Operator.

6. The ICAO Middle East regional office shall check the validity of Interrogator Code applications received from Mode S Operators, before making them available to the MICA cell.

   The ICAO MID Focal Point will have to review applications received from Mode S Operators and verify that all contained information is correct. In case of mistake, the ICAO MID Focal

Point will have to contact the responsible Mode S Operator to correct them.

Once the application has been verified and is correct:

- *If the application has been created on the MICA web by Mode S operator, then this application has to be acknowledged by the ICAO MID Focal Point*
- *If the application has been provided by e-mail (application form), then the Focal Point can either enter this application on the MICA web or forward this application form to the MICA Cell.*

No applications for Mode S radars in MID region will be processed without approval of the ICAO MID Focal Point.

7. Changes in the interrogator code allocation plan shall be subject to the approval of the ICAO Middle East regional office when countries of ICAO Middle East region are affected by the update of the plan.

   Allocation proposals will have to be reviewed by the ICAO MID Focal Point during the review period of the MICA Cycle. In particular, the ICAO MID Focal Point will have to check the acceptability of the allocation proposed for Mode S radars installed or planned to be in ICAO Middle East region with the concerned Mode S Operators. Then he will have to accept or reject these allocation proposals on the MICA web.

8. ICAO Middle East regional office shall ensure that interrogator code allocation changes resulting from an update to the interrogator code allocation plan are communicated to the relevant Mode S Operators under their authority within 14 calendar days of the reception of the updated allocation plan.

   In particular, the ICAO MID Focal Point shall deliver the issued allocation details to the concerned Mode S Operators.

   The ICAO MID Focal Point can retrieve issued allocations from the MICA web. It should be noted that Mode S operators registered on the MICA web have also access to IC allocations issued for their organisation.

9. Coordination with other Mode S Operators may be required prior to implement the latest issued allocation in the radar in order to avoid potential conflicts. The Focal Point shall inform impacted Mode S Operators and supervise coordination between them.

   The MICA Cell will identify all Mode S Operators and ATM systems impacted by a given change and will provide to the ICAO MID Focal Point the implementation sequence to follow. The ICAO MID Focal Point will be responsible to provide this implementation sequence to all impacted Mode S Operators. These Mode S Operators will then be responsible for the organisation of the necessary coordination. The Mode S Operators will be required to advise the ICAO MID Focal Point of the agreed arrangements in advance of implementation. I will also be desirable to inform the MICA Cell.

10. Where an overlap exists between the coverage of a Mode S interrogator located within the area of responsibility of the ICAO Middle East regional office and the coverage of a Mode S interrogator located within the area of responsibility of a third country, the ICAO Middle East regional office shall:

    a. ensure that the third country is informed of the safety requirements related to the allocation and use of interrogator codes;

    b. take the necessary measures to coordinate the use of interrogator codes with the third country.

11. ICAO Middle East regional office shall take the necessary measures to ensure that military units operating eligible Mode S interrogators on any other interrogator code than II code 0 comply with the Requirements for Mode S Operators in ICAO Middle East Region and the Requirements related to IC Conflict.

12. ICAO mid office shall manage dispute which occur inside the ICAO Middle East region.

4.3 Requirements related to IC Conflict

1. Air traffic service providers should assess the possible impact on air traffic services of Interrogator Code conflicts, and the corresponding potential loss of Mode S target surveillance data from the impacted Mode S interrogators, taking into account their operational requirements and available redundancy.
2. Mode S Operators and air traffic service providers should take appropriate measures to detect and mitigate the effect of possible interrogator codes conflicts.
3. Mode S Operators shall report any identified Interrogator Code conflict involving an eligible Mode S interrogator they operate on any operational Interrogator Code to the ICAO MID Focal Point and the MICA Cell.
4. Mode S Operators which are registered on the MICA web will have to make available the information related to the conflict to the other Mode S Operators through the conflict report part of the MICA web.
5. For Mode S Operators who are not registered, the ICAO MID Focal Point will be responsible to submit this information and Mode S Operators contact details on the conflict report part of the MICA web.
6. The ICAO MID Focal Point shall be responsible to inform all Mode S Operators from the Middle East region about the interrogator code conflict.

5. Guidance for IC allocation in ICAO Middle East Region

5.1 Mode S Radars Performances

5.1.1 SI code capability

It is recommended for Mode S Interrogators to support SI code capability.

Initially, for technical reasons, only Interrogator Identifier codes (II codes) 1 to 15 were defined and allocated as Interrogator Codes in the European region. Due to the expected number of Mode S interrogators, measures were later taken to allow the use of additional Surveillance Identifier codes (SI codes) 1 to 63.

Only SI code capable Mode S target will be correctly detected by Mode S station operating on SI code. ICAO annex 10 requires all Mode S transponder to be SI code capable however the experience shows that there are still old versions of Mode S transponder flying without the SI code capability.

5.1.2 II/SI code operation

It is recommended for Mode S Interrogators to support /IISI code operation.

Normally, the use of SI codes requires that all Mode S targets within the coverage of Mode S interrogators are equipped for this purpose. However, specifications were developed by Eurocontrol for an II/SI code operation which enables the early use of SI codes by Mode S interrogators even in an environment where all Mode S targets are not equipped for the use of SI codes.

Mode S interrogator which operates on an SI code with II/SI code operation enabled will detect correctly both SI capable and II only capable Mode S targets.

For more information, please refer to Annex A.

5.1.2.1 II/SI code operation in ICAO Middle East region

Even if the current number of Mode S radars installed in ICAO Middle East region is not as important as in the European region, there is no guarantee that allocating II code only to Mode S radar in the ICAO Middle East region will remain possible in the future.

Without any regulation to support SI code allocation (on Mode S radars to support SI code and II/SI code operation), it may not be possible to keep on allocating Interrogator Code to Mode S radars in the future, preventing them to operate in Mode S.

5.1.2.2 II/SI code operation in the European Union

In order to facilitate and support the use of SI code in European Union, requirements on SI code and II/SI code support capabilities have been lay down in article 3 of COMMISSION REGULATION (EC) No 262/2009:

Article 3

Interoperability and performance requirements:

Mode S operators shall ensure that the radar head electronics constituent of their Mode S interrogators using an operational interrogator code:

1. support the use of SI codes and II codes in compliance with the International Civil Aviation Organisation provisions[1]
2. support the use of II/SI code operation in compliance with the requirements specified in Annex A

5.1.3 Mode S Coverage

Several formats exist to define the Mode S coverage:

- Mode S responsibility map (in European Mode S Coverage Map ICD format[2]).
    - This map format has been developed by Eurocontrol in the frame of POEMS contract[3]. System Maps are geodesic maps (latitude/longitude) sub-divided into horizontal cells from approx. 5NM by 5NM (latitude of Paris) and an associated vertical extent.
    - When supported by the Mode S interrogator, the coverage allocated during the Mode S IC Allocation Cycle is provided in this format.
- Sectored Range
    - The circular coverage is divided into sectors (by default 32 sectors). Surveillance and Lockout ranges are provided per sector.
    - When coverage map in EMS Map ICD format is not supported by the interrogator, then surveillance and lockout coverage allocated to the radar are provided in this format.
- Global Range for the circular coverage.
    - One unique surveillance range and one unique lockout range are provided for the circular coverage.
    - When none of the both formats here above are supported, then this format is used.

Mode S Operators are encouraged to support the use of European Mode S coverage maps.

As these coverage maps are all aligned on the same common origin and have the same cell size, coverage maps can be joint without overlapping which is optimal in term of allocation volume and RF band usage (as there may be no gap between coverage of neighboring Mode S interrogators on the same Interrogator Code, aircraft lockout is optimized).

The second solution is less optimal as their will be gap between allocated coverage. Nevertheless to use range per sector is better than to apply the same range to the circular coverage (Third solution).

Concerning the third solution, the minimum range not to overlap neighboring Mode S interrogators on the same IC will be used as the circular range.

[1] Chapter 3 'Surveillance radar systems', Section 3.1.2.5.2.1.2 'IC: Interrogator code' of ICAO Annex 10 'Aeronautical Telecommunications', Volume IV 'Surveillance Radar and Collision Avoidance Systems' (Third Edition, July 2002, incorporating Amendment 77).

[2] European Mode S Station Coverage Map Interface Control Document, Edition 1.16

[3] European Mode S Station Functional Specification, Edition 3.11

5.2 Requirements for airborne carriage

It is required for Mode S targets to support SI code capability.

In ICAO Annex 10 Vol. IV - §2.1.5.1.7.1: “SI code capability shall be provided in accordance with the provisions of 2.1.5.1.7 for all Mode S transponders installed on or after 1 January 2003 and by all Mode S transponders by 1 January 2005.”

Airspace regulation should enforce the carriage of Mode S transponder capable to support SI capability as defined in ICAO Annex 10 Vol. IV.

Middle East ICAO office should verify and ensure the correct transponder capability in order to allow the use of SI codes in the ICAO MID region.

It is already possible to start using SI code without having 100% of the fleet SI capable. However in this case Mode S ground stations shall have the II/SI code operation capability as described in §5.1.2 in order to acquire aircraft which are not SI capable.

When using II/SI code operation, it is recommended not to lock aircrafts which are not SI cable. Depending on number of aircrafts which are not SI capable, the II/SI code operation may increase the RF pollution. In addition, there could be cases where the aircraft transponder is not working as expected.

ANNEX A – II/SI code operation

1. Mode S interrogators, when operating with an SI code and if enabled by an appropriate operational parameter, shall also acquire targets through all call replies which are encoded using the matching II code.
2. Mode S interrogators, when operating with an SI code and if enabled by an appropriate operational parameter, shall consider transponders replying with all call replies encoded using the matching II code as non-SI equipped transponders, irrespectively of the SI capability reported in the data link capability report defined in the document referred to in Annex II point 2.
3. Mode S interrogators, when operating with an SI code and if enabled by an appropriate operational parameter, shall interrogate transponders lacking SI code capability using the Mode S multisite lockout protocol messages foreseen for II code operation. The II code to be used shall be the matching II code.
4. Mode S interrogators, when operating with an SI code and if enabled by an appropriate operational parameter, shall be configurable by the operator to either:
    - not use lockout on the matching II code for transponders lacking SI code capability, or
    - use intermittent lockout on the matching II code for transponders lacking SI code capability.
5. Mode S interrogators, when operating with an II code and if enabled by an appropriate operational parameter, shall be configurable by the operator to either:
    - not use lockout for transponders which report no SI capability in their data link capability report or cannot report their data link capability, or
    - use intermittent lockout for transponders which report no SI capability in their data link capability report or cannot report their data link capability.
6. When the II/SI code operation is activated, the lockout maps shall not be taken into account for transponders lacking SI code capability.

CNS/ATM/IC SG/6
Appendix 5M to the Report on Agenda Item 5

MID REGION STRATEGY FOR THE IMPLEMENTATION OF AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST (ADS-B)

Considering the:

a) ICAO strategic objectives;
b) ICAO Business Plan;
c) Global Air Traffic Management Operational Concept;
d) revised Global Air Navigation Plan and associated GPIs;
e) outcome of the 11th Air Navigation Conference; and

Recognizing that:

i) the implementation of data-link surveillance technologies is an evolutionary process, but which has significant potential for safety and cost-effectiveness; and
ii) implementation of ADS-B is in support of various Global Plan Initiatives;

The MID Region strategy for the implementation of ADS-B is detailed below:

A) the MID Region ADS-B implementation plan should:

1) be evolutionary and consistent with the Global Air Navigation Plan taking into consideration associated MID Region priorities;

2) when cost/benefit models warrant it, prioritize implementation in areas where there is no radar coverage surveillance, followed by areas where implementation would otherwise bring capacity and operational efficiencies;

3) ensure that implementation of ADS-B is harmonized, compatible and interoperable with respect to operational procedures, supporting data link and ATM applications;

4) identify sub-regional areas where the implementation of ADS-B would result in a positive cost/benefit in the near term, while taking into account overall Regional developments and implementation of ADS-B in adjacent homogeneous ATM areas;

5) be implemented following successful trial programmes with regards to safety and operational feasibility, taking into account studies and implementation experiences from other ICAO Regions;

6) be implemented in close collaboration with users;

7) The proportions of equipped aircrafts are also critical for the ADS-B deployment, for which it is required to periodically provide, at least, the following information: number of equipped aircrafts operating in the concern airspace, number and name of the airlines that have equipped aircrafts for ADS-B, type of equipped aircrafts, categorization of the accuracy/integrity data available in the aircrafts;

8) The ADS-B deployment should be associated at early stages in coordination with the States/Regional/International Organizations responsible for the control of adjacent areas, and the correspondent ICAO Regional Office, establishing a plan in the potential areas of ADS-B data sharing, aimed at a coordinated, harmonious and interoperable implementation;

9) Each State/Regional/International Organization should investigate and report their own Administration's policy in respect to the ADS-B data sharing with their neighbours and from cooperative goals;

10) The ADS-B data sharing plan should be based selecting centres by pairs and analyzing the benefits and formulating proposals for the ADS-B use for each pair of centre/city with the purpose to improve the surveillance capacity;

11) Likewise, it is necessary to consider implementing surveillance solutions for surface movement control by the implementation of ADS-B; and

12) The implementation would be in conformity with the SARPs, ICAO guidelines and the MIDANPIRG conclusions and according to MID Surveillance Strategy where the time line for implementation is set for 2017.

B) The implementation would require aircraft equipped with avionics compliant with either:

i) Version 0 ES as specified in Annex 10, volume IV, Chapter 3, paragraph 3.1.2.8.6 (up to and including amendment 83 to annex 10) and chapter 2 of draft technical Provisions for Mode S services and extended Squitter (ICAO Doc 9871) to be used till at least 2020, or

ii) Version 1 ES as specified in chapter 3 draft Technical Provisions for Node S Services and Extended Squitter (ICAO Doc 9871) Equivalent to DO260A.

C) Implementation should be monitored to ensure collaborative development and alignment with the MID Region projects and relevant elements of the GPIs.

REPORT ON AGENDA ITEM 6: REVIEW OF THE MID AIR NAVIGATION PLAN (ANP)

6.1 The meeting recalled that MIDANPIRG/12 recognized that the current format and content of the regional ANPs as well as the amendment process do not meet the need of States and users and are inconsistent with the new requirements set-forth by the ATM Operational Concept, the Global ANP and the Performance Based Approach. Accordingly, it was agreed that a significant revision of the current regional ANPs, format and content is required in order to meet the intended objectives and increase their effectiveness. Accordingly, MIDANPIRG/12 agreed to the following Decision:

DECISION 12/49: REVIEW OF THE MID AIR NAVIGATION PLAN (ANP)

That, in support to ICAO efforts to improve regional ANPs, the MIDANPIRG subsidiary bodies:

a) carry out a complete review of the MID Basic ANP and FASID parts related to their Terms of Reference (TOR) and Work Programme;

b) develop revised draft structure and content of the Basic ANP in order to reconcile it with the ATM Operational Concept, the Global Plan provisions and the performance based approach;

c) identify the need for and development of those FASID Tables necessary to support the implementation of a performance-based global air navigation systems; and

d) report progress to MIDANPIRG/13.

6.2 In the same vein, the meeting recalled that, MIDANPIRG/12, through Decision 12/35, tasked the AIS/MAP Task Force, as part of its Work Programme, to carry out a review of the AIS Parts of the MID Basic ANP and FASID in order to introduce/develop planning material related to the transition from AIS to AIM.

6.3 The meeting noted that a similar work has been carried out in the European Region. In this respect, the meeting reviewed the following Parts of the EUR Basic ANP as endorsed by the EANPG:

- **Part 0: Introduction** at **Appendix 6A** to the Report on Agenda Item 6. This Part contains provisions and statements that are common to all Regional Air Navigation Plans.

- **Part I: EUR Region General Planning Aspects (GEN)** at **Appendix 6B** to the Report on Agenda Item 6.

- **Part IV: Air Traffic Management (ATM)** at **Appendix 6C** to the Report on Agenda Item 6.

- **Part VIII: Safety (SAF)** at **Appendix 6D** to the Report on Agenda Item 6. This is a new ANP Part and provides an overview of aviation safety and associated requirements that aviation stakeholders should consider when planning and delivering aviation services.

– **PART IX – Human Resources and Training (HR&TNG)** at **Appendix 6E** to the Report on Agenda Item 6. This is a new Part which reflects the planning and training elements that need to be considered by all those responsible for the regulation, supervision and provision of air navigation services within the wider context of planning for future aviation sector personnel.

– **PART X – Contingency Planning (CPLN)** at **Appendix 6F** to the Report on Agenda Item 6. This is a new Part which reflects an overview of policy and requirements that States and air navigation service providers should consider in preparing contingency plans to maintain the provision of services in airspaces for which they are responsible.

– ***PART XI – Environment (ENV)*** at ***Appendix 6G*** *to the Report on Agenda Item 6.* This is a new Part on environmental protection and benefits accrued from operational improvements.

6.4 The meeting noted that a Task Force has been established in Europe for the development of the AIM Parts of the EUR ANP. Based on the outcome of the EUR ANP AIM Task Force and the review carried out by the AIS/MAP TF/6 and the ATM/SAR/AIS SG/12 meetings, the meeting endorsed the AIM Parts of the MID ANP at **Appendices 6H, 6I** and **6J** to the Report on Agenda Item 6.

6.5 The meeting noted that the review of the EUR ANP did not include the AOP, CNS and MET Parts.

6.6 With regard to the SAR Part of the MID Basic ANP, the meeting recalled that based on the outcome of the SAR Ad-hoc WG a proposal for amendment was processed and approved by the President of the Council. However, the SAR Part of the MID FASID has not yet been revised.

6.7 For the other Parts of both the MID Basic ANP and FASID, the meeting was apprised of the outcome of the different MIDANPIRG subsidiary bodies and noted that little progress has been achieved. It was highlighted that the task requested by MIDANPIRG through Decision 12/49 is huge and challenging.

6.8 Taking into consideration:

- the recent developments in the air navigation fields (development of a revised version of the Global Air Navigation Plan, Aviation System Block Upgrades (ASBUs), electronic Air Navigation Plan (eANP), etc);
- the upcoming AN Conf/12 meeting (Montreal, 19-30 November 2012);
- the work carried out in the European Region for the review of the EUR ANP; and
- the revised MID ANP AIM Parts and AIM FASID Tables:

6.9 The meeting urged States to provide their comments on the Parts 0, I, IV, VIII, IX, X, and XI of the EUR Basic ANP at Appendices 6A, 6**B, 6D, 6E, 6F** and **6G** to the Report on Agenda Item 6, to the ICAO MID Regional Office before **1 March 2012**, with a clear indication on how these Parts could be adapted to the needs of the MID Region.

6.10 The meeting agreed also to the establishment of an Ad-Hoc Working Group tasked with the development of a revised version of the MID ANP (both Basic ANP and FASID), in accordance with MIDANPIRG Decision 12/49.

6.11 Based on all of the foregoing, the meeting agreed to the following Draft Decision and Conclusion:

DRAFT DECISION 6/15: ESTABLISHMENT OF THE MID AIR NAVIGATION PLAN AD-HOC WORKING GROUP (ANP WG)

That, the MID Air Navigation Plan Ad-hoc Working Group (ANP WG) is established to fulfill the requirements set up by MIDANPIRG through Decision 12/49.

DRAFT CONCLUSION 6/16: ENDORSEMENT OF THE AIM PARTS OF THE MID BASIC ANP AND FASID

*That, the AIM Parts of the MID Basic ANP and FASID, including the AIM FASID Tables at **Appendices 6H, 6I** and **6J** to the Report on Agenda Item 6:*

a) are endorsed;

b) be used as a planning document for the transition from AIS to AIM in the MID Region; and

c) be formally included in the MID ANP through a proposal for amendment, when the new structure of the MID ANP is finalized and the AIM FASID Tables are populated with relevant data.

CNS/ATM/IC SG/6
Appendix 6A to the Report on Agenda Item 6

EUROPEAN AIR NAVIGATION PLAN

VOLUME I, BASIC ANP

PROPOSED NEW LAYOUT AND CONTENT

28 December 2011

FOREWORD

The principles that were adopted in the proposed layout of the Basic ANP and how this is foreseen to relate to the FASID and Supporting material are:

1. There should be a clear relationship between the Regional Plan (in this case, the EUR ANP (Doc 7754)) and the Global Air Navigation Plan (Doc 9750) and Global ATM Operational Concept (Doc 9854).

2. The Basic ANP should reflect the conceptual objectives for the region whilst including the current to medium term requirements. The material included should minimise the requirement for continual amendment. Dynamic lists such as descriptions of ATS routes are referenced to the FASID as appropriate or flagged as candidates for the proposed web-based air navigation planning tool.

3. The FASID should provide sufficient detail of current and emerging programmes to provide the reader with an overview and sufficient detail of the current to short-term environment.

4. Guidance material on the detail of programmes or Concepts should be contained in supplementary material referenced appropriately or adopted as EUR Documents.

TABLE OF CONTENTS

EUR ANP, VOLUME I, BASIC ANP

PART 0 – INTRODUCTION

(updated version date: 27 December 2011)

Remarks

This part was presented to and endorsed by EANPG/52 (November 2010). Minor editorial changes were made in December 2011.

This Part contains provisions and statements that are common to all Regional Air Navigation Plans.

Major changes in comparison to the previous version (1st Edition, 2001) include:

a) general introductory text has been updated to reflect that the basic operational requirements and planning criteria (BORPC) was withdrawn by decision of the ANC on 8 March 2011 for its future inclusion into the Global Air Navigation Plan.

b) introduction of a paragraph on performance based services to replace CNS/ATM developments;

c) introduction of a diagram (from the Global Air Navigation Plan) to reflect the relationship between global, regional and national plans; and

Note: The diagram will be updated in view of the withdrawal of the BORPC from regional ANPs.

d) reformatting of the list of ICAO States to show their respective relationships with ICAO Regional Offices, ANPs and Planning and Implementation Regional Groups (PIRGs).

Note: Index to be checked and updated by all Regional Offices before publication.

Further action to be taken:

1. Figure 1 diagram on Relationship between global, regional and national plans to be updated due to withdrawal of BORPC.
2. Status of web-based air navigation tool providing details of ATS routes, reporting points and other such data to be checked before publication.
3. Index of States and Territories to be checked and updated before publication.

EUR ANP, VOLUME I, BASIC ANP

PART 0 – INTRODUCTION

(version date: 27 December 2011)

GENERAL

1. Air navigation plans (ANPs) set forth in detail the facilities, services and procedures required for international air navigation within a specified area. Such plans contain recommendations that States can follow in programming the provision of their air navigation facilities and services, with the assurance that facilities and services furnished in accordance with the plan will form with those of other States an integrated system adequate for the foreseeable future.

2. On 26 February 1997, the ICAO Council decided that the regional air navigation plans should be published in two volumes: a Basic ANP and a Facilities and Services Implementation Document (FASID).

3.

4. The Basic ANP contains stable plan material such as:

a) the geographical area constituted by the flight information regions (FIRs) covered by the plan; and

b) the latest planning and implementation guidance formulated for the region through recommendations by the region's Planning and Implementation Regional Group (PIRG). The material included should minimise the requirement for continual amendment.

5. The FASID sets forth the dynamic material from the plan constituted by the facilities and services required for international air navigation within the specified area. The FASID would also include appropriate additional guidance, particularly with regard to implementation, to complement the material contained in the Basic ANP.

INTRODUCTION OF PERFORMANCE BASED REQUIREMENTS INTO THE PLAN

6. The traditional focus of a regional ANP has been to cover the facilities and services required for a period of five years. However, with the introduction of performance based requirements, with longer planning horizons, it is recognized that concepts such as Performance Based Navigation (PBN), Required Communication Performance (RCP) and the developing Performance Manual for Air Navigation Services will be introduced progressively into the EUR ANP. Introduction of such performance based requirements is guided by the ICAO Global Air Navigation Plan (Doc 9750), which has been developed so that it has a clear and functional relationship with the regional ANPs. The evolution and development of the EUR ANP will also be guided by the ATM Operational Concept (Doc 9854).

RELATIONSHIP BETWEEN GLOBAL, REGIONAL AND NATIONAL PLANNING

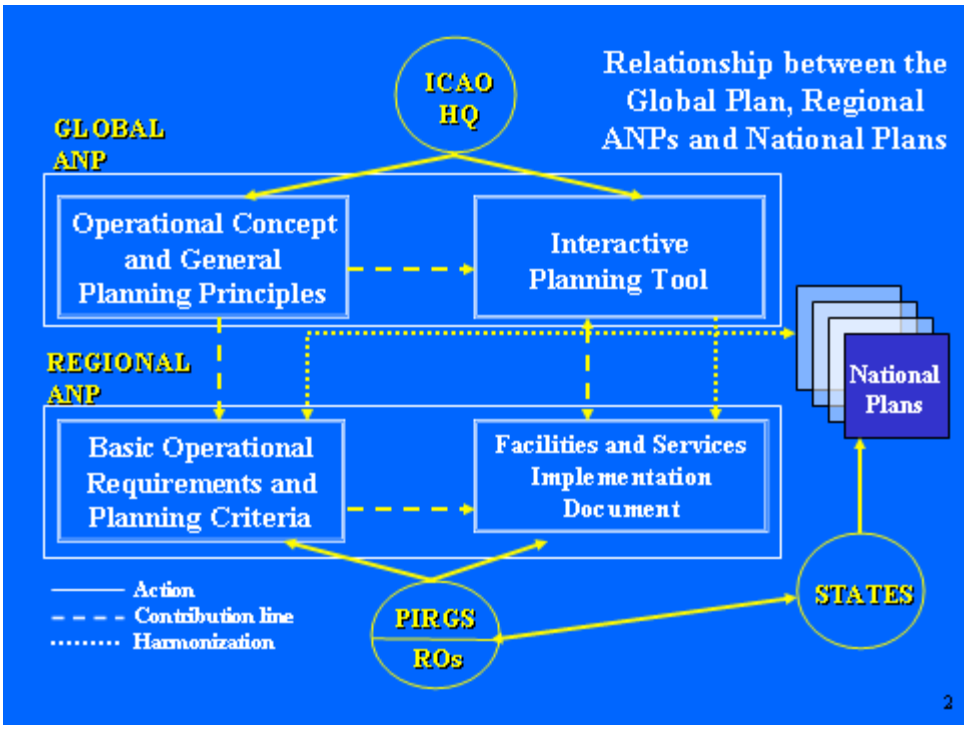


Figure 1. Relationship between global, regional and national plans.

7. Planning takes place at global, regional and national levels. Planning is accomplished with the help of planning tools and methodologies that are used primarily at the regional and national levels, conditioned by guidance from the global level. The basis for effective planning is the ATM operational concept, which should support the development of regional and national implementation plans that will support system architectures.

STATES' RESPONSIBILITIES

8. Each Contracting State is responsible for the provision of facilities and services in its territory under Article 28 of the Convention. The Council has recommended that these facilities and services include those specified in the air navigation plans.

9. Inclusion in air navigation plan documents of basic facilities and services provided by non-Contracting States and territories is simply recognition that they are needed by or likely to affect international civil aircraft operations of Contracting States or the facilities and services of these States.

AIR NAVIGATION PLAN — EUR REGION

10. This basic air navigation plan document presents in general terms the ICAO plan for the provision of facilities and services for international air navigation in the ICAO European Region. It has incorporated in an evolutionary manner requirements emanating from the ICAO Global Air Navigation Plan. In this respect the Plan spans current requirements whilst indicating the development path to reach

the Global ATM Operational Concept. The companion element to this plan, the EUR FASID, and in time an associated global database[1], includes detailed information on States' facilities, services, and plans for implementation. The FASID and associated database will be routinely updated to reflect the implementation of Regional Planning Initiatives and Programmes. Facilities and services outside of the prescribed regional boundaries may also be included in order to maintain the integrity of "systems" and to ensure in so far as possible that all the facilities and services required are listed in the document. The relationship between the Basic and FASID and associated electronic databases is shown in Figure 2 below.

11. It should also be noted that the EUR ANP, does not list all facilities in the region but only those required for international civil aviation operations. Documents from the Integrated Aeronautical Information Package and other publications should be consulted for information on additional facilities and for operational information in general.

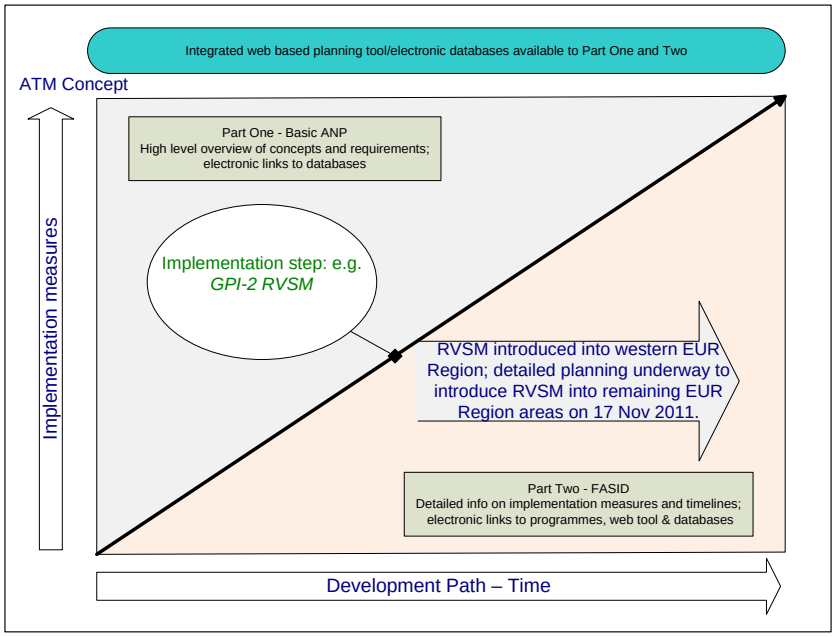


Figure 2. Relationship between ANP Basic – Part One and FASID – Part Two

12. Globally there are a number of air navigation services (ANS) development programmes underway that contribute to the ICAO ATM Concept and Global Air Navigation Plan. These include NEXGEN (USA); China ATM Development; and FIANS (India); and within the EUR Region, SESAR (EU States); and the Future ATM System of the Russian Federation. . Whilst much of the content of this document reflects ANS developments over a number of years, developing programmes' implementation steps will be referenced to Global Planning Initiatives (GPIs) thus showing linkage to the Global Air Navigation Plan.

ESTABLISHMENT AND PROVISION OF A MULTINATIONAL ICAO EUR AIR NAVIGATION FACILITY/SERVICE

[1] Details of ATS routes, reporting points and other such data will be migrated to an Integrated Web-based Air navigation Tool and the reader will be provided with an electronic link to access the material. It is anticipated that in time more applications will be migrated to this global database. This tool has not yet been fully developed. (check status before publication)

13. The operation of multinational air navigation services is well established within the EUR Region. ICAO Doc 9082 details the ICAO policies on charges for air navigation services. ICAO Doc 9161 – *Manual on Air Navigation Services Economics* provides additional information on the various models adopted globally. The introduction of multi-national air navigation services does not dilute the principle that a State has the responsibility of overseeing the provision of air navigation services and that it shall maintain that responsibility within its sovereign airspace as well as within the airspace over the high seas for which it has accepted the responsibility for the provision of services. Where there is no intention to change or modify the flight information region (FIR) boundaries nor the facilities and services currently listed in the ANP there is not a requirement to amend the ANP. However, should changes to the FIR boundaries or to the facilities and services provided be required, such changes are likely to be subject to the ANP amendment procedure and should therefore be examined on a case-by-case basis[2]. Any multinational arrangements for the provision of air navigation services should be registered with ICAO (Article 83 of the Convention (Doc 7300) and Rules for Registration with ICAO of Aeronautical Agreements and Arrangements (Doc 6685).

PROCEDURE FOR THE AMENDMENT OF REGIONAL PLANS, INCLUDING FASID MATERIAL

14. The Basic ANP and FASID may be amended by a regional air navigation meeting or by following the amendment procedures below. Changes to traffic forecasts in Part I — GEN of the FASID do not require formal amendment.

PROCEDURE FOR THE AMENDMENT OF APPROVED BASIC AIR NAVIGATION PLANS

Approved by Council on 25 February 1998

15. Introduction

15.1 The procedure outlined below has been evolved to provide a means of maintaining basic regional plans in a current condition by correspondence.

16. General criteria

16.1 The Assembly has resolved that regional plans shall be revised when it becomes apparent that they are no longer consistent with current and foreseen requirements of international civil aviation and that, when the nature of a required change permits, the associated amendment of the regional plan shall be undertaken by correspondence between the Organization and the Contracting States and international organizations concerned.

16.2 When a State cannot immediately implement a particular part or a specific detail of a regional plan, although it intends to do so when practicable, this in itself should not cause the State to propose an amendment to the plan.

17. Procedure

17.1 If, in the light of the above criteria, any Contracting State (or group of States) of a region wishes to effect a change in the approved basic air navigation plan for that region it should propose to the

[2] Advice will be available from the ICAO Regional Office.

Secretary General, through the regional office accredited to that State, an appropriate amendment to the plan, adequately documented; the proposal should include the facts that lead the State to the conclusion that the amendment is necessary. Such amendments may include additions, modifications or deletions. (This procedure does not preclude a State having previous consultation with other States before submitting an amendment proposal to the regional office.)

17.2 The Secretary General will circulate the proposal, adequately documented, with a request for comments to all provider and user States of the region considered affected as well as to user States outside the region and international organizations which may be invited to attend suitable ICAO meetings and which may be concerned with the proposal. If, however, the Secretary General considers that the proposed amendment conflicts with established ICAO policy, or that it raises questions which the Secretary General considers should be brought to the attention of the Air Navigation Commission, the proposal will be first presented, adequately documented, to the Commission. In such cases, the Commission will decide the action to be taken on the proposal.

17.3 If, in reply to the Secretary General's inquiry to States and selected international organizations, no objection is raised to the proposal by a date specified, the proposal shall be submitted to the President of the Council, who is authorized to approve the amendment on behalf of the Council.

17.4 If, in reply to the Secretary General's inquiry to States and selected international organizations any objection is raised, and if objection remains after further consultation, the matter will be documented for formal consideration by the Air Navigation Commission. If the Commission concludes that the amendment is acceptable in its original or other form, it will present appropriate recommendations to the Council.

17.5 Proposals for the amendment of regional plans submitted by international organizations directly concerned with the operation of aircraft, which may be invited to attend suitable ICAO meetings and which attended the meeting(s) where the relevant plan was prepared, will be dealt with in the same manner as those received from States, except that, before circulating a proposal to States and selected international organizations pursuant to 3.2 above, the Secretary General will ascertain whether it has adequate support from the State or States whose facilities will be affected. If such support is not forthcoming, the proposal will be presented to the Commission, and the Commission will decide on the action to be taken on the proposal.

17.6 Proposals for the amendment of regional plans may also be initiated by the Secretary General provided that the State or States whose facilities will be affected have expressed their concurrence with the proposal.

17.7 Amendment to regional plans which have been approved in accordance with the above procedure will be promulgated at convenient intervals.

PROCEDURE FOR THE AMENDMENT OF THE FACILITIES AND SERVICES IMPLEMENTATION DOCUMENT (FASID)

Approved by Council on 26 February 1997

18. Amendments to the FASID shall be effected on the basis of an adequately documented proposal submitted by a Contracting State (or a group of States) to the ICAO Regional Office; the proposal should include the facts that lead to the conclusion that the amendment is necessary. Such amendments may include additions, modifications or deletions to the FASID. (This procedure does not preclude a State

having previous consultation with other States before submitting the amendment proposal to the ICAO Regional Office.)

19. The ICAO Regional Office will circulate the proposal, adequately documented, with a request for comments to the provider States in the region and to user States except those which obviously are not affected, and, for information and comments if necessary, to international organizations which may be invited to attend suitable ICAO meetings and which may be concerned with the proposal. If, however, it is considered that the proposed amendment conflicts with established ICAO policy, or that it raises questions which should be brought to the attention of the Air Navigation Commission, the proposal will be adequately documented and presented to the Air Navigation Commission. In such cases, the Commission will decide the action to be taken on the proposal.

20. If, in reply to the ICAO Regional Office's inquiry, no objection is raised to the proposal by a specified date, it will be deemed that a regional agreement on the subject has been reached and the proposal shall be incorporated into the FASID.

21. If, in reply to the ICAO Regional Office's inquiry, any State objects to the proposal, and if objection remains after further consultation, the matter will be documented for discussion by the respective planning and implementation regional group (PIRG) and, ultimately for formal consideration by the Air Navigation Commission, if necessary. If the Commission concludes that the amendment is acceptable in its original or other form, it will present appropriate recommendations to the Council.

22. Proposals for the amendment of the FASID submitted by international organizations directly concerned with the operation of aircraft in the region, which may be invited to attend suitable ICAO meetings where the FASID was prepared, will be dealt with in the same manner as those received from States, except that, before circulating the proposal to all interested States, it will be ascertained whether the proposal has adequate support from the State or States whose facilities or services will be affected. If such support is not forthcoming, the proposal will not be pursued.

23. Proposals for the amendment of the FASID may also be initiated by the ICAO Regional Office provided that the State or States whose facilities or services will be affected have expressed their concurrence with the proposal.

24. Amendments to the FASID which have been approved in accordance with the above procedure will be promulgated at convenient intervals.

ABBREVIATIONS

25. All abbreviations used in this document are contained in the *Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC)* (Doc 8400), with the exception of those used in the explanations of any tables appearing herein, which also give their meaning.

INDEX OF STATES AND TERRITORIES REFLECTING THE GEOGRAPHICAL SCOPE OF REGIONAL ANP, PIRG MEMBERSHIP AND REGIONAL OFFICE ACCREDITATION *(checked and updated before publication)*

26. This index is for the purpose of determining the geographical scope of the Regional Air Navigation Plan (ANP) and the associated Planning and Implementation Regional Group (PIRG) and Regional Office (R/O) that organize the planning and implementation of that Region.

27. Explanation of the List:

Regional Office (R/O)	APAC: Bangkok: Asia and Pacific (APAC) Office ESAF: Nairobi: Eastern and Southern African (ESAF) Office EUR/NAT: Paris: European and North Atlantic (EUR/NAT) Office MID: Cairo: Middle East (MID) Office NACC: Mexico: North American, Central American and Caribbean (NACC) SAM: Lima: South American (SAM) Office WACAF: Dakar: Western and Central African (WACAF) Office
Regional Air Navigation Plan (ANP)	AFI: *Air Navigation Plan – Africa-Indian Ocean Region* (Doc 7474) APAC: *Air Navigation Plan – Asia and Pacific Regions* (Doc 9673) CARSAM: *Air Navigation Plan – Caribbean and South American Regions* (Doc 8733) EUR: *Air Navigation Plan - European Region* (Doc 7754) MID: *Air Navigation Plan – Middle East Region* (Doc 9708) NAT: *Air Navigation Plan – North Atlantic Region* (Doc 9634 and 9635)
Planning and Implementation Regional Group (PIRG)	APIRG: AFI Planning and Implementation Regional Group (APIRG): APANPIRG: ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG) EANPG: European Air Navigation Planning Group (EANPG) GREPECAS: CAR/SAM Regional Planning and Implementation Group Caribbean/South American (GREPECAS) MIDANPIRG: MID Air Navigation Planning and Implementation Regional Group (MIDANPIRG) NATSPG: North Atlantic Systems Planning Group (NAT SPG)
(NC)	Non-contracting State

State	**R/O**	**ANP**	**PIRG(s)**
Afghanistan	APAC	APAC	APANPIRG
Albania	EUR/NAT	EUR	EANPG
Algeria	EUR/NAT	AFI	APIRG
Andorra	EUR/NAT	EUR	EANPG
Angola	ESAF	AFI	APIRG
Antigua and Barbuda	NACC	CARSAM	GREPECAS
Argentina	SAM	CARSAM	GREPECAS
Armenia	EUR/NAT	EUR	EANPG
Australia	APAC	APAC	APANPIRG
Austria	EUR/NAT	EUR	EANPG
Azerbaijan	EUR/NAT	EUR	EANPG
Bahamas	NACC	CARSAM	

State	R/O	ANP	PIRG(s)
Bahrain	MID	MID	MIDANPIRG
Bangladesh	APAC	APAC	APANPIRG
Barbados	NACC	CARSAM	GREPECAS
Belarus	EUR/NAT	EUR	EANPG
Belgium	EUR/NAT	EUR	EANPG
Belize	NACC	CARSAM	
Benin	WACAF	AFI	
Bhutan	APAC	APAC	
Bolivia	SAM	CARSAM	GREPECAS
Bosnia and Herzegovina	EUR/NAT	EUR	EANPG
Botswana	ESAF	AFI	
Brazil	SAM	CARSAM	GREPECAS
Brunei Darussalam	APAC	APAC	
Bulgaria	EUR/NAT	EUR	EANPG
Burkina Faso	WACAF	AFI	
Burundi	ESAF	AFI	
Cambodia	APAC	APAC	APANPIRG
Cameroon	WACAF	AFI	APIRG
Canada	NACC	NAT APAC	NATSPG
Cape Verde	WACAF	AFI	
Central African Republic	WACAF	AFI	
Chad	WACAF	AFI	
Chile	SAM	CARSAM	GREPECAS
Chile (Easter Island)	APAC	APAC	
China	APAC	APAC	APANPIRG
China (Hong Kong)	APAC	APAC	APANPIRG
China (Macao)	APAC	APAC	APANPIRG
Colombia	SAM	CARSAM	GREPECAS
Comoros	ESAF	AFI	
Congo	WACAF	AFI	APIRG
Cook Islands	APAC	APAC	
Costa Rica	NACC	CARSAM	GREPECAS
Cote d'Ivoire	WACAF	AFI	APIRG
Croatia	EUR/NAT	EUR	EANPG
Cuba	NACC	CARSAM	GREPECAS
Cyprus	EUR/NAT	EUR	EANPG
Czech Republic	EUR/NAT	EUR	EANPG
Democratic People's Rep. of Korea	APAC	APAC	APANPIRG
Democratic Republic of the Congo	WACAF	AFI	
Denmark	EUR/NAT	EUR NAT	EANPG NATSPG
Denmark (Faeroes)	EUR/NAT	NAT	NATSPG
Denmark (Greenland)	EUR/NAT	NAT	NATSPG
Djibouti	ESAF	AFI	
Dominica	NACC	(NC)	

State	R/O	ANP	PIRG(s)
Dominican Republic	NACC	CARSAM	GREPECAS
Ecuador	SAM	CARSAM	GREPECAS
Egypt	MID	AFI MID	MIDANPIRG APIRG
El Salvador	NACC	CARSAM	
Equatorial Guinea	WACAF	AFI	
Eritrea	ESAF	AFI	APIRG
Estonia	EUR/NAT	EUR	EANPG
Ethiopia	ESAF	AFI	APIRG
Fiji	APAC	APAC	APANPIRG
Finland	EUR/NAT	EUR	EANPG
France	EUR/NAT	EUR	EANPG NATSPG GREPECAS APANPIRG APIRG
France (French Antilles)	NACC	CARSAM	
France (French Guiana)	SAM	CARSAM	GREPECAS
France (French Polynesia)	APAC	APAC	
France (New Caledonia)	APAC	APAC	
France (Réunion)	ESAF	AFI	APIRG
France (Wallis and Futuna Island)	APAC	APAC	
Gabon	WACAF	AFI	APIRG
Gambia	WACAF	AFI	APIRG
Georgia	EUR/NAT	EUR	EANPG
Germany	EUR/NAT	EUR	EANPG
Ghana	WACAF	AFI	APIRG
Greece	EUR/NAT	EUR	EANPG
Grenada	NACC	CARSAM	GREPECAS
Guatemala	NACC	CARSAM	
Guinea	WACAF	AFI	APIRG
Guinea-Bissau	WACAF	AFI	
Guyana	SAM	CARSAM	GREPECAS
Haiti	NACC	CARSAM	
Holy See (the)	EUR/NAT	(NC)	-
Honduras	NACC	CARSAM	
Hungary	EUR/NAT	EUR	EANPG
Iceland	EUR/NAT	NAT	NATSPG
India	APAC	APAC	APANPIRG
Indonesia	APAC	APAC	APANPIRG
Iran (Islamic Republic of)	MID	MID	MIDANPIRG
Iraq	MID	MID	MIDANPIRG
Ireland	EUR/NAT	EUR	EANPG NATSPG
Israel	EUR/NAT	EUR	EANPG
Italy	EUR/NAT	EUR	EANPG
Jamaica	NACC	CARSAM	
Japan	APAC	APAC	APANPIRG

State	R/O	ANP	PIRG(s)
Jordan	MID	MID	MIDANPIRG
Kazakhstan	EUR/NAT	EUR	EANPG
Kenya	ESAF	AFI	APIRG
Kiribati	APAC	APAC	
Kuwait	MID	MID	
Kyrgyzstan	EUR/NAT	EUR	EANPG
Lao Peoples' Democratic Republic	APAC	APAC	
Latvia	EUR/NAT	EUR	EANPG
Lebanon	MID	MID	MIDANPIRG
Lesotho	ESAF	AFI	APIRG
Liberia	WACAF	AFI	
Libya	MID	AFI	APIRG
Liechtenstein	EUR/NAT	(NC)	-
Lithuania	EUR/NAT	EUR	EANPG
Luxembourg	EUR/NAT	EUR	EANPG
Madagascar	ESAF	AFI	
Malawi	ESAF	AFI	APIRG
Malaysia	APAC	APAC	APANPIRG
Maldives	APAC	APAC	
Mali	WACAF	AFI	APIRG
Malta	EUR/NAT	EUR	EANPG
Marshall Islands	APAC	APAC	
Mauritania	WACAF	AFI	APIRG
Mauritius	ESAF	AFI	
Mexico	NACC	CARSAM	GREPECAS
Micronesia (Federated States of)	APAC	APAC	
Monaco	EUR/NAT	EUR	EANPG
Mongolia	APAC	APAC	
Montenegro	EUR/NAT	EUR	EANPG
Morocco	EUR/NAT	AFI	APIRG
Mozambique	ESAF	AFI	
Myanmar	APAC	APAC	
Namibia	ESAF	AFI	
Nauru	APAC	APAC	
Nepal	APAC	APAC	
Netherlands	EUR/NAT	EUR	EANPG
Netherlands (Aruba)	NACC	CARSAM	
Netherlands Antilles	NACC	CARSAM	
New Zealand	APAC	APAC	APANPIRG
New Zealand (Niue)	APAC	APAC	APANPIRG
Nicaragua	NACC	CARSAM	
Niger	WACAF	AFI	APIRG
Nigeria	WACAF	AFI	APIRG
Norway	EUR/NAT	EUR NAT	EANPG NATSPG
Oman	MID	MID	MIDANPIRG

State	R/O	ANP	PIRG(s)
Pakistan	APAC	APAC	APANPIRG
Palau	APAC	APAC	
Panama	SAM	CARSAM	GREPECAS
Papua New Guinea	APAC	APAC	
Paraguay	SAM	CARSAM	GREPECAS
Peru	SAM	CARSAM	GREPECAS
Philippines	APAC	APAC	
Poland	EUR/NAT	EUR	EANPG
Portugal	EUR/NAT	EUR NAT	EANPG NATSPG
Portugal (Açores)	EUR/NAT	NAT	NATSPG
Portugal (Madeira)	EUR/NAT		
Qatar	MID	MID	
Republic of Korea	APAC	APAC	APANPIRG
Republic of Moldova	EUR/NAT	EUR	EANPG
Romania	EUR/NAT	EUR	EANPG
Russian Federation	EUR/NAT	EUR	EANPG
Rwanda	ESAF	AFI	
Saint Kitts and Nevis	NACC	CARSAM	GREPECAS
Saint Lucia	NACC	CARSAM	GREPECAS
Saint Vincent & the Grenadines	NACC	CARSAM	GREPECAS
San Marino	EUR/NAT	EUR	EANPG
Sao Tome And Principe	WACAF	AFI	
Saudi Arabia	MID	MID	MIDANPIRG
Senegal	WACAF	AFI	APIRG
Serbia	EUR/NAT	EUR	EANPG
Seychelles	ESAF	AFI	
Sierra Leone	WACAF	AFI	
Singapore	APAC	APAC	APANPIRG
Slovakia	EUR/NAT	EUR	EANPG
Slovenia	EUR/NAT	EUR	EANPG
Solomon Islands	APAC	APAC	
Somalia	ESAF	AFI	
South Africa	ESAF	AFI	APIRG
Spain	EUR/NAT	EUR	EANPG APIRG
Spain (Canary Islands)	WACAF	AFI	
Sri Lanka	APAC	APAC	
Sudan	MID	AFI	APIRG
South Sudan	ESAF	AFI	APIRG
Suriname	SAM	CARSAM	GREPECAS
Swaziland	ESAF	AFI	
Sweden	EUR/NAT	EUR	EANPG
Switzerland	EUR/NAT	EUR	EANPG
Syrian Arab Republic	MID	MID	
Tajikistan	EUR/NAT	EUR	EANPG
Thailand	APAC	APAC	APANPIRG

State	R/O	ANP	PIRG(s)
The former Yugoslav Republic of Macedonia	EUR/NAT	EUR	EANPG
Timor-Leste	APAC		
Togo	WACAF	AFI	APIRG
Tonga	APAC	APAC	APANPIRG
Trinidad and Tobago	NACC	CARSAM	GREPECAS
Tunisia	EUR/NAT	AFI	APIRG
Turkey	EUR/NAT	EUR	EANPG
Turkmenistan	EUR/NAT	EUR	EANPG
Tuvalu	APAC	(NC)	
Uganda	ESAF	AFI	APIRG
Ukraine	EUR/NAT	EUR	EANPG
United Arab Emirates	MID	MID	MIDANPIRG
United Kingdom	EUR/NAT	EUR	EANPG NATSPG GREPECAS
United Kingdom (Anguilla)	NACC	CARSAM	
United Kingdom (Bermuda)	NACC	NAT	NATSPG
United Kingdom (British Indian Ocean Territory)	ESAF		
United Kingdom (British Virgin Islands)	NACC	CARSAM	
United Kingdom (Cayman Islands)	NACC	CARSAM	
United Kingdom (Falkland Islands *Malvinas)	SAM	(*Disputed)	
United Kingdom (Gibraltar)	EUR/NAT	EUR	
United Kingdom (Montserrat)	NACC	CARSAM	
United Kingdom (Pitcairn Island)	APAC		
United Kingdom (Saint Helena)	WACAF		
United Kingdom (Turks and Caicos Islands)	NACC	CARSAM	
United Republic of Tanzania	ESAF	AFI	APIRG
United States (Guam)	APAC	APAC	
United States (Johnston Island)	APAC	APAC	
United States (Kingman Reef)	APAC		
United States (Midway)	APAC		
United States (Northern Mariana Islands)	APAC	APAC	
United States (Palmyra)	APAC		
United States (Puerto Rico)	NACC	CARSAM	
United States (Samoa)	APAC	APAC	
United States (Virgin Islands)	NACC	CARSAM	
United States (Wake Island)	APAC		
United States of America	NACC	NAT APAC	NATSPG APANPIRG GREPECAS
Uruguay	SAM	CARSAM	GREPECAS
Uzbekistan	EUR/NAT	EUR	EANPG

State	R/O	ANP	PIRG(s)
Vanuatu	APAC	APAC	
Venezuela	SAM	CARSAM	GREPECAS
Viet Nam	APAC	APAC	APANPIRG
Western Sahara		AFI	
Yemen	MID	MID	
Zambia	ESAF	AFI	APIRG
Zimbabwe	ESAF	AFI	APIRG

CNS/ATM/IC SG/6
Appendix 6B to the Report on Agenda Item 6

EUR ANP, VOLUME I, BASIC ANP
PART I – EUR REGION GENERAL PLANNING ASPECTS (GEN)

(updated version date: 27 December 2011)

Remarks

This part was presented to and endorsed by EANPG/52 (November 2010). It has been updated to December 2011.

Major changes in comparison to the previous version (1st Edition, 2001) include:

a) Sub-regional groups have been reflected to show the areas where major EUR Region programmes are being planned or implemented. It is considered a diagram reflecting group compositions should sit in the FASID or electronic database as the dynamics of such groups may change;

b) paragraphs concerning requirements for the performance based approach have been introduced, stating the requirement to have common Performance Objectives throughout the EUR Region, based on the ICAO global KPA; associated local Performance Targets and related Key Performance Indicators (KPI) which can be measured. The incorporation of the principle elements of the performance approach in the Basic ANP will underpin the subsequent inclusion of Performance Objectives, which will be developed by the COG Performance Task Force; these elements are considered dynamic and should be lodged in the FASID, which can be readily amended to reflect changes as they occur;

c) paragraphs on Global Planning Initiatives (GPI) and Regional Planning Initiatives (RPI) have been introduced based on current Global ANP. Following a consultation on the implementation status of GPIs throughout the EUR region, it was considered that this information should be shown in the EUR FASID.

d) a paragraph on the relevance of human factors considerations has been included;

e) due account of safety management has been reflected, including that the EANPG should endorse safety plans associated with pan and sub-regional programmes. Linkage to the ICAO Global Aviation Safety Plan and associated Global Safety Initiatives has been included. A short paragraph on deficiency management has been included in the Safety Consideration section as it was considered this aspect should be included within the Plan;

f) a paragraph has been added to reflect the requirement to consider the environment;

Note: This has been accompanied by a statement that environmental considerations should not compromise acceptable levels of safety.

g) A diagram showing the homogeneous areas of the EUR Region has been included with an updated matrix detailing major traffic flows;

Note: This is still to be updated in respect of diagram to include Israel.

h) a paragraph on the requirement for air traffic forecasts, system capacity and air traffic demand has been included. More detail on the outputs of the forecasting sources should be contained in the FASID; and

i) a high level paragraph on implementation strategy has been included.

Further action to be taken:

1. Diagram or list of regional sub groupings to be inserted in the FASID or database.
2. List of Flight Information Regions to be checked and updated before publication.

3. Chart of FIRs to be inserted and co-ordinates to be listed in a separate document or database.
4. Paragraphs related to GPI/RPI to be reviewed when new update of Global ANP (Doc 9750) issued.
5. Performance objectives, local performance targets, associated KPI and data metrics to be included in EUR FASID when available.
6. Diagram showing homogeneous areas of EUR Region and matrix detailing major traffic flows to be checked and updated. Major Traffic Flows will be updated to reflect the next edition of the Global Air Navigation Plan.

EUR ANP, VOLUME I, BASIC ANP

PART I – EUR REGION GENERAL PLANNING ASPECTS (GEN)

(version date: 27 December 2011)

GEOGRAPHICAL SCOPE

1. In geographical scope the European Region Air Navigation Plan is related to the ICAO European air navigation region. The plan may call for the provision of basic facilities and services beyond the charted boundaries of a region where such facilities and services are necessary to meet the requirements of international air navigation within that region.

SUB-REGIONAL GROUPINGS

2. A number of States within the ICAO EUR Region are members of one or more sub-regional groupings which have development plans to improve air navigation services; such plans contribute to the regional implementation of the ICAO Global Planning Initiatives. Regional subgroups include the States of the European Union (EU); European Civil Aviation Conference (ECAC); European Organization for the Safety of Air Navigation (Eurocontrol); Interstate Aviation Committee (IAC); and EURASIA Co-ordination Council (ECC).

Note: Diagram or list of regional sub groupings to be inserted in the FASID or database.

FLIGHT INFORMATION REGIONS*(to be checked and updated before publication)*

3. Flight Information Regions (FIR) and Upper Flight Information Regions (UIR) within the EUR Region are being consolidated. The table below shows the ICAO approved EUR Region FIR/UIR status. . Details of Flight Information Regions within the EUR air navigation region are contained in a centralised data base and can be accessed at <www.xxxxxxx >.

STATE	FIR/UIRs approved in 2009	FIR/UIRs approved for 2015 (see note)	Comments
Albania	Tirana	Tirana	
Armenia	Yerevan/Zvartnots	Yerevan/Zvartnots	
Austria	Wien	Wien	
Azerbaijan	Baku	Baku	
Belarus	Minsk	Minsk	
Belgium	Bruxelles	Bruxelles	
Bosnia and Herzegovina	Sarajevo	Sarajevo	
Bulgaria	Sofia	Sofia	
Croatia	Zagreb	Zagreb	
Cyprus	Nicosia	Nicosia	

STATE	FIR/UIRs approved in 2009	FIR/UIRs approved for 2015 (see note)	Comments
Czech Republic	Praha	Praha	
Denmark	København	København	
Estonia	Tallinn	Tallinn	
Finland	Rovaniemi	Finland	Should be FIR Finland but PFA 06/06 pending approval
	Tampere		Should be FIR Finland but PFA 06/06 pending approval
France	Bordeaux	Bordeaux	
	Brest	Brest	
	France UIR	France UIR	
	Marseille	Marseille	
	Paris	Paris	
	Reims	Reims	
The former Yugoslava Republic of Macedonia	Skopje	Skopje	
Georgia	Tbilisi	Tbilisi	
Germany	Bremen	Bremen	
	Hannover UIR	Hannover UIR	
	Langen	Langen	
	Munich	Munich	
	Rhein UIR	Rhein UIR	
Greece	Athinai	Athinai	
	Hellas UIR	Hellas UIR	
Hungary	Budapest	Budapest	
Ireland	Shannon	Shannon	
Israel	Tel Aviv	Tel Aviv	
Italy	Brindisi	Brindisi	
	Italia UIR	Italia UIR	
	Milano	Milano	
	Roma	Roma	
Kazakhstan	Aktau	Aktau	
	Aktyubinsk	Aktyubinsk	
	Almaty	Almaty	
	Astana	Astana	
	Kyzylorda	Kyzylorda	
	Shymkent	Shymkent	

STATE	FIR/UIRs approved in 2009	FIR/UIRs approved for 2015 (see note)	Comments
Kyrgyzstan	Bishkek	Bishkek	
	Osh	Osh	
Latvia	Riga	Riga	
Lithuania	Vilnius	Vilnius	
Malta	Malta	Malta	
Netherlands	Amsterdam	Amsterdam	
Norway	Bodø	Bodø	
	Oslo	Oslo	
	Stavanger	Stavanger	
	Trondheim	Trondheim	
Poland	Warszawa	Warszawa	
Portugal	Lisboa	Lisboa	
Republic of Moldova	Chisinau	Chisinau	
Romania	Bucuresti	Bucuresti	
Russian Federation	Aldan	Irkutsk	
	Amderma	Kaliningrad	
	Anadyr	Khabarovsk	
	Arkhangelsk	Krasnoyarsk	
	Barnaul	Magadan Oceanic	
	Batagay	Magadan/Sokol	
	Beryozovo	Moscow	
	Blagoveschensk	Murmansk Oceanic	
	Chelyabinsk	Novosibirsk	
	Chersky	Rostov-na-Donu	
	Chita	Samara	
	Chokurdakh	Sankt-Peterburg	
	Chulman	Tyumen/Roschino	
	Irkutsk	Yakutsk	
	Kaliningrad	Yekaterinburg	
	Kamenny Mys		
	Kazan		
	Keperveem		
	Khabarovsk		
	Khanty-Mansiysk		
	Kirensk		
	Kirov		
	Kotlas		
	Krasnoyarsk		

STATE	FIR/UIRs approved in 2009	FIR/UIRs approved for 2015 (see note)	Comments
	Kurgan		
	Leshukonskoye		
	Magadan		
	Magadan Oceanic		
	Magnitogorsk		
	Markovo		
	Milkovo		
	Mirny		
	Moscow		
	Murmansk		
	Murmansk Oceanic		
	Naryan-Mar		
	Nikolayevsk-na-Amure		
	Norilsk		
	Novokuznetsk		
	Novosibirsk		
	Nyurba		
	Okha		
	Olekminsk		
	Omolon		
	Omsk		
	Orenburg		
	Orsk		
	Ossora		
	Pechora		
	Penza		
	Perm		
	Petropavlovsk-Kamchatsky		
	Petrozavodsk		
	Pevek		
	Polyarny		
	Rostov-na-Donu		
	Salekhard		
	Samara		
	Sankt-Peterburg		
	Saratov		
	Shmidta Mys		

STATE	FIR/UIRs approved in 2009	FIR/UIRs approved for 2015 (see note)	Comments
	Surgut		
	Syktyvkar		
	Tarko-Sale		
	Teply Klyuch		
	Tiksi		
	Tura		
	Turukhansk		
	Tyumen		
	Ufa		
	Ust-Kamchatsk		
	Ust-Khayryuzovo		
	Velikiye Luki		
	Vladivostok		
	Vologda		
	Vorkuta		
	Yakutsk		
	Yekaterinburg		
	Yuzhno-Sakhalinsk		
	Zhigansk		
	Zyryanka		
Serbia	Beograd	Beograd	
Slovakia	Bratislava	Bratislava	
Slovenia	Ljubljana	Ljubljana	
Spain	Barcelona	Barcelona	
	Madrid	Madrid	
Sweden	Sweden	Sweden	
Switzerland	Switzerland	Switzerland	
Tajikistan	Dushanbe	Dushanbe	
Turkey	Ankara	Ankara	
	Istanbul	Istanbul	
Turkmenistan	Ashgabat	Ashgabat	
	Dashoguz	Dashoguz	
	Turkmenabat	Turkmenabat	
	Turkmenbashi	Turkmenbashi	
Ukraine	Dnipropetrovs’k	Dnipropetrovs’k	
	Kyiv	Kyiv	
	L'viv	L'viv	
	Odesa	Odesa	
	Simferopol	Simferopol	

STATE	FIR/UIRs approved in 2009	FIR/UIRs approved for 2015 (see note)	Comments
United Kingdom	London	London	
	Scottish	Scottish	
Uzbekistan	Nukus	Nukus	
	Samarkand	Samarkand	
	Tashkent	Tashkent	

Note: Insert chart (possibly diagrammatic as opposed to definitive co-ordinates. Co-ordinates will, however, have to be listed in an authoritative document as they provide the legal basis for the FIR boundary definition).

PERFORMANCE BASED APPROACH

4. Global Approach

4.1. States have agreed that Global Air Navigation should be predicated on a performance based environment. The transition to such a performance based environment results in consideration of a number of differing expectations. These general expectations are relative to the effective operation of the ATM system and include access and equity; capacity; cost effectiveness; environmental impact; flexibility; flight efficiency; interoperability; participation and collaboration; predictability; safety; and security. These expectations often compete with each other. Some aviation community members (the *Global Air Traffic Management Operational Concept* (Doc 9854) refers) have explicit economic expectations, others favour efficiency and predictability, while some are concerned with access and equity; and all have safety expectations. For optimum air navigation system performance, each of these sometimes competing expectations needs to be balanced. In an integrated system, changes to one expectation area will likely have an effect on other areas. It is necessary, therefore, to assess the effect on the whole system when planning a change in a specific area. This may require, or lead to, trade-offs in performance. This is generally acceptable with the exception of safety, wherein acceptable levels of safety must be achieved. The ICAO planning objective is to achieve a performance based global air traffic management (ATM) system through the implementation of air navigation systems and procedures in a safe, progressive, cost-effective and cooperative manner.

5. EUR Region Planning

5.1. The regional planning and implementation process is the principal engine of ICAO's planning framework. It is here that the top-down approach comprising global guidance and regional harmonization measures converge with the bottom-up approach constituted by national planning by States. In an effort to assist planners in weighing outcomes and making appropriate decisions, the *Manual on Global Performance of the Air Navigation System* (Doc 9883) has been developed. In this respect ICAO has defined 11 Key Performance Areas (KPA), one for each of the *Global ATM Operational Concept* (Doc 9854) expectations outlined in Paragraph 4.1 above.

5.2. .

5.3. In conducting this work the Task Force has taken into account the following guidance principles, which resulted from the discussion held at COG/47 as well as during a dedicated workshop of the ATMGE on the ICAO performance framework (Paris, 23-27 August 2010):

a) Ensure that activities will aim at the improvement of the system (as a whole) with the benefit of the end users (strong focus on outcomes);

b) Avoid duplication of efforts and use, to the maximum extent possible, existing arrangements/solutions;

c) Whenever possible, build on current or developing processes, or existing data/statistics that may contribute to a specific KPA;

d) Exploit existing best practices in other areas that might contribute to this work;

e) ;

f) Give due regard to the resource implications associated with any proposals;

g) Follow a stepwise approach starting from a subset of realistic indicators (qualitative rather than quantitative) to ensure a smooth transition and to alleviate the workload for the collection, consolidation and analysis of data.

5.4.

5.5. The development of common EUR Region performance objectives and associated KPI will be managed through the EANPG process. Initial objectives and associated indicators for safety; capacity; efficiency and environment; and cost-efficiency have been developed. Brief details are reflected in the relevant Parts of this Volume.

5.6. The introduction of performance objectives, local performance targets, associated KPI and data metrics is a dynamic process requiring routine review. Consequently, details of this performance material will be shown in the EUR FASID.

GLOBAL PLANNING INITIATIVES (GPI)

6. *The Global Air Navigation Plan* (Doc 9570) was developed in consideration of the operational concept and the Strategic Objectives of ICAO. Most significantly, the revised Global ANP was developed on the basis of an industry roadmap which was developed in follow up to the Eleventh Air Navigation Conference in an effort to facilitate implementation of the Recommendations of the Conference and ensure that focused efforts would lead to near- and medium-term benefits. The Global ANP, therefore, contains near- and medium-term guidance on air navigation system improvements necessary to support a uniform transition to the ATM system envisioned in the ATM operational concept (Doc 9854). Long-term initiatives will be added to the Global ANP as the technology matures and the supporting provisions are developed. In accordance with the Global ANP, planning will be focused on specific performance objectives, supported by a set of "Global Plan Initiatives" (GPI). These initiatives are options for air navigation system improvements that when implemented result in direct performance enhancements. States and regions will choose initiatives that meet performance objectives, identified through an analytical process, specific to the particular needs of a State, region, homogeneous ATM area or major traffic flow.

7. A full description of ICAO GPIs is provided in Chapter 1 of the Global Air Navigation Plan.

REGIONAL PLANNING INITIATIVES (RPI)???

8. The adoption of the *Global ATM Operational Concept* (Doc 9854) and the *Global Air Navigation Plan* (Doc 9570) has resulted in a number of proposed EUR Region ATM/CNS improvement requirements, which stem from the Global GPIs described above. Within the EUR Region the EANPG is responsible for the management and review of the ICAO EUR Region Air Navigation Plan[1]. Consequently the inclusion of air navigation service improvement programmes at regional and sub-regional level will be endorsed through the EANPG process. States concerned will, however, retain responsibility for the implementation of such programmes and plans. The detail and associated timelines of EUR RPI is detailed in the FASID???.

HUMAN FACTORS CONSIDERATIONS

[1] See EANPG Handbook Appendix B.

9. The high level of automation and interdependency of the CNS/ATM system raises several human factors issues. Lessons learned concerning human factors indicate that they should be considered as an integral part of any plan to implement the new technologies.

10. Human factors issues should be considered before CNS/ATM technologies are implemented, during the process of design and certification of the technology and associated standard operating procedures. States, Air Traffic Services providers and organizations in the EUR region which design and provide CNS/ATM systems should take into account ICAO guidelines (Human Factors Guidelines for Air Traffic Management (ATM) Systems (Doc 9758)) when developing national regulations and incorporate human factors Standards in the processes of design and certification of equipment and procedures.

SAFETY CONSIDERATION

11. It is an ICAO Strategic Objective to enhance global aviation safety. Due account must be taken of the global Standards and Recommended Practices (SARPs) that have been established requiring the implementation of safety management. States are responsible for the implementation of national?? safety management systems. The safety management process should be embedded within EUR pan or sub-region programmes at the pre-implementation, implementation and post-implementation phases. The EANPG should endorse safety plans associated with such pan or sub-regional European Programmes.

12. Consistent application of safety management throughout an ICAO Region is one of the Global Safety Initiatives (GSI) of the ICAO Global Aviation Safety Plan (GASP). Planners should ensure that safety considerations of air navigation services development programmes are consistent with the GASP and associated GSI.

13. An Air Navigation 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 (SARPs), and which situation has a negative impact on safety, regularity and/or efficiency of international civil aviation. Air navigation deficiencies should be identified and reported to the Regional Office who will determine whether the reported deficiency is a case of non-compliance with the EUR ANP or SARPs. States are responsible for the prompt rectification of deficiencies to navigation services for which they are responsible for. The ICAO Regional Office would provide guidance and assistance to rectify such deficiencies as necessary. Detailed information on the process of identifying and managing navigation deficiencies is contained in the EANPG Handbook,.

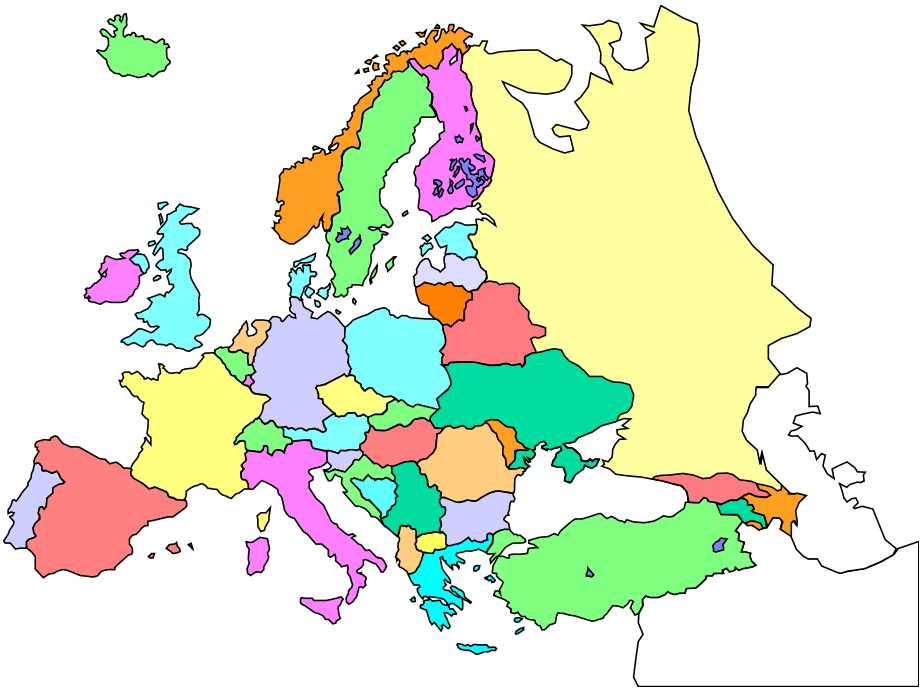
ENVIRONMENT

14. It is an ICAO Strategic Objective to minimize the adverse effect of global civil aviation on the environment. Regional planning groups should ensure environmental factors are taken into consideration when performance based systems implementation plans are developed. The results of environmental analysis can be useful in providing national decision-makers within the various sub-regions with information upon which to base airspace architecture decisions and in providing information on what the aviation industry is doing now to protect the environment in the future. Environmental considerations should, however, not compromise acceptable levels of safety and be balanced against operational and economic considerations.

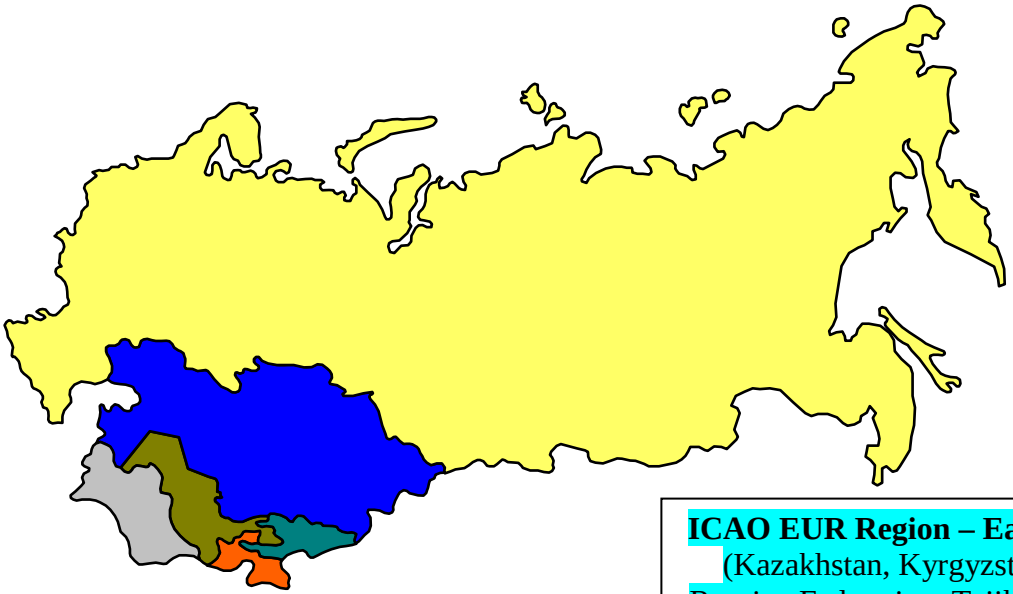
HOMOGENEOUS AREAS AND MAJOR TRAFFIC FLOWS *(check before publication)*

ATM HOMOGENEOUS AREAS IN THE ICAO EUR REGION

Note: Chart to be updated to include Cyprus and Israel.



ICAO EUR Region – Western and Central
Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands - Kingdom of the, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the former Yugoslav Republic of Macedonia, Turkey, Ukraine, United Kingdom



ICAO EUR Region – Eastern
(Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan, Uzbekistan)

MAJOR TRAFFIC FLOWS - EUR REGION

Area of routing (AR)	Traffic flows	Area involved	Type of area covered	Remarks
AR1	Within Western Europe	Wien, Bruxelles, Paris, Marseille, Reims, Bremen, Langen, Munich,, Milano, Switzerland, London, Amsterdam	Continental very high density	Core area, homogeneous ATM area EUR Within this area, there are nine initiatives to implement the functional airspace block (FAB) concept, regulated by the European Commission Regulation No 176/2011 with 6 December 2012 as the mandatory date of implementation for the European Union States.
AR2	Western and Central and South Europe	Tirana, Yerevan, Wien, Baku, Bruxelles, Sarajevo, Sofia, Zagreb, Praha, Nicosia, Kobenhavn, Tallin, Rovaniemi, Tampere, Bordeaux, Brest, Marseille, Paris, Reims, Tbilisi, Bremen, Langen, Munich, Athinai, Budapest, Shannon, Brindisi, Milano, Roma, Riga, Vilnius, Malta, Chisinau, Beograd, Oslo, Stavanger, Trondheim, Bodo, Minsk, Warszawa, Lisboa, Bucuresti, Bratislava, Ljubljana, Madrid, Barcelona, Sweden, Switzerland, Skopje, Ankara, Istanbul, Dnipropetrovs'k, Kyiv, L'viv, Odesa, Simferopol, Scottish, London	Continental high density	Homogeneous ATM area Within this area, there are nine initiatives to implement the functional airspace block (FAB) concept, regulated by the European Commission Regulation No 176/2011 with 6 December 2012 as the mandatory date of implementation for the European Union States. It is expected that this concept will evolve and further refinement will be provided after full implementation in December 2012.
AR3	Europe to North America	Amsterdam, Bruxelles, Bremen, Langen, Munich, London, Scottish, Shannon, Paris, Reims, Brest, Madrid	Continental high density	Major traffic flow linking Europe to North America via North Atlantic
AR4	Western Europe to Far East Asia via trans-polar transit routes	Core Area, Bodø, Bodo Oceanic, Oslo, Stavanger, Trondheim, Tampere, Rovaniemi, Russian Federation (TBD), Japanese FIRs	Continental high density/continental low density	Major traffic flow via ATS routes north of 50°N The Russian Federation is undergoing a phased approach to FIR consolidation that will be completed in 2015. The names of the FIRs concerned in this AR will be finalized in late 2014.

Area of routing (AR)	Traffic flows	Area involved	Type of area covered	Remarks
AR5	Western Europe to Far East Asia via trans-Siberian transit routes	Core Area, Minsk, Warszawa, Tallinn, Riga, Vilnius, Tampere, Rovaniemi, Russian Federation (TBD), Japanese FIRs	Continental high density/continental low density	Major traffic flow via ATS routes between 45°N and 65°N The Russian Federation is undergoing a phased approach to FIR consolidation that will be completed in 2015. The names of the FIRs concerned in this AR will be finalized in late 2014.
AR6	North America to Eastern Europe, Middle East and Asia via cross-polar transit routes	Søndrestrøm, Reykjavik, Russian Federation (TBD), Anchorage, Canadian FIRs, Ulaanbaatar, Chinese FIRs	Continental low density/oceanic low density	Major traffic flow linking North America with Eastern Europe, Middle East and Asia via ATS routes west of 60°E The Russian Federation is undergoing a phased approach to FIR consolidation that will be completed in 2015. The names of the FIRs concerned in this AR will be finalized in late 2014.
AR7	North America to Southeast Asia via trans-eastern transit routes	Anchorage, Canadian FIRs, Russian Federation (TBD), Chinese FIRs	Continental low density/oceanic low density	Major traffic flow linking North America with Southeast Asia through the airspace of the Russian Federation including ATS routes east of 60°E The Russian Federation is undergoing a phased approach to FIR consolidation that will be completed in 2015. The names of the FIRs concerned in this AR will be finalized in late 2014.
AR8	Europe to Central and Southeast Asia via trans-Asian transit routes	Tallinn, Riga, Vilnius, Tampere, Rovaniemi, Minsk, Aktau, Aktyubinsk, Almaty, Astana, Kyzylorda, Shymkent, Bishkek, Osh, Russian Federation (TBD) Ulaanbaatar, Chinese FIRs	Continental low density	Major traffic flow linking European States with North, Central and Southeast Asia, via ATS routes west of 140°E The Russian Federation is undergoing a phased approach to FIR consolidation that will be completed in 2015. The names of the FIRs concerned in this AR will be finalized in late 2014.

Area of routing (AR)	Traffic flows	Area involved	Type of area covered	Remarks
AR9	Europe to Middle Asia via Asian transit routes	Dnipropetrovs'k, Kyiv, L'viv, Odesa, Simferopol, Ashgabat, Dashoguz, Turkmenabat, Turkmenbashi, Aktau, Aktyubinsk, Almaty, Astana, Kyzylorda, Shymkent, Bishkek, Osh, Dushanbe, Ankara, Istanbul, Yerevan, Tbilisi, Baku, Samarkand, Tashkent, Nukus, Russian Federation (TBD), Tehran, Kabul	Continental low density	Major traffic flow via ATS routes linking European States with Middle Asia, south of 50°N The Russian Federation is undergoing a phased approach to FIR consolidation that will be completed in 2015. The names of the FIRs concerned in this AR will be finalized in late 2014.

AIR TRAFFIC FORECASTS, SYSTEM CAPACITY AND AIR TRAFFIC DEMAND

15. Regional traffic forecasting mainly supports regional ATM planning functions in the western part of the region and is made available to all States for which information is prepared. All States generally prepare individual forecasts, taking account of the regional information, for national planning purposes. This information should be shared through at least the sub-regional groupings to enable effective regional planning development.

16. The scope of Air Traffic Flow and Capacity Management (ATFM) is one of attempting to balance the twin imperatives of Demand and Capacity. Within this scope, the goal is to enable flight punctuality and efficiency having regard to the available resources with the emphasis on optimising the network capacity. This should be achieved through a robust and comprehensive collaborative decision-making process that will enable widespread dissemination of relevant and timely information to all airspace users.

IMPLEMENTATION STRATEGY

17. Doc 9570 – the Global Air Navigation Plan describes a planning methodology that enables the incorporation of Regions/States existing development plans to create an evolutionary path towards a global ATM system. The Global ANP is supported by planning tools which take various formats (e.g. software applications, planning documentation, web-based reporting forms, project management tools). As EUR States and sub-regions consider implementation of the initiatives, they should use common programmers templates such as those contained in the planning tools as the basis to establish performance objectives and implementation timelines as well as to develop a comprehensive schedule and programme of planning activities to accomplish the work associated with the initiatives. In addition, the planning tools will provide links to relevant guidance material and documentation in order to assist the planner throughout the planning process. This will ensure a uniform approach to implementation of the initiatives.

18. Plans should be underpinned by the safety management process.

CNS/ATM/IC SG/6
Appendix 6C to the Report on Agenda Item 6

EUR ANP, VOLUME I, BASIC ANP

PART IV - AIR TRAFFIC MANAGEMENT (ATM)

(updated version date: 27 December 2011)

Remarks

This part was presented to and endorsed by EANPG/52 (November 2010). It has been updated following EANPG 53 (November 2011).

Broadly based on the NAT ANP ATM Section format with the following outline:

a) First part details the ATM Concept and associated component requirements;

b) Sets out the current and developing requirements that will be required during transition to the ATM Concept;

Note: text is more detailed than envisaged as it was necessary to include verbatim the amendment proposal (Serial No: EUR/NAT 09/19-ATM) concerning flexible use of airspace developed by the FUA Task Force, as endorsed by EANPG/51. This has influenced the overall style and level of detail of this part.

c) Includes reference to ICAO Annexes and Documents where SARPS should be followed;

Note: detailed cross references to annexes and document paragraph numbers have been omitted to avoid out-of-date referencing when ICAO Documents are amended.

d) Does not refer to specific implementation programmes.

Note: It is intended to include these in the corresponding ATM part in the FASID with electronic programme links to enable the reader to access the level of detail required; this will facilitate the ability to more easily keep the document up to date.

e) Performance material developed by the EANPG COG Performance Task Force has been included.

Further action to be taken:

1. Specific implementation programmes to be included in ATM Part of FASID.
2. Paragraphs related to specific GPI to be reviewed when new update of Global ANP (Doc 9750) issued.
3. Paragraphs related to Traffic Synchronisation and Monitoring to be reviewed in light of introduction of 4-D Navigation.
4. Paragraphs under Airspace Structure to be updated with references to the FASID and/or electronic database.
5. Paragraph related to Areas of responsibility for which ATFM is provided by the EUROCONTROL CFMU (Brussels) and the International Air Navigation Service “East” to be updated with cross reference to relevant attachment in FASID.
6. Paragraph related to Flight Information Service and VOLMET to be updated with cross reference to relevant table in FASID.

EUR ANP, VOLUME I, BASIC ANP

PART IV - AIR TRAFFIC MANAGEMENT (ATM)

(updated version date: 27 December 2011)

INTRODUCTION

1. This part of the European Region Basic Air Navigation Plan introduces the long-term EUR Region ATM requirements based on the Global ATM Operational Concept. While the operational concept is visionary and even challenging, many of the current practices and processes detailed in the BORPC will continue to exist throughout the planning horizon. In this sense, the introduction of the new concepts should be seen as evolutionary. Following the description of the Concept, this Part provides detail on the ATM requirements during the transition to the ATM Concept's Operational Components. Description of specific delivery programmes and associated electronic links are contained in the ATM element of the FASID.

2. The Standards, Recommended Practices and Procedures to be applied are contained in:

a) Annex 2 — Rules of the Air;

b) Annex 6 — Operation of Aircraft;

c) Annex 11 — Air Traffic Services;

d) *Procedures for Air Navigation Services — Air Traffic Management* (Doc 4444);

e) *Procedures for Air Navigation Services — Aircraft Operations* (Doc 8168);

f) *Regional Supplementary Procedures* (Doc 7030) – EUR Region; and

g) *European Secondary Surveillance Radar (SSR) Code Management Plan* (EUR Doc 023).

ATM OPERATIONAL CONCEPT COMPONENTS

General

3. To achieve the Global ATM Operational Concept, improvements to the ATM system should be based on the provision of integrated services by means of the concept components described below. The separate components form one system. Figure 1, depicts the interrelationship of the system components and the convergence into a single system.

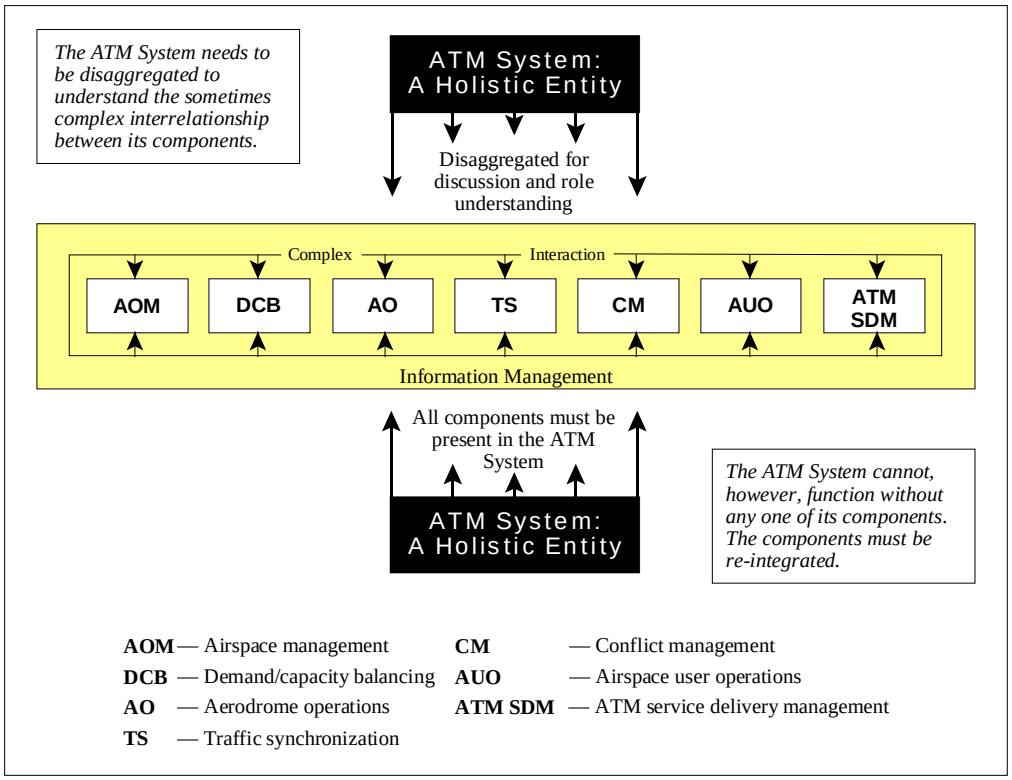


Figure 1.

4. The transition to adoption of the new concepts should be an iterative process underpinned by satisfactory cost benefit analysis. ATM improvements planned prior to the adoption of the Global ATM Operational Concept should not necessarily be abandoned as they should provide short to medium term system wide improvements; they should, however, be assessed for compatibility with the Global ATM Operational Concept to avoid nugatory expense.

5. The ATM concept components introduced above are described in more detail as follows:

Airspace Organisation and Management

6. Airspace organisation will establish airspace structures in order to accommodate the different types of air activity, volume of traffic and differing levels of service. Airspace management is the process by which airspace options are selected and applied to meet the needs of the ATM community. Key conceptual changes include:

a) all airspace will be the concern of ATM and will be a usable resource;

b) airspace management will be dynamic and flexible;

c) any restriction on the use of any particular volume of airspace will be considered transitory; and

d) all airspace will be managed flexibly. Airspace boundaries will be adjusted to particular traffic flows and should not be constrained by national or facility boundaries.

Aerodrome operations

7. As an integral part of the ATM system, the aerodrome should provide the needed ground infrastructure including, *inter alia*, lighting; taxiways; runway, including exits; and precise surface guidance to improve safety and to maximize aerodrome capacity in all weather conditions. The ATM system will enable the efficient use of the capacity of the aerodrome airside infrastructure. The key conceptual changes include:

a) runway occupancy time will be reduced;

b) the capability to safely manoeuvre in all weather conditions whilst maintaining capacity;

c) precise surface guidance to and from a runway will be required in all conditions; and

d) the position (to an appropriate level of accuracy) and intent of all vehicles and aircraft operating on the movement area will be known and available to the appropriate ATM community members.

Demand and capacity balancing

8. Demand and capacity balancing will strategically evaluate system-wide traffic flows and aerodrome capacities to allow the airspace users to determine when, where and how they operate, while mitigating conflicting needs for airspace and aerodrome capacity. This collaborative process will allow for the efficient management of the air traffic flow through the use of information on system-wide air traffic flow, weather and assets. The key conceptual changes include:

a) through collaborative decision-making at the strategic stage, assets will be optimized to maximize throughput thus providing a basis for predictable allocation and scheduling;

b) through collaborative decision-making, at the pre-tactical stage when possible, adjustments will be made to assets, resource allocations, projected trajectories, airspace organization, and allocation of entry/exit times for aerodromes and airspace volumes to mitigate any imbalance; and

c) at the tactical stage, actions will include dynamic adjustments to the organization of airspace to balance capacity; dynamic changes to the entry/exit times for aerodromes and airspace volumes; and adjustments to the schedule by the users.

Traffic synchronization

9. Traffic synchronization refers to the tactical establishment and maintenance of a safe, orderly and efficient flow of air traffic. The key conceptual changes include:

a) (where traffic density/complexity allows) there will be dynamic 4-D trajectory control and negotiated conflict-free trajectories;

b) Choke points will be eliminated; and

c) optimization of traffic sequencing will achieve maximization of runway throughput.

Conflict management

10. Conflict management will consist of three layers: strategic conflict management through airspace organization and management, demand and capacity balancing and traffic synchronization; separation provision; and collision avoidance.

11. Conflict management will limit, to an acceptable level, the risk of collision between aircraft and hazards. Hazards that an aircraft will be separated from are: another aircraft, terrain, weather, wake turbulence, incompatible airspace activity and when the aircraft is on the ground, surface vehicles and other obstructions on apron and manoeuvring area. The key conceptual changes include:

a) strategic conflict management will reduce the need for separation provision to a designed level;

b) the ATM system will minimize restrictions to user operations; therefore, the pre-determined separator will be the airspace user, unless safety or ATM system design requires a separation provision service;

c) the role of separator may be delegated, but such delegations will be temporary;

Note. The separator is the agent responsible for separation provision for a conflict and can be either the airspace user or a separation provision service provider.

d) in the development of separation modes, separation provision intervention capability must be considered;

e) the conflict horizon will be extended as far as procedures and information permit; and

f) collision avoidance systems are part of ATM safety management, but will not be included in determining the calculated level of safety required for separation provision.

Airspace user operations

12. Airspace user operations refer to the ATM-related aspect of flight operations. The key conceptual changes include:

a) accommodation of mixed capabilities and worldwide implementation needs will be addressed to enhance safety and efficiency;

b) relevant ATM data will be used for an airspace user's general, tactical and strategic situational awareness and conflict management;

c) relevant airspace user operational information will be made available to the ATM system;

d) individual aircraft performance, flight conditions, and available ATM resources will allow dynamically-optimised 4-D trajectory planning;

e) collaborative decision-making will ensure that aircraft and airspace user system design impacts on ATM are taken into account in a timely manner; and

f) aircraft will be designed with the ATM system as a key consideration.

ATM service delivery management

13. ATM service delivery management will operate seamlessly from gate-to-gate for all phases of flight and across all service providers. The ATM service delivery management component will address the balance and consolidation of the decisions of the various other processes/services, as well as the time horizon at which, and the conditions under which these decisions are made. Flight trajectories, intent and agreements will be important components to delivering a balance of decisions. The key conceptual changes include:

a) services to be delivered by the ATM service delivery management component will be established on an as-required basis subject to ATM system design. Where services are established they will be provided on an on-request basis;

b) ATM system design will be determined by collaborative decision-making and system-wide safety and business cases;

c) services will be delivered by the ATM service delivery management component through collaborative decision-making, balance and optimise user-requested trajectories to achieve the ATM community's expectation; and

d) management by trajectory will involve the development of an agreement that extends through all the physical phases of the flight.

INFORMATION MANAGEMENT

14. The global ATM system foreseen in the operational concept was based on a collaborative decision-making environment where the timely availability of high-quality and reliable electronic aeronautical, meteorological, airspace and flow management information would be necessary. Thus a key enabler to ensure the effectiveness of the ATM System is the provision of information services through the concept of Information Management. Information management will provide accredited, quality assured and timely information used to support ATM operations.

15. The exchange and management of information used by the different processes and services must ensure the cohesion and linkage between the seven ATM system concept components shown in Figure 1 above and should be available through a system wide information management (SWIM) system.

ATM IN THE TRANSITION TO THE CONCEPT

16. During the transition to achieving the ATM Concept the following ATM elements should be provided:

Airspace Organization and Management

17. The airspace organization should provide the strategies, rules and procedures by which the airspace will be structured to accommodate the different types of air activity, volume of traffic, and differing levels of service and rules of conduct. The principles of organization should be applicable in all complexities of airspace. Airspace management is the process by which the airspace options are selected and applied to

meet the needs of the ATM community. The following organizational principles underlying these strategies, rules and procedures should be adopted:

a) all airspace should be managed flexibly. Airspace boundaries should be adjusted to particular traffic flows and should not be constrained by national or facility boundaries;

b) airspace management processes should, subject to system capability, safety and capacity, accommodate dynamic flight trajectories and provide optimum system solutions;

c) when conditions require that different types of traffic be segregated by airspace organization, the size, shape and time regulation of that airspace should be set to minimize the impact on operations. However, aircraft neither operating in that particular mode, nor equipped accordingly for such airspace, should be accommodated by the system where deemed safe and appropriate. Accommodation should be made without constraining the primary use of that airspace;

d) priority for the use of specific airspace should not be constrained by the primary usage or equipage on a routine basis. While it is recognized that airspace designation is useful, it should not be organized in a manner that permanently precludes the possibility of mixed usage/mixed equipage operations;

e) airspace use should be coordinated and monitored in order to accommodate the conflicting legitimate requirements of all users and to minimize any constraints on operations;

f) airspace reservations should be planned in advance with changes made dynamically whenever possible. The system should also accommodate unplanned requirements;

g) structured route systems should be applied only where required to enhance capacity or to avoid areas where access has been limited or where hazardous conditions exist; and

h) airspace structures and division levels should be harmonised.

Civil/Military Coordination

Note 1 - Annex 11 contains provisions on civil- military coordination and Annex 15 contains provisions for the promulgation of the relevant AIS by the competent authority responsible for the provision of ATS in the area within which the operations will take place.

Note 2 - The application of the FUA over the high seas is without prejudice to the rights and duties of States regarding access to high seas airspace under the Chicago Convention. Articles 3 a) and d) to the Chicago Convention apply.

Note 3 - The FUA provisions are not mandatory for application by States. They are intended to be a method to ensure maximum harmonisation of the application of the FUA in the EUR Region.

18. States should aim at the creation of one single integrated system catering to both civil and military requirements. The related organization of the airspace should satisfy the requirements of all users in an optimum way.

19. States should establish civil/military coordination bodies to ensure, at all levels, the coordination of decisions relating to civil and military problems and airspace and traffic management (paragraph xx above refers).

20. States should arrange for close liaison and coordination between civil ATS units and relevant military operational control and/or air defence units in order to ensure integration of civil and military air traffic or its segregation, if required. Such arrangements would also contribute to the reduction or elimination of the need for interception of strayed or unidentified aircraft.

21. Military exercises likely to affect civil flight operations should be scheduled, whenever possible, so as not to coincide with peak periods of civil air traffic and/or not to affect areas where a high density of civil air traffic occurs.

Flexible Use of Airspace (FUA)

(GPI-1 Refers)

22. Airspace should not be designated as either purely civil or purely military airspace, but should rather be considered as one continuum in which all users' requirements have to be accommodated to the maximum extent possible.

23. States should apply the flexible use of airspace concept whenever:

a) activities require the reservation of a volume of airspace for their exclusive or specific use for determined periods due to the characteristics of their flight profile or their potential hazards and the need to ensure effective and safe separation from non-participating air traffic;

b) different types of aviation activities occur in the same airspace but with different requirements. Their coordination should seek to achieve both the safe conduct of flights and the optimum use of available airspace;

c) accuracy of information on airspace status and on specific air traffic situations, and timely distribution of this information to civil and military controllers and controlling military units has a direct impact on the safety and efficiency of operations; and

d) timely access to up-to-date information on airspace status is essential for all parties wishing to take advantage of airspace structures made available when planning their flights.

Flexible Use of Airspace Over The High Seas

24. The flexible use of airspace concept also covers airspace over the high seas. Its application should therefore be without prejudice to the rights and duties of States under the Convention on International Civil Aviation (Chicago Convention) and its annexes, or the 1982 UN Convention on the Law of the Sea (UNCLOS).[1]

25. Regulations governing flights of State aircraft over the high seas should, to the maximum extent practicable, comply with the relevant provisions of Annex 2. Where this is not possible due to the nature

[1] Turkey is not a signatory to the UNCLOS and their position is well known and remains unchanged.

of the operations involved, measures should be taken to ensure that other aircraft are not endangered by such operations. These should preferably be established in coordination with the State responsible for the provision of air traffic services over that part of the high seas affected by such operations.

Airspace Structure

(Chart ATS 1)

26. The EUR airspace infrastructure should evolve to meet the changing demands of the aviation community. Provider States should coordinate their airspace planning to balance the conflicting but legitimate requirements of all users in order to efficiently provide sufficient capacity to meet traffic demands, to ensure optimum utilisation, to ensure compatibility with their respective neighbours and to guarantee the safety of flight.

27. Flight Information Regions (FIR). Parameters of EUR Region FIRs are detailed in the xxxxx. A State may delegate to another State the responsibility for establishing and providing air traffic services in flight information regions, over the territories of the former or make arrangements for the provision of services within high seas airspace for which it has responsibility. Such arrangements should be considered when safety or capacity benefits can be achieved.

28. Functional Airspace Blocks (FAB). The establishment of FABs, such as those established to accord with the EU Regulations on the Single European Sky, is not in itself subject to the process for amendment of ANPs. However, should changes to the FIR boundaries or to the facilities and services provided be required at a later stage, such changes might be subject to the ANP amendment procedure and should therefore be examined on a case-by-case basis. Pursuant to Article 83 of the ICAO Convention, agreements or arrangements for FABs are subject to registration with ICAO in accordance with the applicable Rules in ICAO Doc 6685. Established FAB agreements within the EUR Region are detailed in (electronic database).

29. Controlled airspace should be established so as to encompass the climb to cruising level of departing aircraft, the cruising levels on ATS routes normally used by IFR flights and the descent from such levels of arriving aircraft, except in those cases where the type and density of traffic clearly do not justify the establishment of controlled airspace.

30. The vertical limits and classification of airspace should be as follows:

a) the vertical limits for all control areas established in the EUR Region be:

1) upper limit — unlimited; Controlled airspace up to a harmonised flight level and all uncontrolled airspace above be Class G.

2) lower limit - ATS provided in various airspace volumes should be based on the ICAO classification of airspaces as defined in Annex 11 — *Air Traffic Services* (i.e. Class A to G), and those classifications should be implemented on the basis of a safety assessment, taking into account the volume and nature of the air traffic.

Details of airspace parameters within FIRs should be shown in respective national Aeronautical Information Publications.

31. States should adopt a common division level between upper and lower airspace; airspace classifications above the division level should be harmonised. (GPI- 4 refers). Details of EUR Region Airspace Classifications are contained in the FASID/electronic database.

32. ATS routes and organised track structures should be provided to meet ATM requirements. States should to the extent possible coordinate with the ICAO Regional Office any changes to the airspace structure, the assignment of or changes to compulsory reporting points and ATS routes; route and reporting point designators should be obtained from the ICARD Global Database. Details of ATS Routes and designators within the EUR Region are contained in the FASID/electronic database.

33. Dynamic and flexible ATS route management should be provided when ATM and aircraft capabilities can safely accommodate such arrangements. (GPI-7 refers)

34. Airspace restrictions and/or temporary airspace reservations for specific users or purposes should only be imposed when the intended purpose cannot be met by other arrangements. If established, such restrictions and/or reservations should be kept to the minimum, both in extent and duration consistent with the purpose they serve and should be withdrawn as soon as possible. In addition, any restricted and/or reserved airspace should be made available for general use whenever the activities having led to their establishment are temporarily suspended, e.g. during weekends, at night, etc.

35. Where users have specific requirements in portions of the airspace extending over the territory of a number of States and/or over the high seas, arrangements should be made between States concerned for the coordinated use of airspace, facilities and procedures in order to ensure maximum uniformity.

Separation

36. Reduced vertical separation minima above FL285 will be used throughout the EUR Region airspace. (GPI-2 refers).

37. The introduction of Performance Based Navigation and RNP equipped aircraft is expected to enable reductions in separation minima and route spacing. The extent of this improvement has yet to be assessed.

Air Traffic Flow Management (ATFM)

38. Efforts should be made to provide sufficient capacity to cater to both normal and peak traffic levels, without jeopardizing safety levels. ATFM should aim for capacity management and the optimization of the efficiency of the global ATM system, by ensuring that capacity is utilized to the maximum extent possible. (GPI-6 refers)

39. ATFM should be applied for periods when it is expected that the air traffic demand will be close to or will exceed the ATC capacities in the areas concerned.

40. For most of the EUR region, the Air Traffic Flow Management System (ATFM) of the EUR Region (ASTER) is provided by either EUROCONTROL through the Central Flow Management Unit (CFMU) (Brussels) or by the Russian Federation through the International Air Navigation Service "East".

41. States within the EUR region whose ATFM services are currently not provided through ASTER should provide ATFM, as required, in accordance with the agreed provisions applicable to the EUR region (See Para 40).

42. Detailed information concerning the provision of ATFM services applicable in the EUR region are contained in the EUR FASID and the Regional Supplementary Procedures (Doc 7030) — EUR.

43. The areas of responsibility for which ATFM is provided by the EUROCONTROL CFMU (Brussels) and the International Air Navigation Service "East" are listed in Attachment xx to Part IV — ATM of the EUR FASID.

AIR TRAFFIC SERVICES

Air traffic control service

44. The ATC Service should maintain a safe, orderly and expeditious flow of air traffic by applying separation between aircraft and by issuing clearances to individual flights as close as possible to their preferred profiles, taking into account the actual state of airspace utilization and within the general framework of ATFM measures when applicable. Air traffic control service should be provided on a 24-hour basis in all controlled airspace used by international operations both during the en-route and the terminal phases of their flight.

Flight information service

45. Flight information service should be provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

46. The requirements for flight information services are not expected to change significantly in the near term and the provision of VOLMET would continue to be required. It is, however, expected that data link messages will gradually reduce the requirement for voice VOLMET. The delivery of critical information such as SIGMET messages and other information equally pertinent to the safety of flight should be improved by the existence of data links (EUR FASID Table ATS xx).

Alerting Service

47. Alerting service should be provided for the notification of appropriate organizations regarding aircraft in need of Search and Rescue (SAR) aid and assisting such organizations as required. In addition, data links should be established, where appropriate, between the ATS units and Rescue Coordination Centres to support the SAR function (Part VI — SAR also refers).

SSR CODE MANAGEMENT

Enhanced Originating Region Code Assignment Method (e-ORCAM)/Centralised SSR Code Assignment and Management System (CCAMS)

48. Within the context of ATM and the provision of ATS, SSR code management is a key element of ATM to ensure continuous, unambiguous aircraft identification. SSR codes have a finite limit and without management results in capacity constraints and aircraft delays. SSR code management within the EUR Region is achieved via e-ORCAM or CCAMS. States should ensure their systems are compliant with the technical requirements of whichever of these systems is adopted. Detailed procedures and technical requirements on these systems can be found in ICAO EUR Doc 023- *European Secondary Surveillance Radar (SSR) Code Management Plan*.

MONITORING

(See also Part VIII – Safety)

Lateral Plane

49. Monitoring of navigation performance is required for two reasons:

a) demonstrated “typical” navigation accuracy provides a basis for determining whether the performance of the ensemble of aircraft operating on the RNAV routes meets the required performance; and

b) the lateral route spacing and separation minima necessary for traffic operating on a given route are determined both by the core performance and upon normally rare system failures.

50. Both lateral performance and failures need to be monitored in order to establish the overall system safety and to confirm that the ATS system meets the required target level of safety.

51. Radar observations of each aircraft’s proximity to track and altitude are typically noted by ATS facilities and aircraft track-keeping capabilities are analyzed.

52. A process should be established allowing pilots and controllers to report incidents where navigation errors are observed. If an observation/analysis indicates that a loss of separation or obstacle clearance has occurred, the reason for the apparent deviation from track or altitude should be determined and steps taken to prevent a recurrence.

53. States should investigate navigation errors which are brought to the attention of operators and/or where necessary the State of Registry of the aircraft concerned with the least possible delay.

Vertical Plane

54. RVSM. System performance monitoring should be undertaken to ensure that the continued operation of RVSM meet the safety objectives. (ICAO Doc 9574 – *Manual on Implementation of a 300 m (1000 ft) Vertical Separation Minimum Between FL290 and FL410 Inclusive, Chapter 6*).

PERFORMANCE MEASURING

55. The EANPG COG Performance Task Force has developed initial performance objectives and associated indicators relating to capacity; efficiency and the environment; and cost effectiveness. Performance objectives and indicators will continue to be developed with details provided in the FASID. The initial objectives and indicators are shown below:

Capacity

56. The indicators identified to monitor the achievement of this objective are:

1) En-route ATFM delays a) Average ATFM delay per flight generated by the airspace volume (en-route)

2) Airport ATFM delays a) Average ATFM delay per flight in the main airports (to be identified by States in advance and based on the regional relevance)

Efficiency and Environment

57. The Efficiency and Environment KPAs have been considered together because in this context they are strictly interlinked.

58. The objective for Efficiency is: ensure that users use the most efficient routes – focussing on the horizontal flight-efficiency. The indicator identified to monitor the achievement of this objective is:

1) Average horizontal en route flight efficiency, defined as the difference between the length of the en route part of the actual trajectory (where available) or last flight planned route and the great circle.

59. In this context specificities shall be considered for flights longer than 1000 nm where the optimum could differ from the great circle (wind optimal routes, etc).

60. The objective for Environment is: contribute to the protection of environment – focussing on fuel savings/CO2 emission reductions. The indicator identified for the achievement of this objective is:

1) CO2 emissions deriving from inefficiencies in flight efficiency (conversion of additional distance into CO2 emissions based on standard values formula).

61. Discussion within the Task Force highlighted that future developments of the framework will have to consider the impact of aviation noise on environment.

Cost-effectiveness

62. The objective for cost-effectiveness is: contribute to optimise the costs for air navigation services – focussing on productivity. The indicators identified to monitor the achievement of this objective are:

1) IFR flights (en-route) per ATCO hour on duty;

2) IFR flight hours per ATCO hour on duty; and
3) IFR movements (airport) per ATCO hour on duty.

CNS/ATM/IC SG/6
Appendix 6D to the Report on Agenda Item 6

EUR ANP, VOLUME I, BASIC ANP

PART VIII - SAFETY (SAF)

(initial version date: 06 October 2010
updated 27 December 2011)

Remarks

This part was presented to and endorsed by EANPG/52 (November 2010). The material has been updated following EANPG/53 (November 2011).

This is a new ANP chapter and provides an overview of aviation safety and associated requirements that aviation stakeholders should consider when planning and delivering aviation services.

The introduction underlines that this Part refers to safety matters associated with navigation services, ATM/CNS and the work of the EANPG.

Whilst it states the overarching requirements of the Global Aviation Safety Plan (GASP) and associated global safety initiatives, this has been included to show the contribution the safe delivery of navigation services makes to the ICAO global strategic safety objective.

To ensure there is no confusion with Global Safety Initiatives (GSI), the term "regional safety initiative (RSI)" has been replaced with "regional safety objective (RSO)". This term better describes what will be developed as a safety objective to overcome identified deficiencies or gaps. These can equally be considered as regional performance objectives in the safety arena as they should be readily measurable. The initial EANPG COG Performance Task Force safety objectives and indicators have been included; these will be routinely updated with details provided in the FASID.

Further action to be taken:

1. Update will be required following the work that will be done by the European Regional Aviation Safety Group (RASG-EUR).
2. Performance indicators to be reviewed.

EUR ANP, VOLUME I, BASIC ANP

PART VIII - SAFETY (SAF)

(initial version date: 06 October 2010
updated 27 December 2011)

INTRODUCTION

1. This Part has been provided to show the overarching link with safety in the planning and delivery processes associated with air navigation services and associated CNS/ATM systems. This air navigation safety related material is a component element of the wider aviation safety and its associated requirements that aviation stakeholders (includes States, regulators, aircraft and airport operators, air traffic service providers, aircraft manufacturers, approved maintenance organisations, international organizations and safety organizations) should consider when planning and delivering aviation services. It reflects ICAO safety targets and details the European Region Air Navigation Plan related Safety Objective that will contribute to achieving the ICAO Strategic Safety Objectives. Finally, it highlights the significant safety requirements States should adopt, which will contribute to the safe delivery of air navigation services.

2. ICAO Doc 9859 - *Safety Management Manual* describes safety as a state in which the possibility of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.

ICAO Strategic Safety Objective

3. ICAO's first Strategic Objective is to '*enhance global civil aviation safety'*. To contribute to this ICAO has committed to enhance global civil aviation safety through the following measures:

i) Identify and monitor existing types of safety risks to civil aviation and develop and implement an effective and relevant global response to emerging risks;

ii) Ensure the timely implementation of ICAO provisions by continuously monitoring the progress toward compliance by States;

iii) Conduct aviation safety oversight audits to identify deficiencies and encourage their resolution by States;

iv) Develop global remedial plans that target the root causes of deficiencies.

v) Assist States to resolve deficiencies through regional remedial plans and the establishment of safety oversight organizations at the regional or sub-regional level;

vi) Encourage the exchange of information between States to promote mutual confidence in the level of aviation safety between States and accelerate the improvement of safety oversight;

vii) Promote the timely resolution of safety-critical items identified by regional Planning and Implementation Groups (PIRGs);

viii) Support the implementation of safety management systems across all safety-related disciplines in all States; and

ix) Assist States to improve safety through technical cooperation programmes and by making critical needs known to donors and financial organizations.

Global Aviation Safety Plan

4. Global Safety Initiatives (GSI), targeted at stakeholders, have been developed to support the implementation of the ICAO Strategic Safety Objective and other safety objectives that might be established by regions. The GSI and their main target groups are as follows:(New set of GSIs under developments)!!

GSI	Initiative	Main Stakeholders	Comments
GSI-1	Consistent implementation of international standards and industry best practices	States	
GSI-2	Consistent regulatory oversight	States	
GSI-3	Effective errors and incidents reporting	States	
GSI-4	Effective incident and accident investigation	States	
GSI-5	Consistent coordination of regional programmes	ICAO Regional Office States	
GSI-6	Effective errors and incidents reporting and analysis in the industry	Industry	
GSI-7	Consistent use of Safety Management Systems (SMS)	Industry	
GSI-8	Consistent compliance with regulatory requirements	Industry	
GSI-9	Consistent adoption of industry best practices	Industry	
GSI-10	Alignment of industry safety strategies	Industry	
GSI-11	Sufficient number of qualified personnel	Industry	
GSI-12	Use of technology to enhance safety	Industry	

5. Stakeholders should incorporate GSIs into their relevant planning processes. The EANPG (RASG?) will monitor the implementation progress of all navigation related GSI.

A Global Strategy for Aviation Safety

6. The attainment of a safe system is the highest priority in aviation. However, safety actions are not only driven by facts and data but also by the perception of safety needs by the public. Acceptable safety risk is related to the trust attributed to the aviation safety system, which is undermined every time an accident occurs. Therefore the challenge is to drive an already low accident rate even lower. To guide its work, ICAO has established the following safety target.

7. **ICAO Safety Target for 2008-2011 (check for update - it will be 2012 before this document is published)**

1. Reduce the number of fatal accidents and fatalities worldwide irrespective of the volume of air traffic.

2. Achieve a significant decrease in accident rates, particularly in regions where these remain high.

3. No single ICAO region shall have an accident rate* more than twice the worldwide rate by the end of 2011.

** Based on a five-year sliding average*

8. To achieve this safety target, aviation stakeholders should be proactive in ensuring that safety considerations are an inherent element of the development of policies, plans, practices and procedures. Moreover, whilst in the past, Authorities have concentrated on analysing accidents to identify future preventive measures; it is now considered that both regulators and industry must similarly manage safety critical information to both, identify gaps in compliance and develop strategies to rectify these as a means of preventing future accidents.

9. To support ICAO Safety targets, the EANPG[1] will develop Regional Safety Objectives in respect of air navigation related deficiencies????.

EUR Region Safety Objectives???

10. The EANPG will continue in according its highest priority to the identification, reporting and resolution of the safety related air navigation deficiencies based on the Uniform Methodology adopted by the ICAO Council. The EANPG List of Deficiencies should not be regarded as a "name and blame" list, but as an important mechanism aimed at assisting States to resolve deficiencies through a collaborative effort of the EANPG, the ICAO Regional Office, States and the users' organizations. In order to expedite the resolution of safety related deficiencies, the EANPG, in accordance with its terms of reference, will endeavour to develop further efficient and transparent procedures related to the identification and reporting of deficiencies, in consultation with all stakeholders concerned, and to provide effective assistance to States in developing corrective actions. The process for EANPG management of safety related??? deficiencies is detailed in the *EANPG Handbook*.

11. Analysis of the ICAO Universal Safety Oversight Audit Program (USOAP)[2] reports of States of the ICAO EUR Region, and safety related deficiencies identified through the EANPG process, provides a sound basis for identifying the main areas where action is required to reduce the potential contributory factors that could lead to accidents. These could also include initiatives to support States in the implementation of new requirements such as the State Safety Programme.

12. Safety Objectives are by their nature dynamic and the detail of these will be shown in the FASID. Examples of expected EUR Region Safety Objectives (EUR-RSO) are shown below:

[1] EANPG COG Performance Task Force.
[2] USAOP will be replaced by a Continuous Monitoring Approach process.

EUR-RSO	Initiative	Main Stakeholders	Comments
RSO-1	Consistent implementation of ICAO amendments to SARPS and other ICAO Documents	States	Example only
RSO-2	Support the implementation of State Safety Programmes (SSP).	ICAO Regional Office States	Example only
RSO-3	Develop Safety Key Performance Indicators (KPIs) and associated safety performance objectives.	ICAO Regional Office States	Example only

13. The implementation of EUR RSO, in addition to addressing navigation related matters, will in some cases also contribute to addressing wider aviation safety related deficiencies.

14. The EANPG will continue to provide oversight of EUR Region deficiencies and will provide assistance on a case-by-case basis. The ICAO Regional Office will continue to provide courses and workshops on safety related topics such as safety management, state safety programme development and language proficiency.

Performance Management

15. The EANPG COG Performance Task Force has developed performance indicators, initially aiming to ensure the improvement of safety through the reduction of ATM related safety occurrences and the implementation of uniform safety standards.

15.1 The indicators identified to monitor the achievement of those objectives are:

a) Effectiveness of Safety Management (measured by a methodology based on ATM safety framework maturity survey);

b) Level of State Safety/Just Culture (safety culture survey); and

c) Adoption of a harmonized occurrences severity classification methodology.

15.2 Performance objectives will continue to be developed with details provided in the FASID.

State Responsibilities

Safety Oversight

16. States should ensure they meet their duties and responsibilities in respect of aviation safety oversight. Detailed description and guidance is contained in *ICAO Doc 9734 - Safety Oversight Manual.*

Standards and Recommended Practices

17. Adherence to ICAO Standards and Recommended Practices (SARPS) will significantly contribute to aviation safety. States should therefore ensure that they have the necessary regulatory framework in place to underpin the adoption of ICAO SARPS within their State and its national airspace. States should ensure that any differences to SARPS have been assessed in respect of safety and are notified in accordance with ICAO requirements.

State Safety Programme

18. ICAO Standards require States to establish a State Safety Programme (SSP) in order to achieve an Acceptable Level of Safety (ALoS). They also explicitly require States to establish an ALoS to be achieved as a means to verify satisfactory performance of the SSP and service providers' Safety Management Systems (SMS).

19. The requirement for an SSP recognizes that States as well as service providers have safety responsibilities and provides a framework within which service providers are required to establish an SMS.

20. Detailed guidance on SSP requirements and methodology are contained in ICAO Doc 9859 – *Safety Management Manual.*

21. States are requested to notify the ICAO Regional Office when they publish their national SSP.

Safety Management System

22. ICAO Standards require States to establish a Safety Management System (SMS)?????. The EANPG thus encourages States to:

a) develop and implement, if they have not already done so, safety programmes requiring air operators, aerodrome operators and air traffic service providers??? to implement safety management systems;

b) use relevant ICAO safety management system (SMS) implementation documentation (global or regional);

c) undertake aggregated safety analysis at a national level;

d) if appropriate, use applicable certification process to verify if safety management systems met the established requirements and criteria; and

e) expedite the safety management training of their staff at the regulatory and regulated entities' levels, taking advantage of the SMS training offered by ICAO.

Safety Reporting

23. ICAO Standards require States to establish a mandatory accident reporting system and an incident reporting system to facilitate collection of information on actual or potential safety deficiencies. ICAO further recommends that States should establish a voluntary incident reporting system to facilitate the

collection of information that may not be captured by a mandatory incident reporting system; this latter system should be non-punitive and afford protection to the sources of the information. Guidance related to both mandatory and voluntary incident reporting systems is contained in the *Safety Management Manual* (SMM) (Doc 9859).

24. The EANPG thus encourages States to:

a) develop and implement non-punitive reporting mechanisms as part of their safety programme;

b) adopt the following enabler elements, to make best use of existing mandatory and voluntary data flows whilst, strengthening the "safety culture" within their legal and organizational environments:

i) a unique aviation taxonomy such as the ICAO ADREP 2000 model, and the EUROCONTROL HEIDI model (Harmonisation of European Incident Definition Initiative for ATM);

ii) a harmonised safety reporting and investigation process; and

iii) software tools capable to support a systemic analysis and to allow the sharing of safety intelligence.

c) provide required airspace safety monitoring data to the European Regional Monitoring Agency.

25. Reported material will contribute to the future development of EUR Region safety objectives.

CNS/ATM/IC SG/6
Appendix 6E to the Report on Agenda Item 6

EUR ANP, VOLUME I, BASIC ANP

PART IX – HUMAN RESOURCES AND TRAINING (HR&TNG)

(version date: 16 November 2011)

Remarks

This part was presented to and endorsed by EANPG/53 (November 2011).

This is a new Chapter which reflects the planning and training elements that need to be considered by all those responsible for the regulation, supervision and provision of air navigation services within the wider context of planning for future aviation sector personnel.

Human Resource planning is considered on the basis of Doc 9956 - *Global and Regional 20-year Forecasts*, developed by ICAO to provide the aviation sector with an informed forecast for the period 2010-2030 relating to: air transport development – traffic, movement and fleet growth; pilot; maintenance; and air traffic controller personnel requirements. In this respect both global and EUR Region forecasts are reflected.

The Training element provides information on ICAO Training Policy and latest developments in respect of ICAO's TrainAir Plus initiative. Reference to access the Aviation Training Directory of ICAO is provided.

Lastly, the related EUR/NAT Office support to the European Region and support from States are shown.

EUR ANP, VOLUME I, BASIC ANP

PART IX – HUMAN RESOURCES AND TRAINING (HR&TNG)

(version date: 16 November 2011)

Introduction

1. This part of the European Region Basic Air Navigation Plan reflects the planning and training elements that need to be considered by all those responsible for the regulation, supervision and provision of air navigation services within the wider context of planning for future aviation sector personnel.

2. Human Resource planning can be considered *the systematic and continuing process of analysing an organisation's human resource needs under changing conditions and developing personnel policies appropriate to the longer-term effectiveness of the organisation. It is an integral part of corporate planning and budgeting procedures since human resource costs and forecasts both affect and are affected by longer-term corporate plans.*[1]

3. Whilst not described in this Chapter, State regulators, supervisory authorities, air transport operators, and air navigation service providers should be aware of the importance of Human Factors considerations when delivering a safe aviation environment. In this respect human resource planning should be cognisant of the varying aptitude and skill sets needed to meet the demands of the increasingly technical environment comprised by the aviation sector.

4. Human resources development and management must strive to continuously improve the competency levels of safety critical personnel, while taking into account the interdependencies for supply and demand of qualified personnel at national, regional and global levels. Estimating current and future requirements for civil aviation personnel and training capacity in each region is essential for human resource planning, institutional capacity building, and related funding and policy measures.

Next Generation of Aviation Professionals

5. Doc 9956 - *Global and Regional 20-year Forecasts* has been developed to provide the aviation sector with an informed forecast for the period 2010-2030 relating to: air transport development – traffic, movement and fleet growth; pilot; maintenance; and air traffic controller personnel requirements. The forecast shows both global and regional requirements. This study is ICAO's initial response to the market demand and is the first in a series that will provide data, analyses, and forecasts to all key players of the aviation industry.

6. Air Transport is forecast to grow globally by 4.7% during the period 2010-2030. Within the EUR Region the average growth is forecast to be 4.1%. Doc 9956 provides significantly more detail, however, analyses indicates that the most likely scenario of training needs against training capacity within the ICAO EUR Region results in an annual shortage of over 7000 pilots, 8000 maintenance personnel and 300 air traffic controllers.

7. It has been recognised that as the aviation industry emerges from a difficult economic situation, changing demographics and new technologies with far reaching potential will intensify human resource challenges. In this context it becomes urgent to review existing regulations and propose a new regulatory

[1] Defined by the UK Institute of Personnel and Development

environment for the recruitment, education, training, and retention of the next generation of aviation professionals who must be appropriately educated and suitably qualified to staff an increasingly technical aviation environment.

ICAO CIVIL AVIATION TRAINING POLICY

Scope

8. ICAO, recognizing its role in ensuring that the civil aviation community has access to an adequate pool of qualified professionals to support the safe, secure and sustainable development of air transport, has committed to the development of the necessary Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS), air transport policies, advice and guidance material. The framework for this is elaborated in the ICAO Civil Aviation Training Policy.

9. The training policy is applicable to all training provided by ICAO Bureaus, Regional Offices and training organizations issuing a certificate of completion or a certificate of achievement with an ICAO logo.

10. Seminars and workshops aimed at informing States and other stakeholders of ICAO SARPs, PANS, air transport policies and guidance material and at facilitating their implementation are not considered as aviation training, education or testing for the purpose of this policy.

11.

12. The ICAO Civil Aviation Training Policy is shown in full at Appendix 1 to this Part.

ICAO TRAINAIR Plus

13. The ICAO TRAINAIR Programme was established to ensure higher training standards for aviation professionals. The civil aviation training needs are evolving rapidly and ICAO is responding by enhancing the TRAINAIR programme into TRAINAIR *PLUS*.

14. TRAINAIR *PLUS* is an ICAO programme that provides support for new and existing aviation training centers via technical expertise, resources, and quality oversight. This results in a network of ICAO TRAINAIR *PLUS* Centres meeting the standards of the programme.

15. The TRAINAIR *PLUS* programme's objectives are:

i) Streamline, and facilitate the implementation and the development of the TRAINAIR methodology used in Standardized Training Packages (STP) courses;

ii) Coordinate and supply technical support for STP development courses;

iii) Provide quality control throughout the STP development stage;

iv) Operate an international STP sharing system and cooperative training network;

v) Oversee the certification of endorsed training centres.

16. The TRAINAIR *PLUS* Programme is based on rebuilding three interrelated tools:

i) The use of standardized training material.

ii) The development of an international pool of training courses.

iii) The creation of an international sharing network between public and private Civil Aviation Training Centres.

17. TRAINAIR PLUS addresses all fields of civil aviation activities: from basic equipment and systems training supporting new implementation projects up to graduate level courses for a variety of civil aviation professionals.

18. Details of ICAO accredited training institutions and courses can be found in the Aviation Training Directory of ICAO accessible at http://www.icao.int/anb/peltrg/td/listall.cfm.

ICAO EUR Region Support

19. The EUR/NAT Office of ICAO provides support to States through provision of workshops and seminars on a range of topical aviation subjects**. Additionally, ICAO familiarisation** courses and are routinely provided to EUR Region States.

20. ICAO also offers internship positions established to support young aviation professionals to obtain experience with ICAO.

State Support

21. States, aviation carriers, maintenance organisations and ANSPs are requested to regularly provide statistical data on human resources and training requirements as shown in Doc 9956 - *Global and Regional 20-year Forecasts* Appendices 1-3.

22. States should:

i) Adequately resource regulatory bodies (particularly following separation between regulation and service provision). In this respect States may wish to consider secondment arrangements with airlines and ANSPs to provide current operational expertise to inform policy and regulatory development;

ii) Provide appropriately experienced representatives to EANPG and its COG and associated working groups/task forces;

iii) Encourage aviation providers to develop links with higher education providers to foster interest in careers in aviation;

iv) Develop regulatory frameworks that will enable free movement of aviation professionals;

v) Provide or facilitate aviation training resources.

Appendix 1
PART IX – HUMAN RESOURCES AND TRAINING (HR&TNG)

ICAO CIVIL AVIATION TRAINING POLICY

Scope

1. ICAO has an important role to play in ensuring that the civil aviation community, and especially States, have access to the pool of qualified professionals they need to support the safe, secure and sustainable development of air transport.

2. ICAO's role shall essentially be achieved through the facilitation, support and harmonization of efforts made by States and industry; the development of Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS), and air transport policies; and the provision of advice and guidance material.

3. The training policy is applicable to all training provided by ICAO Bureaus, Regional Offices and training organizations issuing a certificate of completion or a certificate of achievement with an ICAO logo.

4. Seminars and workshops aimed at informing States and other stakeholders of ICAO SARPs, PANS, air transport policies and guidance material and at facilitating their implementation are not considered as aviation training, education or testing for the purpose of this policy.

5. All ICAO training and testing activities shall be designed, developed and offered in accordance with set standards and best practices for that discipline.

Basic principles

6. The training policy shall be in compliance with Assembly Resolution A36-13 Appendix H and all other Assembly Resolutions dealing with training, recognizing that aviation training is the responsibility of the States and that ICAO should not participate in the operation of training facilities but should encourage and advise operators of such facilities.

7. Training delivery is considered as a support function and not as a core function of ICAO. It shall only be undertaken when it is determined that:

   a) it is necessary to support States in the implementation of ICAO SARPs, PANS, air transport policies and guidance, the rectification of identified deficiencies, or another ICAO activity; or
   b) it can promote and foster ICAO's strategic objectives and produce adequate revenue to ensure self-sustainability without affecting ICAO's capability to carry out its core functions.

8. Aviation training activities provided by a third party using the ICAO name or logo shall meet the following requirements:

   a) be in direct support of the strategic objectives of ICAO;
   b) be in full compliance with ICAO SARPs, PANS, air transport policies and guidance;
   c) use of the ICAO logo will be in full conformity with the policies concerning the use of the logo; and

d) be subjected to an appropriate ICAO endorsement mechanism.

9. The intellectual property of ICAO shall be protected.

10. No harm to ICAO's reputation shall result from training activities provided by a third party using the ICAO name or logo.

11. Training activities provided by ICAO may be charged in accordance with paragraph 7.7 of The *ICAO Financial Regulations* (Doc 7515). This charge, together with interest earnings or earnings from investments thereon, shall be used to fund training activities or reimburse all, or part, of the costs incurred by ICAO in the generation, promotion and administration of these training and testing services.

12. Training activities provided by ICAO may be funded using either funds provided by Member States or organizations or funds generated by ICAO's own activities.

Implementing policy

13. Aviation training mentioned in the basic principles above includes any training or related testing activities undertaken directly by ICAO or by a third party using the ICAO name or logo.

14. The use of the ICAO name or logo for training or testing activities undertaken by a training institution shall be subject to an ICAO endorsement mechanism.

Endorsement

15. ICAO may endorse any training activity and/or facility which meet established requirements.

16. ICAO also reserves the right to withdraw endorsement of any training activity and/or facility which fails to meet those established requirements.

17. An ICAO endorsement indicates that the delivered training programmes, facilities and instructors meet the criteria of quality and relevance needed to ensure that the skills and knowledge necessary to implement SARPs are provided.

18. The endorsement indicates that training programmes, facilities and instructors are managed in such a way as to effectively support learning for performance improvement.

19. Endorsement is used to extend ICAO's ability to implement key activities derived from strategic objectives involving training and testing. Institutions endorsed for a training activity remain responsible for fully meeting ICAO requirements.

20. Endorsement will be granted only after an assessment conducted by ICAO confirms that established requirements are met.

21. The full costs related to endorsement will be borne by the State or institution.

CNS/ATM/IC SG/6
Appendix 6F to the Report on Agenda Item 6

EUR ANP, VOLUME I, BASIC ANP

PART X - CONTINGENCY PLANNING (CPLN)

(version date 9 November 2011)

Remarks

This part was presented to and endorsed by EANPG/53 (November 2011).

The text contains an overview of policy and requirements that States and air navigation service providers should consider in preparing contingency plans to maintain the provision of services in airspaces for which they are responsible.

Note: Reference has not been made to a corresponding text in the Facilities and Services Implementation Document (FASID).

EUR ANP, VOLUME I, BASIC ANP

PART X - CONTINGENCY PLANNING (CPLN)

(version date 9 November 2011)

INTRODUCTION

1. ICAO Annex 11 states that "Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned."

2. ICAO Annex 17 states that "Each Contracting State shall ensure that contingency plans are developed and resources made available to safeguard civil aviation against acts of unlawful interference. The contingency plans shall be tested on a regular basis."

Note. State Aviation Security (AVSEC) planning is outside of the scope of the Air Navigation Plan. Detailed security contingency arrangements should be undertaken through a State's AVSEC arrangements and appropriately coordinated where such plans have an impact on the provision of air navigation service or availabilty of airspace.

3. This Part provides an overview of the main ICAO requirements and guidance that States and air navigation service providers (ANSP) should consider in preparing contingency plans to maintain the provision of services in airspaces for which they are responsible. The Chapter does not provide guidance on Business Continuity planning, which is anticipated to be aligned, at least in part, with State and ANSP contingency planning considerations.

4. The Standards, Recommended Practices and Procedures to be applied are contained in:

a) Annex 11 — *Air Traffic Services*;
b) Annex 17 – *Security;*
c) *Air Traffic Management (PANS-ATM)* – ICAO Doc 4444;
d) *Regional Supplementary Procedures* – ICAO Doc 7030;
e) *Air Traffic Services Planning Manual* – ICAO Doc 9426;
f) *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* – ICAO Doc 9691;
g) *International Airways Volcano Watch* - ICAO Doc 9766;
h) *Volcanic Ash Contingency Plan* - ICAO EUR Doc 019;
i) *ICAO Assembly Resolution A37-13, Appendix M - Delimitation of Air Traffic Services (ATS) Airspaces* – ICAO Doc 9958.

5. Contingency plans may constitute a temporary deviation from the approved regional air navigation plans; such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

6. The effects of disruption of services in particular portions of airspace are likely to affect significantly the services in adjacent airspace. In this respect States should co-ordinate with neighbouring States in the

development and implementation of contingency plans, which in some cases may be developed on a sub-regional basis.

7. Examples of events of disruption, or potential disruption, of air traffic services and related supporting services or unavailability of airspace for civil air operations, that should be covered in general contingency plans or initial development of special contingency plans are:

a) Natural disasters such as earthquakes resulting in loss of support facilities;
b) Volcanic ash events requiring closure or restrictions to airspace;
c) Industrial action necessitating accommodation of international traffic or humanitarian access to airports;
d) Armed conflict or acts of unlawful interference with civil aviation resulting in closure of national airspace; and
e) Catastrophic loss of air traffic services or supporting services.

EUR REGION RESPONSIBILITIES

8. ICAO will initiate and coordinate appropriate contingency action in the event of disruption of air traffic services and related supporting services affecting international civil aviation operations provided by a State in the event that the authorities cannot adequately discharge their responsibility for the provision of such services to ensure the safety of international civil aviation operations. In such circumstances, ICAO will work in coordination with States responsible for airspace adjacent to that affected by the disruption and in close consultation with international organizations concerned.

9. Regional contingency plans (e.g. Volcanic Ash Contingency Plan) will be developed, approved and maintained by EANPG with the support of ICAO and other institutions.

10. ICAO will initiate and coordinate appropriate guidance to contingency action at the request of States.

11. ICAO is available to assist States in the development and co-ordination of State or sub-regional contingency plans affecting adjacent EUR and other region airspaces.

12. ICAO will be available for monitoring developments that might lead to events requiring contingency arrangements to be developed and applied and will, as necessary, assist in the development and application of such arrangements.

13. During the emergence of a potential crisis, a coordinating team will be established in the Regional Office(s) concerned and at ICAO Headquarters in Montreal, and arrangements will be made for competent staff to be available or reachable 24 hours a day.

GENERAL CONSIDERATIONS

14. Safety. Contingency Plans should be developed using the same safety management system approach utilised for normal operations.

15. ATFM. Within the EUR Region ATFM is managed through CFMU West (Eurocontrol) and CFMU East (Moscow). It is considered these organisations will play an important role in any contingency arrangements and it is recommended they are involved as appropriate in the development of national contingency plans.

16. Human Resources. Contingency planning may require the relocation of personnel or disruption to established working patterns. Human Resource personnel should be involved in Contingency Planning throughout the process.

17. Training, testing and exercising. By their very nature it is not expected that contingency plans will be activated on a routine basis. In this respect, the strict adherence to the safety management system process during the development of a contingency plan should ensure that ATS contingency procedures are inherently safe to activate. State Authorities and ANSPs are recommended to ensure that relevant staffs are familiar with contingency plan procedures. Whilst large scale exercises of such plans may be impractical, States/ANSPs should consider running desk-top exercises to ensure that the management of a contingency activation can be effectively conducted. Testing of equipment that is planned to be used should be undertaken on a planned basis to ensure that it meets the envisaged operational requirement.

STATE RESPONSIBILITIES

18. States should establish a contingency plan covering all possible situations that would cause disruption to air traffic flow in the airspace of its responsibility. It is the State's responsibility to coordinate with other States who are expected to provide the support services in the event of a contingency situation.

19. The Contingency Plan should be prepared in advance and submitted to ICAO Headquarters as necessary through the EUR/NAT Region Office for review and approval by the President of the ICAO Council on behalf of the Council. In this respect contingency plans that affect regional arrangements detailed in the EUR ANP or adjacent States should be submitted for approval. Contingency plans developed to cater for a local outage such as a failure of facilities causing localised disruption not affecting the Regional ANP need not be submitted for ICAO Approval; States may, however, provide details of such plans to the EUR/NAT Region Office.

20. The contingency plan should be updated at regular intervals as required.

21. It is recognized that in some cases the short time required for approval of implementation of a contingency plan may be insufficient, e.g. in case of natural disasters. Implementation of a contingency plan (without changes) prior to approval of that implementation may be necessary. However, in such cases ICAO should be informed immediately.

22. States should register with ICAO any aeronautical agreements between a Contracting State and any other State.

CNS/ATM/IC SG/6
Appendix 6G to the Report on Agenda Item 6

EUR ANP, VOLUME I, BASIC ANP

PART XI - ENVIRONMENT (ENV)

(Updated version date: 28 December 2011)

Remarks

This part was endorsed by EANPG/53. It incorporates EANPG/53 Flimsy 3, which provided up to date information on Environmental tools and models. EANPG/53 WP9 detailing the introduction of IFSET and ICAOs request for states to measure and report operational improvement planning and implementation has been incorporated. Minor editorial corrections were made in December 2011.

An initial draft was presented to EANPG/52 (November 2010). Since then the material has been further developed and provides an overview of ongoing work to mitigate the impact of aviation on the environment. The Chapter discusses a wide range of initiatives, including some outside of the traditional PIRG area of responsibility e.g. research and development of alternative fuel. These have been shown to demonstrate the efforts across the entire aviation spectrum in respect of the sustainable development of aviation.

The Part highlights areas where PIRGS can directly influence the adoption of measures to improve the efficiency of air navigation including adoption of *performance based navigation* and improved *civil/military co-ordination* thus facilitating the flexible use of airspace.

Lastly, the Part reflects the performance objective and associated metric developed by the EANPG COG Performance Task Force.

Further action to be taken:

1. Table of environmental tools and modeling techniques in the Appendix may be considered to be part of the FASID as work progresses.

EUR ANP, VOLUME I, BASIC ANP

PART XI - ENVIRONMENT (ENV)

(Updated version date: 28 December 2011)

Introduction

1. The need to minimise the environmental impact of aviation in Europe is well recognized. Environmental challenges are present in every aspect of civil aviation and they need to be tackled in order to mitigate adverse impacts that can limit aviation growth.

2. Each State should have an appropriate basis for the development of an aviation *environmental policy and strategy* and the environmental issues which have to be considered in any planning activities. The environment related material provided in this chapter, and its associated requirements, should be considered by aviation stakeholders (including States, regulators, aircraft and airport operators, air traffic service providers, aircraft manufacturers, approved maintenance organisations, international organizations and environment organizations) when planning and delivering aviation services.. It reflects the ICAO environment goals and targets elaborated in the ICAO Action Programme on climate protection and details the European Region Air Navigation Plan related environment initiatives that will contribute to achieving the ICAO Strategic *Environmental Protection and Sustainable Development* Objective. Finally, it highlights the significant environment requirements States should adopt in their delivery of navigation services.

ICAO Strategic Objective *Environmental Protection and Sustainable Development*

3. ICAO's third Strategic Objective is related to ***Environmental Protection and Sustainable Development of Air Transport.*** Thus, ICAO *fosters harmonized and economically viable development of international civil aviation that does not unduly harm the environment.*

4. To contribute to this vision ICAO has committed to minimize the adverse environmental effects of global civil aviation activity, notably aircraft noise and aircraft engine emissions, through the following means:

a. Providing measures to:

i) limit or reduce the number of people affected by significant aircraft noise;
ii) limit or reduce the impact of aircraft engine emissions on local air quality; and
iii) limit or reduce the impact of aviation greenhouse gas emissions on the global climate.

b. Working with other international bodies, in particular the UN Framework Convention on Climate Change (UNFCCC) to address aviation's contribution to global climate change.

ICAO: Environmental Mandate and Activities

5. In matters of environmental protection, ICAO establishes Standards and Recommended Practices (SARPS), and policies and guidance for international civil aviation.

6. The **CAEP (Committee on Aviation Environmental Protection**), a technical committee of ICAO, is charged with developing and establishing rules and recommending measures to reduce the environmental impact of aviation. CAEP supports ICAO in the development of environmental standards for the certification of aircraft as well as guidance material on airport planning and management, operational procedures and market-based measures to reduce aviation's impact on the environment. The existing state of scientific knowledge and realistic approaches on noise, air quality and climate impacts of aviation may be used to facilitate informed policy decisions. Actions to address environmental impact may also take account of the interdependency between aircraft noise and emissions. CAEP also promotes the use and further development

of harmonised tools and best practices. The practical information provided by CAEP can be used by States to estimate the environmental impact of aviation and identify measures to mitigate it. The ICAO Secretariat which supervises CAEP work also coordinates environmental activities with other UN bodies such as the United Nations Environment Programme (UNEP), UNFCCC and the World Meteorological Organisation (WMO).

ICAO related Environmental Fields and Activities:

a) **Certification:** SARPs development related to aircraft noise certification and aircraft engine emissions certification.
b) **Noise:** Noise abatement operational procedures; Land-use planning and management; Operation restrictions to minimize aircraft noise; Aircraft noise scenarios; Aircraft noise modelling: Aircraft noise charges policies.
c) **Fuel:** Fuel efficiency; Alternative fuels.
d) **Air quality:** Local air quality; Local air quality emissions charges.
e) **Emissions /Climate change:** Aircraft emissions scenarios; Aircraft emissions modelling; Market-based measures to reduce emissions; Emissions trading; Voluntary agreements; Aviation's impact on the upper atmosphere; Climate change; Ozone depletion.

ICAO Global Strategy for Aviation Environment/Targets

7. The global strategy of the aviation industry is focused on reducing the contribution of aviation to climate change; this strategy is translated as fuel management and emissions cuts. Industry's ambitious goals can only be achieved through collective efforts. Accordingly, the global aviation strategy to reduce carbon emissions was confirmed by the 37th ICAO Assembly. This historic agreement formalized strategy targets to continuously improve CO_2 efficiency by an average of 2 % per annum from 2009 until 2020, to achieve carbon neutral growth from 2020 and reduce its carbon emissions by 50% by 2050 compared to 2005 levels.

The Environment Roadmap

8. The ICAO Environmental Roadmap provides a framework to better understand aviation environmental priorities, including performance indicators and long-term targets. Steps to achieve the emissions reduction target(s) are related to investments in new technology, the building and use of an efficient infrastructure; operating aircraft effectively and economic measures (i.e. Emissions Trading Scheme; voluntary measures).

9. The ICAO Council was asked to regularly assess the present and future impact of aircraft noise and aircraft engine emissions and to continue the development of tools for this purpose. Knowledge of the interdependencies and trade-offs related to measures to mitigate the impact of aviation on the environment are continuously maintained and updated. In 2009, an ICAO Global Framework for Aviation Alternative Fuels (GFAAF) was established.

States and International Organisations Involvement

10. States and international organizations are invited to provide the necessary scientific information and data to enable ICAO to validate its work related to environment.

11. The Global Framework on International Aviation and Climate Change and ICAO Assembly Resolution A37-19: *Consolidated statement of continuing ICAO policies and practices related to environmental protection - Climate Change* specify that addressing greenhouse gas (GHG) emissions from international aviation requires the active engagement and cooperation of States and industry. States are requested to support ICAO on measuring progress through the reporting of annual data on traffic and fuel consumption.

12. States are advised to refrain from environmental measures that would adversely affect the orderly and sustainable development of international civil aviation.

Action Plans on CO2 Emissions Reduction

13. According to the ICAO Assembly Resolution A37-19, States are encouraged to submit to ICAO their Action Plans outlining their respective policies and actions, and annual reporting on international aviation CO2 emissions.. The Action Plans should include information on measures considered by States and information on any specific assistance needs. Where emissions reductions are achieved through Market Based Measures (MBMs), they should be identified in States' emissions reporting. ICAO Regional offices can provide additional assistance on this matter.

14. In order to achieve the goals related to climate change, States should put an emphasis on increasing fuel efficiency through all aspects of the ICAO Global Air Navigation Plan (Doc 9574???), and all stakeholders are encouraged to develop an air traffic management system that maximises environmental benefits. States are also encouraged to promote and share best practices applied at airports to reduce the adverse effects of GHG emissions produced by civil aviation operations.

ICAO EUR Region Environmental Objectives/Goals

15. The European Air Navigation Planning Group (EANPG) expects States to ensure environmental factors are taken into consideration when developing CNS/ATM systems implementation plans.

16. States in the EUR region are encouraged to *adopt best practices* from other States and international organisations (UNFCCC; WMO; IATA, ACI).

17. The EANPG will promote implementation measures for CO2 reduction, with a focus on fuel efficiency and new operational practices. Appropriate Performance Indicators will be developed.

18. States are urged to adopt a balanced approach to noise management, taking full account of ICAO guidance (Doc 9829 – *Guidance on the Balanced Approach to Aircraft Noise Management*), relevant legal obligations, existing agreements, current laws and established policies, when addressing noise problems at their international airports.

Current Practices

19. Current practices include the development and implementation of fuel efficient routings and procedures to reduce aviation emissions. Investments in research and development should be accelerated to bring to market more efficient technology by 2020. Aviation stakeholders should accelerate their efforts to achieve environmental benefits through the implementation of performance based navigation that would improve the efficiency of air navigation.

Performance Based Navigation (PBN) Implementation

20. PBN environmental benefits are significant, and can be quantified case-by case. Airlines that take full advantage of PBN routinely accumulate benefits from reduced fuel burn and greenhouse gas emissions, improved schedule reliability and increased safety. It should be noted that 3.15 kg of CO2 emissions are eliminated for every 1 kg of fuel saved through shorter and vertically optimized flight paths. IATA estimates that globally, shorter PBN routes could cut CO2 emissions by 13 million tonnes per year.

21. In the approach phase, obstacle clearance and environmental constraints can be better accommodated by creating optimized tracks based on PBN. PBN also offers environmental benefits by saving fuel and reducing CO2 emissions. Flying down the middle of a defined flight path means less throttle activity and better avoidance of noise-sensitive areas.

22. (this is reflected under PBN in the CNS Part)

23. States are requested to continue to develop civil/military co-ordination to enhance the Flexible Use of Airspace, which will contribute to more direct routing with a commensurate saving in fuel and associated emissions.

Global and Regional Initiatives

NextGen

24. A strategic approach to proactively manage environmental issues is a central element of the United States' Federal Aviation Administration (FAA) NextGen programme. The FAA expects environmental benefits from NextGen systems and procedures to help offset the environmental impact from the expected growth of flight operations. The programme is focusing on minimising delays and carbon emissions, while maximising safety and savings. The target is that by 2018 delays will be reduced by 35% and fuel use by 5.7 billion litters cumulative. CO2 emissions are expected to be reduced by 14.1 million tons cumulative through the implementation of NextGen's five pillar approach which includes the use of alternative fuels, accelerated ATM improvements and operational efficiencies.

SESAR

25. Single European Sky ATM Research (SESAR) is the operational and technological dimension of the Single European Sky initiative. SESAR seeks to reduce the environmental impact per flight by 10% without compromising safety and with clear capacity and cost efficiency targets in mind.

26. The efficiency gains made possible by the implementation of SESAR will enable *the reduction of the environmental impact of every movement in European airspace and at European airports*. The enhancements in air traffic management through the optimisation of flight trajectories have the potential to trim down the cumulative in-flight CO2 emissions up to 2020 by around 50 million tons.

27. SESAR is focused on showing tangible results every year. In many airports in Europe, initiatives such as 'green' approaches are already being introduced – especially in densely populated areas where the reduction of noise and the improvement of local air quality are highly appreciated.

28. SESAR will introduce the so-called '4D trajectory' when developing new and more efficient air- and ground systems as well as procedures. Optimised air traffic management will lead to emissions savings in all phases of flight.

AIRE

29. The Atlantic Interoperability Initiative to Reduce Emissions (AIRE) is an example of how the SESAR and NextGen programmes work collaboratively on an international basis to substantially accelerate the pace of change in reducing the environmental impact of air transport. A total of 1152 trials lead to savings of an amount of 390 tons of CO2 per flight. The two first complete (gate-to-gate) green transatlantic flights from Charles de Gaulle to Miami included enhanced procedures to improve the aircraft's energy efficiency.

ALTERNATIVE AVIATION FUEL

30. One means to accelerate the reduction of aviation CO2 emissions is the development of sustainable aviation alternative fuels. This sector is supported by research and development, followed by investments in new feedstock cultivations and production facilities, as well as incentives to stimulate commercialisation and use of sustainable alternative fuels for aviation. Therefore, the use of alternative fuels is also one aspect to be considered in planning activities.

Environment Guidance and Existing Tools

31. The ICAO Council was tasked to establish a set of aviation environmental tools which States could use to implement their policies and evaluate the performance of aviation operations and the effectiveness of standards, policies and measures to mitigate aviation's impacts on the environment. This work progresses and a number of tools and models have been introduced. Additionally, some States and international organisations have developed their own environmental tools and models. Consequently, several options are available for States and their aviation stakeholders to assess or predict the environmental impact due to aircraft operations. Some examples are illustrated below:

- Noise: AEDT/MAGENTA; AEDT/NIRS; STAPES; SONDEO.
- Air Quality: ADMS; AEDT/EDMS;ALAQS; LASPORT; PEGAS.
- Climate Change: AEDT/SAGE; AEM III; AERO2K; FAST; ICAO carbon calculator; IFSET.
- Cost benefit analysis (economics): APMT Economics; NOx-CSM.
- Performance: BADA.
- Forecasting air traffic growth: FOM; FESG traffic forecast.

32. A list of available and developing tools and models with a short explanation of their purpose/capability is shown at Appendix 1 to this Chapter.

33. Market-Based Measures are among the elements of a comprehensive mitigation strategy to address greenhouse gas emissions from international aviation that are being considered by ICAO. Market-Based Measures include: *emissions trading*, emission related levies - charges and taxes, and emissions offsetting; all of which aim to contribute to the achievement of specific environmental goals, at a lower cost, and in a more flexible manner, than traditional command and control regulatory measures. States are invited to use the *Guidance on the Use of Emissions Trading for Aviation* (Doc 9885). This material supports the incorporation of international aviation emissions into States emissions trading schemes, consistent with the United Nations Framework Convention on Climate Change process. It focuses on aviation-specific issues, identifies options and offers potential solutions. A global CO2 Standard for aircraft (aiming for 2013) is under development at present.

34. On the noise side, the *Balanced Approach to Aircraft Noise Management* (Doc 9829) aims to provide States with advice and practical information on managing the noise impact and achieve maximum environmental benefit in the most cost-effective manner. Its implementation relies on four principle elements: reduction of noise at source, land-use planning and management, noise abatement operational procedures and operating restrictions on aircraft. They are linked to tools and procedures useful to assess the noise situation: noise contours, noise index, baseline, management plans, etc.

35. Assembly Resolutions A37-18 – "*Consolidated statement of continuing ICAO policies and practices related to environmental protection — General provisions, noise and local air quality*" and A37-19 – "*Consolidated statement of continuing ICAO policies and practices related to environmental protection - Climate change"* constitute the consolidated statement of continuing ICAO policies and practices related to environmental protection and illustrate, *inter-alia*, new guidance on operational measures to reduce international aviation emissions.

36. Other relevant ICAO Documents:

- *Report of the Seventh Meeting of the Committee on Aviation Environmental Protection (CAEP) (Doc 9886);*
- *Report of the Independent Experts on the LTTG NOx Review and Medium and Long Term Technology Goals for NOx (Doc 9887);*
- *Noise Abatement Procedures: Review of Research, Development and Implementation Projects - Discussion of Survey Results* (Doc 9888);
- *Airport Air Quality Guidance Manual* (Doc 9889)*;*
- *Recommended Method for Computing Noise Contours Around Airports* (Doc 9911);
- *Report of the ICAO Conference on Aviation and Alternative Fuels*, Rio de Janeiro, Brazil, 16-18 November 2009 (Doc 9933);

- *Report of the Independent Experts on the Medium and Long Term Goals for Aviation Fuel Burn Reduction from Technology* (Doc 9963); and
- *Global Air Navigation Plan* (Doc 9750), Attachment H – "Environmental Benefits Associated with CNS/ATM Systems Implementation".

Measuring Performance through Environmental Performance Indicators

37. Aviation stakeholders will measure their performance through environmental key performance indicators (EPI). EPIs are linked to safety and capacity key performance indicators (KPI) and most of them are under development. Three types of EPI are recognised at present:

- Management Performance Indicators (MPI), which provide management information on how efforts to improve environmental performance are working;
- Operational Performance Indicators (OPI), which provide information about operational performance; and
- Environmental Condition Indicators (ECI), which provide information on environmental impact, and can be used to help an organisation understand its actual or potential environmental impacts (ISO 2000).

38. For airlines and airports, there is a large number of published EPIs, although there is *little consensus* on a common suite for benchmarking and subsequent use across Europe.

39. In their present form the EPIs produced in airline and airport environmental reports do not provide a means of comparing relative environmental (or social) performance. Co-ordinated action at an industry level is required to develop consistent interpretations of agreed KPIs and EPIs. Information on KPIs can be found in the *Global Air Traffic Management Operational Concept* (Doc9854), in EUROCONTROL's work on SES II Performance Scheme, and in the Performance Framework of the SES ATM Master Plan.

40. The 37th Assembly, Resolution A37-19 called upon States to develop and implement procedures to reduce aviation emissions. The implementation of operational improvements will generally have benefits in areas such as improved airport and airspace capacity, shorter cruise, climb and descend times through the use of more optimized routes, and an increase of unimpeded taxi times. The importance of such information on the savings, which reflects the efforts made by the whole aviation industry in reducing fuel consumption, flight time, mileage and its impact on the environment (CO_2 emissions), have been already identified by States at various regional meetings.

41. The EANPG has endorsed ICAO's request that all States/ANSPs in the EUR Region start reporting the benefits to ICAO as they plan or implement any type of operational improvement. States will be notified by ICAO of the mechanism of reporting fuel savings benefits.

42. Whilst ICAO has developed the IFSET Tool to provide a means of capturing fuel savings stemming from operational improvements, States may use other advanced model or measurement capabilities to fulfil the reporting requirement.

43.

Efficiency and Environment

44. The Efficiency and Environment KPAs have been considered together because in this context they are strictly interlinked.

45. The objective for Efficiency is: ensure that users use the most efficient routes – focussing on the horizontal flight-efficiency.

46. The indicator identified to monitor the achievement of this objective is:

1) Average horizontal en route flight efficiency, defined as the difference between the length of the en route part of the actual trajectory (where available) or last flight planned route and the great circle.

47. In this context specificities shall be considered for flights longer than 1000 nm where the optimum could differ from the great circle (wind optimal routes, etc).

48. The objective for Environment is: contribute to the protection of environment – focussing on fuel savings/CO^2 emission reductions.

49. The indicator identified for the achievement of this objective is:

1) CO^2 emissions deriving from inefficiencies in flight efficiency (conversion of additional distance into CO^2 emissions based on standard values formula).

50. Discussion within the Task Force highlighted that future developments of the framework will have to consider the impact of aviation noise on environment.

Appendix 1 to Part XI - ENVIRONMENT (ENV)

TABLE OF ENVIRONMENTAL TOOLS AND MODELLING TECHNIQUES

ICAO Tools/Models

	Tool/Model	**Source**	**Modelling Area**	**Implementation status**	**Comments _recommendation**
1	**Balanced Approach to Aircraft Noise Management**	ICAO	Noise	Ready and in use globally	This guidance (Doc 9829) relates to a concept involving several inter-related tools comprising 4 pillars: technological development; operational practices; operating restrictions; & land use planning. Helps assess the management of noise impact using noise contours, noise index, and management plans. Implemented gradually at airport(s) level; States may already have noise regulations and policies in place.
2	**FESG Traffic Forecast**	ICAO	Forecasting	Used globally	This provides traffic and fleet forecasts developed for passenger and cargo services over the period 2006 to 2036. It also outlines the methodology, the assumptions and the inputs used to develop the forecasts. Develops the aircraft retirement curves and conducts the sensitivity analyses around the forecasts.
3	**ICAO carbon emissions calculator**	ICAO	Climate Change	Ready & in use globally	ICAO has developed a methodology to calculate the carbon dioxide emissions from air travel for use in offset programmes. The ICAO Carbon Emissions Calculator allows passengers to estimate the emissions attributed to their air travel. It is simple to use and requires only a limited amount of information from the user. The methodology applies the best publicly available industry data to account for various factors such as aircraft types, route specific data, passenger load factors and cargo carried.
4	**IFSET**	ICAO	Climate Change	Ready to be implemented	ICAO Fuel Savings Estimation Tool (IFSET) has been developed to measure the benefits from operational improvements. It is applicable globally with the ability to capture the differences in flight trajectory performance in terms of fuel consumption before and after implementation of operational improvements at local, regional or global level.
5	**NOx –CSM**	ICAO	Economics	Used by experts	This is a Cost Spreadsheet Model (CSM) and is the principal tool used for calculating costs for selected scenarios based on NOx stringency analysis.

State/International Organisation Tools/Model

	Tool	Source	Modelling Area	Implementation status	Comments _recommendation
6	**ADMS - Airport**	UK DfT	Air Quality	Ready, in use	ADMS-Airport is a comprehensive tool for managing air quality at airports. It is an extension of the ADMS-Urban model, designed to model the concentration of pollutants at airports in rural or complex urban environments. ADMS-Airport is also one of the participating models in the ICAO CAEP (Committee on Aviation Environmental Protection) model exercises.
7	**AEDT - NIRS**	US FAA	Noise	Ready, in use	Aviation Environment Design Tool -Noise Integrated Routing System (NIRS) – regional noise analysis; based on US data. Use of this model is by request to the US FAA.
8	**AEDT - EDMS**	US FAA	Air Quality	Partially used; Under development for public release	AEDT is a software system that dynamically models aircraft performance in space and time to produce fuel burn, emissions and noise. *Full flight gate-to-gate analyses are possible for study sizes ranging from a single flight at an airport to scenarios at the regional, national, and global levels.* AEDT is currently used by the U.S. government to consider the interdependencies between aircraft-related fuel burn, noise and emissions. AEDT is being developed for public release, and will become the next generation aviation environmental consequence tool, replacing the current public-use aviation air quality and noise analysis tools such as the Integrated Noise Model (INM – single airport noise analysis), the Emissions and Dispersion Modelling System (EDMS) – single airport emissions analysis), and the Noise Integrated Routing System (NIRS – regional noise analysis).
9	**AEDT - MAGENTA**	US FAA	Noise	Ready, in use at global level	MAGENTA is a computer based Aviation Environmental Design Tool used to estimate the number of people exposed to significant aircraft noise worldwide. The original MAGENTA model was developed with ICAO - CAEP to assess the worldwide aviation noise climate. The computational core of MAGENTA is FAA's Integrated Noise Model (INM) and is the most widely used computer program to calculate aircraft noise around airports.

	Tool	Source	Modelling Area	Implementation status	Comments _recommendation
10	**AEDT - SAGE**	US FAA	Climate Change	Partially ready and in use (fuel burn)	System for Assessing Aviation's Global Emissions (SAGE) is a high fidelity model incorporated into the Aviation Environmental Design Tool (AEDT). It is used to predict aircraft fuel burn and emissions for all commercial (civil) flights globally. The model is used to analyze scenarios from a single flight to airport, country, regional, and global levels. In addition, SAGE dynamically models aircraft performance, fuel burn and emissions. Its purpose is to provide the FAA, and indirectly the international aviation community, with a tool to evaluate the effects of various policies, technology, and operational scenarios on aircraft fuel use and emissions. SAGE is also used to develop *global inventories of fuel burn and emissions.*
11	**AEM** III	EUROCONTROL	Climate Change	Used partially	Advanced Emission Model (AEM) is an aircraft stand-alone system developed and maintained by EUROCONTROL. AEM uses several underlying system databases (aircraft, aircraft engines, fuel burn rates and emission indices) provided by external data agencies in order to assure the quality of the information provided. This system information is combined with dynamic input data, represented by the air traffic flight profiles. References for fuel burn calculation: - Above 3000 ft: based on BADA 3.7 (Base of Aircraft Data) - Below 3000ft: based on ICAO (International Civil Aviation Organisation); Access is under licence from EUROCONTROL.
12	**AERO 2K**	UK DfT	Climate change	Ready & in use	This is a global aircraft emissions data project for the evaluation of climate change impacts and airport local air quality; AERO2K establishes a new inventory of aircraft emissions of pollutants (CO2, NOx, HCs, CO) important for assessing aviation impacts on climate change. Contributes to the global aviation emissions inventory study.
13	**ALAQS**	EUROCONTROL	Air Quality	Used by some European airports	The ALAQS project is designed to promote best practice methods for airport LAQ analysis concerning issues such as emissions inventory, dispersion, and the data required for the calculations, including emission factors, operational data, and aircraft landing and take-off profiles. The ALAQS-AV toolset is a GIS based research tool. It is a test bed that can be used to investigate the sensitivity of different inventory and dispersion methodologies. The choice of a GIS as a test bench simplifies the process of defining the various airport elements (runways, taxiways, buildings, etc.) and allows the spatial distribution of emissions to be visualized. The ALAQS emissions factors and operations profiles will provide this for use by airport authorities and planners.
14	**ANCON2**	UK DfT	Noise	Ready and in use	ANCON-2 calculates noise exposure. The tool determines the sound exposure level from an aircraft flight segment derived from Noise-Power-Distance tables as a

	Tool	Source	Modelling Area	Implementation status	Comments _recommendation
					function of engine thrust rather than from wholly empirical Reference Noise Levels (RNLs). Use via application to the UK DfT.
15	**ANP**	EUROCONTROL	Noise	Ready and in use	The Aircraft Noise and Performance Database (ANP) is an international data resource for aircraft noise modellers. This database is an online data resource accompanying the ECAC Doc 29 3rd Edition and ICAO Doc 9911 guidance documents on airport noise contour modelling.
16	**APMT**	US FAA	Interdependencies & Economics	Economics & Operations modules are available for use	The Aviation Environmental Portfolio Management Tool (APMT) computes the environmental impacts of aircraft operations, their interrelationships and economic consequences using the following elements: APMT-Impacts, APMT-Cost Benefit, and APMT-Economics. Cost benefit analyses with the APMT-Cost Benefit combines output from multiple Tools Suite elements to facilitate weighing total expected costs against total expected benefits for aviation's environmental effects under different policy, technology, operational and market scenarios. Access to this tool is by request to the FAA.
17	**BADA**	EUROCONTROL	Aircraft Performance Model	Ready and in use	Base of Aircraft Data (BADA) is an Aircraft Performance Model (APM) with corresponding database. The main application of BADA is trajectory simulation and prediction within the domain of ATM (Air Traffic Management).
18	**FAST**	UK DfT	Climate Change	Ready and in use	Future Aviation Scenario Tool (FAST) is a model for climate change/GHG emission calculation.
19	**FOM**	US FAA	Forecasting	Ready and in use	Forecasting and Operations Module (FOM) is a fleet and operation model. This provides access to historical traffic counts, forecasts of aviation activity, and delay statistics: mainly fleet & operations activity. Access on request to the FAA.
20	**LASPORT**	German Ministry of Transport (BMVBS) Swiss Federal Office for Civil Aviation (FOCA)	Air Quality	Ready and in use	LASPORT is a programme system for the calculation of airport-induced pollutant emissions and concentrations in the atmosphere. Calculations can be carried out in conformance with the ICAO Airport Air Quality Guidance Manual (ICAO Document 9889). Aircraft movements are accounted for either individually based on a movement journal or in a more generalized form based on aircraft groups. Other source groups explicitly accounted for are: auxiliary power units (APU), ground power units (GPU), ground support equipment (GSE), engine start emissions, motor traffic (airside and landside).

	Tool	Source	Modelling Area	Implementation status	Comments _recommendation
21	**PEGAS**	Russian Federation Civil Aviation Environmental Safety Centre	Air Quality	Ready and in use	PEGAS calculates the pollutants concentration in the airport area, so it is a LAQ Tool. It provides comparative analysis of measurement and computational results. Used in some eastern European States: e.g. Russia & Ukraine.
22	**SONDEO**	European Union Model developed by Spain (ANOTEC)	Noise	Ready and in use	Study on noise exposure around European airports. Developed around a noise contour engine database. It calculates Lden and Lnight noise contours based on the ANP noise and performance database managed by EUROCONTROL.
23	**STAPES**	EUROCONTROL	Noise	Ready and in use	The System for Airport Noise Exposure Studies (STAPES) is a multi-airport noise model capable of providing valuable input into both European and international policy-making analyses. The STAPES project has identified the European Environment Agency's population database as an appropriate single source of data for use in relation to EU airports dealing with issues such as noise exposure. STAPES has successfully contributed to the assessments of CAEP/8 policies on the European region.

Data Sources:

- Airports Database; US FAA, EUROCONTROL;
  - Common Operations Database; US FAA, EUROCONTROL
  - 2006 Campbell-Hill Fleet Database
- ICAO/CAEP: WG1 noise & WG3 emissions
- Population Database
- ICAO aircraft engine emissions databank (EDB)

List of Acronyms

Acronym	
ACI	Airport Council International
ADMS	Atmospheric Dispersion Modelling System
AEDT	Aviation Environment Design Tool
AEM III	Advanced Emission Model
AERO2K	Model Name
AIRE	Atlantic Interoperability Initiative to Reduce Emissions
ALAQS	Airport Local Air Quality Studies
ANCON	Aircraft Noise Control Model
ANOTEC	Spanish Company
ANP	Aircraft Noise and Performance
APM	Aircraft Performance Model
APMT	Aviation Environnemental Portfolio Management Tool
APU	Auxiliary Power Unit
BADA	Base of Aircraft Data
BMVBS	German Ministry of Transport
CAEP	ICAO Committee on Aviation Environmental Protection
CO	Carbon Oxide
CO2	Carbon Dioxide
DfT	Department for Transport
ECAC	European Civil Aviation Conference
ECI	Environmental Condition Indicator
EDMS	Emissions and Dispersion Modelling System
EPI	Environmental Key Performance Indicator
EUROCONTROL	The European Organisation for the Safety of Air Navigation
FAST	Future Aviation Scenario Tool
FESG	ICAO Forecasting and Economic Support Group
FOCA	Federal Office of Civil Aviation
FOM	Forecasting and Operations Module
GFAAF	Global Framework for Aviation Alternative Fuels
GHG	Green House Gas (emissions)
GIS	Geographic Information System
GPU	Ground Power Unit
GSE	Ground Support Equipment
IATA	International Air Transport Association
IFSET	ICAO Fuel Savings Estimation Tool
KPI	Key Performance Indicator
LAQ	Local Air Quality
LASPORT	Tool for assessment of LAQ at Airports
Lden	Index; is A-weighted average sound level used to assess disturbance over day-

Acronym	
	evening-night period (24 hr)
Lnight	Index; is A-weighted average sound level used to assess sleep disturbance over an 8 hour night time period
MAGENTA	Model for Assessing Global Exposure to the Noise of Transport Aircraft
MBM	Market Based Measures
MPI	Management Performance Indicator
NIRS	Noise Integrated Routing System
NOx	Nitrogen Oxides
NOx-CSM	Nitrogen Oxides Cost Spreadsheet Model
OPI	Operational Performance Indicator
PBN	Performance Based Navigation
PEGAS	Russian Federation Air Quality Model
RNL	Reference Noise Levels
SAGE	System for Assessing Aviation's Global Emissions
SESAR	Single European Sky ATM Research
SONDEO	Study on Noise Exposure Around European Airports
STAPES	System for Airport Noise Exposure Studies
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WG	Working Group
WMO	World Meteorological Organisation

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Appendix 6H to the Report on Agenda Item 6

MID ANP, VOLUME I, BASIC ANP

PART x - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

1. INTRODUCTION

Regional AIS/AIM Planning

1.1 This part of the Middle East Region Basic Air Navigation Plan contains basic planning principles, operational requirements, planning criteria and implementation guidelines related to Aeronautical Information Services and Charts (AIS/MAP) considered being the minimum necessary for effective planning of AIS and MAP facilities and services in the MID Region. It contains also the developing transition path to achieve MID Region Aeronautical Information Management (AIM) based on the *ATM Operational Concept (Doc 9854)* and the *Global Air Navigation Plan (Doc 9750)*.

1.2 The dynamic material constituted by the AIS/AIM facilities and services required for international air navigation is contained in the MID ANP Volume 2 - Facilities and Services Implementation Document (FASID). The FASID includes appropriate additional guidance, particularly with regard to implementation, to complement the material contained in the Basic ANP.

1.3 During the transition to and pending full implementation of AIM, it is expected that the existing requirements will be gradually replaced/complemented by new AIM related requirements. Subsequently, it is expected that the ANP will be subject to regular review and amendment, to reflect progression in the transition towards full implementation of AIM.

Standards, Recommended Practices and Procedures

1.4 The Standards, Recommended Practices and Procedures and related guidance material applicable to the provision of AIS and ultimately AIM are contained in the following ICAO documentation:

a) Annex 4 – Aeronautical Charts;
b) Annex 15 – Aeronautical Information Services;
c) Doc 7030 – Regional Supplementary Procedures, MID Region;
d) Doc 7383 – Aeronautical Information Services Provided by States;
e) Doc 7910 – Location Indicators;
f) Doc 8126 – Aeronautical Information Services Manual;
g) Doc 8168 – Aircraft Operations Volume 2 – Construction of Visual and Instrument Flight Procedures;
h) Doc 8400 – ICAO Abbreviations and Codes (PANS-ABC);
i) Doc 8697 – Aeronautical Charts Manual;
j) Doc 9377 – Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services;
k) Doc 9674 – World Geodetic System (1984) Manual;
l) Doc 9855 – Guidelines on the Use of the Public Internet for Aeronautical Applications; and
m) Doc 9881– Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information.
n) Doc 9906 (Volume I) – Flight Procedure Design Quality Assurance System.

2. GENERAL PROCEDURES/REQUIREMENTS

MID Region Responsibilities

2.1 The ICAO Regional Office will, through MIDANPIRG:

i) process endorsed proposals for amendment to ICAO AIS/AIM related documents;

ii) process endorsed proposals for amendment to ICAO AIS/AIM related documents; and

iii) support the MIDANPIRG AIM Task Force.

State Responsibilities

2.2 Each Contracting State is responsible for the aeronautical information/data published by its aeronautical information service or by another State or a non-governmental agency on its behalf.

2.3 Aeronautical information published for and on behalf of a State should clearly indicate that it is published under the authority of that State.

2.4 Each Contracting State should take all necessary measures to ensure that the aeronautical information/data it provides relating to its own territory, as well as areas in which the State is responsible for providing air traffic services outside its territory, is adequate, of required quality and timely. This should include arrangements for the timely provision of required information/data to the aeronautical information service by each of the State services associated with aircraft operations.

2.5 International NOTAM Offices (NOF) and their areas of responsibility should be established so as to ensure maximum efficiency in the provision of AIS and in the dissemination of aeronautical information.

2.6 The designated International NOTAM Offices for the MID Region are listed in the **MID ANP Volume 2 - FASID Table AIM-1**.

2.7 Coordination/liaison on a permanent basis should be established between AIS/AIM and other technical services responsible for planning and operating air navigation facilities and services.

2.8 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.

2.9 Appropriate AIS/AIM personnel should be included 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.

2.10 Whilst Annex 4 and Annex 15 detail the SARPs for the provision of charts and AIS respectively, the following State responsibilities are highlighted:

a) Each Contracting State should:

i) Arrange for the implementation of a quality management system for aeronautical information and chart services. The quality management system should include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain from origin to distribution to the next intended user. As part of the quality management system, arrangements

should be made for the signature of letters of agreement with data originators to manage the aeronautical information data chain.

ii) Ensure Human Factors are considered.

iii) Ensure adherence to the AIRAC System.

iv) Ensure that the aeronautical information/data to be exchanged with States is published as an Integrated Aeronautical Information Package (i.e. Aeronautical Information Publication (AIP), including amendment service, AIP Supplements, NOTAM, pre-flight information bulletins (PIB), Aeronautical Information Circulars (AIC), checklists and list of valid NOTAM) in accordance with the requirements of Annex 15.

v) Arrange for the provision of an electronic AIP (eAIP) in accordance with the requirements of Annex 15.

vi) Comply with WGS 84 requirements.

vii) Introduce automation enabling digital data exchange with the objective of improving the speed, accuracy, efficiency and cost-effectiveness of aeronautical information services.

viii) Ensure that pre-flight information is provided at all aerodromes/heliports normally used for international air operation, in accordance with the requirements of Annex 15, using Automated pre-flight information systems for the supply of aeronautical information/data for self-briefing, flight planning and flight information service.

ix) Arrange for the provision of post-flight information.

x) Arrange for the provision of required electronic Terrain and Obstacle Data (eTOD), in accordance with the requirements of Annex 15.

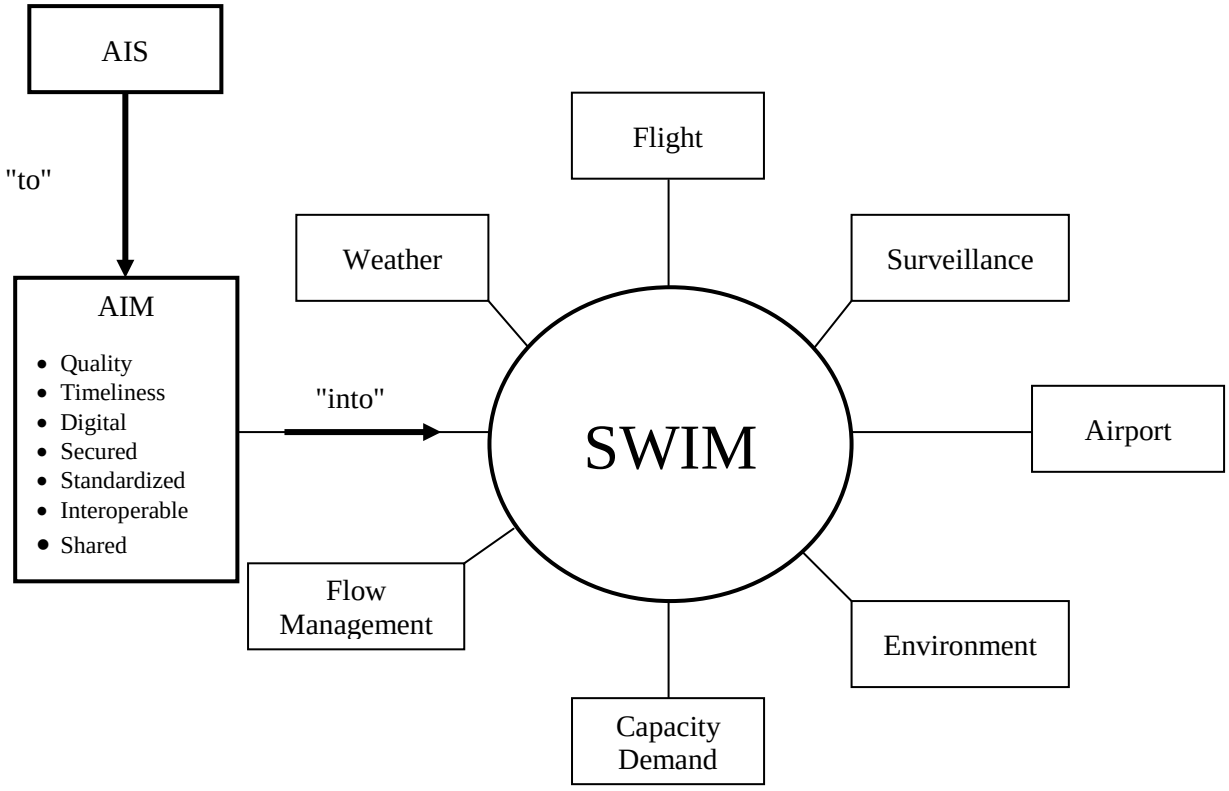
xi) Arrange for the production and publication of necessary aeronautical charts in accordance with Annex 4 provisions and regional agreements.

3. AERONAUTICAL INFORMATION MANAGEMENT

3.1. The Global Air Traffic Management Operational Concept presented in ICAO Doc 9854 depends upon a system wide information management (SWIM). The management, utilization and transmission of data and information are vital to the proper functioning of the ATM system and are at the core of air navigation services.

3.2. As part of SWIM, AIM is required to support evolving requirements for, inter alia, collaborative decision making (CDM), performance-based navigation (PBN), ATM system interoperability, network-centred information exchange, and to take advantage of improved aircraft capabilities.

3.3. The scope of information management includes all types of information and in particular aeronautical information. The relationship diagram below shows a number of the core elements of SWIM:



Aeronautical Information Management (AIM) is considered to be the dynamic, integrated management of aeronautical information services — safely, economically and efficiently — through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

TRANSITION TO AIM

3.4. The transition to AIM requires that all aeronautical information, including that currently held in AIP be stored as individual digital standardized data sets to be accessed by user applications. The distribution of these data sets will both enhance the quality of output and ultimately provide a platform for new applications. This will constitute the future integrated aeronautical information package that will contain the minimum regulatory requirement to ensure the flow of information necessary for the safety, regularity and efficiency of international air navigation. (GPI-18 refers).

Guiding Principles for the Transition to AIM

3.5. The transition from AIS to AIM will have to:

a) support or facilitate the generation and distribution of aeronautical information which serves to improve the safe and cost-effective accessibility of air traffic services in the world;

b) provide a foundation for measuring performance and outcomes linked to the distribution of quality assured aeronautical information and a better understanding of the determinants of ATM, safety and effectiveness not related to the distribution of the information;

c) assist States in making informed choices about their aeronautical information services and the future of AIM;

d) build upon developments in States, international organizations and industry and acknowledge that the transition to AIM is a natural evolution rather than a revolution;

e) provide over-arching and mature Standards that apply to a wide range of aeronautical information products, services and technologies;

f) be guided by the *Global Air Navigation Plan* (Doc 9750) and ensure that all development is aimed at achieving the ATM system envisaged in the *Global Air Traffic Management Operational Concept* (Doc 9854); and

g) ensure, to the greatest extent possible, that solutions are internationally harmonized and integrated and do not unnecessarily impose multiple equipment carriage requirements for aircraft or multiple systems on the ground.

The Roadmap to AIM

Source Document: ICAO Road Map for the Transition from AIS to AIM

3.6. The purpose of the roadmap is to develop the AIM concept and associated performance requirements by providing a basis upon which to manage and facilitate, on a worldwide basis, the transition from AIS to AIM. The roadmap is based on what is known today and has been developed with sufficient flexibility to facilitate the new concepts that will emerge from future research.

3.7. Three phases of action are envisaged for States and ICAO to complete the transition to AIM:

Phase 1 — Consolidation

3.8. During Phase 1, steps will be taken to establish a solid base by enhancing the quality of the existing products and improving the status of implementation of current Annex 4 and Annex 15 provisions. This is a pre-requisite before Phase 2 can be achieved.

Phase 2 — Going digital

3.9. Phase 2 of the transition to AIM will mainly focus on the establishment of data-driven processes for the production of the current products in all States. States that have not yet done so will be encouraged “to go digital” by using computer technology or digital communications and through introducing structured digital data from databases into their production processes. The emphasis will, therefore, not be on the introduction of new products or services but will be on the introduction of highly structured databases and tools such as geographic information systems.

Phase 3 — Information management

3.10. Phase 3 will introduce steps to enable future AIM functions in States to address the new requirements that will be needed to implement the Global Air Traffic Management Operational Concept in a net centric information environment. The digital databases introduced in Phase 2 will be used for the transfer of information in the form of digital data. This will require the adoption of a Standard for an aeronautical data exchange model to ensure interoperability between all systems not only for the exchange of full aeronautical data sets, but also for short-term notification of changes.

National Plans for the transition to AIM

3.11. States should be planning for the transition from AIS to AIM. The national plans for the transition from AIS to AIM should be based on the ICAO Roadmap for the transition from AIS to AIM, identifying clearly the associated performance goals and achievable milestones with a view to satisfy the requirements arising from the Global ATM Operational Concept, in particular the management of a seamless information flow ensuring interoperability between the different CNS/ATM systems.

AIM Implementation

3.12. The following provisions/regulatory requirements complement those contained in ICAO Annex 4 and Annex 15 with a view to expedite AIM implementation in the MID Region in a harmonized manner. They represent the basis for a number of provisions contained in the FASID tables.

Integrated Aeronautical Information Database (IAID)

(FASID Table AIM-2)

3.13. FASID Table AIM-2 sets out the requirements for the Provision of AIM products and services based on the Integrated Aeronautical Information Database (IAID).

3.14. States should designate and implement an authoritative Integrated Aeronautical Information Database (IAID). The designation of authoritative databases should be clearly stated in States' AIPs.

Electronic Terrain and Obstacle Data and Aerodrome Mapping Data Bases (AMDB)
(FASID Table AIM-3)

3.15. FASID Table AIM-3 sets out the requirements for the provision of Terrain and Obstacles Datasets and Aerodrome Mapping Data Bases (AMDB).

3.16. States should take the necessary measures for the provision of required electronic Terrain and Obstacle Data (eTOD), in accordance with Annex 15 provisions.

3.17. States should manage the eTOD implementation as a national programme supported by the necessary resources and detailed planning including priorities and timelines for implementation.

3.18. The implementation of eTOD should involve different Administrations within and outside of the Civil Aviation Authority i.e.: AIS, Aerodromes, Military, National Geographic and Topographic Administrations/Agencies, procedure design services, etc.

3.19. States, while maintaining the responsibility for data quality and availability, should consider to which extent the provision of electronic terrain and obstacle data could be delegated to other approved data providers.

3.20. States should establish formal arrangements to address cross-border issues, to ensure harmonization and more efficient implementation of eTOD.

3.21. States should take the necessary measures to ensure that the obstacle dataset is maintained up-to-date.

3.22. States should endeavour to integrate the acquisition of eTOD and AMDB data to realize efficiency gains and to take into account the complementary nature of AMDB and eTOD datasets.

Aeronautical Data Quality
(FASID Table AIM-4)

3.23. FASID Table AIM-4 sets out the requirements for aeronautical data quality.

3.24. States should take the necessary measures to ensure that aeronautical information/data it provides meet the regulatory Aeronautical Data quality requirements.

3.25. The Quality Management System in AIM should define procedures to meet the safety and security management objectives.

3.26. Recognizing the need to maintain or enhance existing safety levels of operations, States should ensure that any changes to the existing systems or the introduction of new systems used for processing aeronautical data/information are preceded by a safety assessment including hazard identification, risk assessment and mitigation.

3.27. States should ensure that the Critical, Essential and Routine aeronautical data/information, as specified in Annexes 4 and 15, is transferred by the data originators to the AIM service provider through direct electronic connection, in accordance with the agreed data exchange format.

AIM Certification
(FASID Table AIM-9)

3.28. FASID Table AIM-9 sets out the requirements for AIM Certification.

3.29. States should take necessary measures to ensure that AIM Services are provided by Certified AIM Service Provider(s).

3.30. The Certification of AIM Service Provider(s) should be based on the compliance with all regulatory and ICAO requirements related to the provision of AIM services.

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MID ANP, VOLUME II, FASID

PART x - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

RECORD OF AMENDMENTS

AMENDMENTS

P. f. Amdt. Serial No.	Originator	Date of Approval letter	Date Entered

P. f. Amdt. Serial No.	Originator	Date of Approval letter	Date Entered

MID ANP, VOLUME II, FASID

PART x - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

1. INTRODUCTION

1.1. The material in this part complements that contained in Part x — AIM of the MID Basic ANP and should be taken into consideration in the overall planning processes for the MID region.

1.2. This part contains the details of the facilities and services to be provided to fulfil the basic requirements of the plan as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. It provides a structured framework for States to plan and to monitor their progress and supports regional and national plans to implement the transition to AIM. This element of the FASID, in conjunction with the MID Basic ANP, is kept under constant review by MIDANPIRG in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO MID Regional Office.

1.3. To satisfy new requirements arising from the Global Air Traffic Management Operational Concept, aeronautical information services must transition to a broader concept of aeronautical information management, with a different method of information provision and management given its data-centric nature as opposed to the product-centric nature of AIS. AIM is the dynamic, integrated management of aeronautical information services – safely, economically and efficiently – through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

2. ORGANISATION AND PROVISION OF AIM FACILITIES AND SERVICES

2.1. AIM requires all aeronautical information to be stored as data sets that can be accessed by user applications. The establishment and maintenance of an Integrated Aeronautical Information Database where data sets are integrated and used to produce current and future AIM products and services is a fundamental step in the transition to AIM. The following AIM FASID tables contain planning criteria and provisions requiring implementation and compliance by States:

- Responsibility for the provision of AIM Services
- Provision of AIM products and services based on the Integrated Aeronautical Information Database (IAID)
- Terrain and Obstacle data sets and Airport Mapping Databases (AMDB)
- Aeronautical Data Quality
- World Geodetic System – 1984 (WGS84)
- Aeronautical Charts
- Production Responsibility for sheets of the World Aeronautical Chart – ICAO 1:1 000 000
- Pre-Flight Information Services
- AIM Certification

2.2. FASID Table AIM-1 sets out the responsibilities for the provision of AIM services in the MID Region. It takes into account the current situation and new developments specific to the MID Region where States delegate certain AIS/AIM services to other States (e.g. with the establishment of Functional Airspace Blocs (FAB)). The responsibilities for the provision of aeronautical data, products and services in such cases need to be clearly assigned.

2.3. FASID Table AIM-2 sets out the requirements for the Provision of 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 (AIS, Terrain, Obstacles, AMDB, etc) for which the State is responsible.

2.4. FASID Table AIM-3 sets out the requirements for the provision of Terrain and Obstacles datasets and Aerodrome Mapping Data Bases (AMDB).

The eTOD implementation Checklist at **Attachment A** to Part x - AIM of the MID FASID is developed to assist States in the process of eTOD implementation.

2.5. FASID Table AIM-4 sets out the requirements for aeronautical data quality.

Attachment B to Part x - AIM of the MID FASID describes the safety and security objectives to be included in the Quality Management System of AIM.

Attachment C to Part x - AIM of the MID FASID lists the data originators and the type of aeronautical data/information required to be exchanged by direct electronic connection.

2.6. FASID Table AIM-5 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.

2.7. FASID Table AIM-6 sets out the requirements for the production of aeronautical charts. The provision of digital mapping data bases e.g. AMDB, allows for the provision and use of electronic aeronautical charts. Annex 4 SARPs include the requirement for an Electronic Aerodrome Terrain and Obstacle Chart.

2.8. FASID Table AIM-7 sets out the responsibilities for the production of the sheets of the World Aeronautical Chart 1: 1 000 000 (WAC). The assignment of the WAC sheets is determined by regional agreement, based on the delineation of areas specified in Appendix 5 to Annex 4 and taking into consideration the cross-border issues.

Note.- The World Aeronautical Chart 1: 1 000 000 provides information to satisfy the requirements of visual air navigation.

2.9. FASID Table AIM-8 sets out the requirements for the provision of pre-flight information services.

2.10. FASID Table AIM-9 sets out the requirements for AIM Certification.

Attachment A

ELECTRONIC TERRAIN AND OBSTACLE DATA (eTOD)

IMPLEMENTATION CHECKLIST

INTRODUCTION

The purpose of this eTOD checklist is to assist States in the process of implementation of eTOD. To ensure a safe and efficient implementation of eTOD, the Civil Aviation Authorities should:

- determine the State stakeholders affected, inter-alia:

    - Ministry responsible for Transportation/Civil Aviation;
    - Ministry responsible for land planning and environment;
    - Civil Aviation Authority;
    - Aeronautical Information Service Providers (AISP);
    - Air Navigation Service Providers (ANSP);
    - Aerodrome Service Providers;
    - Airlines, Helicopter operators and General Aviation;
    - Military;
    - Military survey Organization/Agency;
    - National Geodetic, Cadastral or State Survey Organisations;
    - Commercial survey companies or associations;
    - Local Authorities or those responsible for aerodrome safeguarding/construction approval in the vicinity of aerodromes;
    - GSM antenna operators;
    - Administrations for radio and television broadcasts;
    - Power Transmission companies.

- ensure that a Focal Point has been nominated to coordinate all eTOD issues at both the national and international level;

- consider arranging eTOD awareness campaigns and training;

- check the availability of State's policy for the safeguarding of aerodromes from obstacle penetration, consider how effective the policy is and determine if available data can be demonstrated to be in compliance with eTOD requirements. In the absence of a declared or established policy, consider establishing one;

- check the availability of a National obstacle notification and permission process;

- check if National regulation for the provision of eTOD has been developed. In the absence of a National Regulation, consider establishing one, taking into consideration the following:

    - the data providers responsible for the provision and processing of data and associated liability issues;
    - State's policy with regard to implementing the ICAO Annex 15 SARPs related to eTOD and eventually the notification of differences, if any;
    - State's policy with regard to data maintenance;
    - consider how and by whom the eTOD will be made available;

- State's policy for the oversight/inspection of all involved parties/administrations in the process of provision of eTOD;
- State's policy for cost-recovery related to the provision of eTOD. Identify how the costs, both initial and ongoing, are to be recovered for each Area and in case charges are to be levied on the use of data, identify the appropriate means/mechanisms by which the revenue can be collected; and

– ensure that necessary resources for the implementation and ongoing maintenance of eTOD have been secured;

– ensure that an Action Plan/Roadmap with clear timelines and assigned responsibilities for the provision of eTOD has been developed;

– ensure that the possible sources of terrain and obstacle data have been identified;

– as part of the planning of eTOD data acquisition activities, consider the integration of an Aerodrome Mapping Data Base survey;

– ensure that the survey requirements for each of the four Areas, including resurvey intervals have been determined;

– ensure that the responsibilities that may be placed upon surveyors to ensure that they use the correct standards, have been identified;

– ensure that an eTOD validation and verification process is established;

– ensure that a mechanism is established to ensure that the quality of eTOD is maintained from the survey up to the end user;

– ensure that cross-border issues have been addressed and consider the establishment of agreements with neighboring States to exchange and harmonize common data, as necessary;

– ensure that the means/media by which each dataset shall be made available have been determined; and

– ensure that means of carrying out oversight/inspections for monitoring progress have been established.

Attachment B

SAFETY AND SECURITY MANAGEMENT OBJECTIVES

The quality management system of the AIM services provider should define procedures to meet the following safety and security management objectives

1. Safety management objectives:

    a. to minimise the contribution to the risk of an aircraft accident arising from data errors as far as reasonably practicable,

    b. to promote awareness of safety around the organisation by sharing lessons arising from safety activities and by involving all staff to propose solutions to identified safety issues and improvements to assist the effectiveness and efficiency of the processes,
    c. to ensure that a function is identified within the organisation being responsible for development and maintenance of the safety management objectives,
    d. to ensure that records are kept and monitoring is carried out to provide safety assurance of their activities,
    e. to ensure improvements are recommended, where needed, to provide assurance of the safety of activities.

    The achievement of the safety management objectives shall be afforded the highest priority over commercial, operational, environmental or social pressures.

2. Security management objectives:

    a. to ensure the security of aeronautical data/information received, produced or otherwise employed so that it is protected from interference and access to it is restricted only to those authorised,

    b. to ensure that the security management measures of an organisation meet appropriate regulatory requirements for critical infrastructure and business continuity, and international standards for security management.

Attachment C

DIGITAL EXCHANGE WITH DATA ORIGINATORS

1) The following aeronautical data/information provided by the data originators should be transferred to the AIM services provider by direct electronic connection in accordance with the agreed data exchange format:

    a) aeronautical information publications (AIP), including amendments;
    b) supplements to the AIP;
    c) the NOTAM and pre-flight information bulletins;
    d) checklists and lists of valid NOTAMs;
    e) electronic obstacle data, or elements thereof, where made available;
    f) electronic terrain data, or elements thereof, where made available;
    g) aerodrome mapping data, where made available.

2) The aeronautical data/information provided by the following data originators should be transferred to the AIM services provider by direct electronic connection in accordance with the agreed data exchange format.

    a) air navigation service providers;
    b) operators of those aerodromes and heliports, for which instrument flight rules (IFR) or Special-visual flight rules (VFR) procedures have been published in national AIP;
    c) public or private entities providing:
        i. services for the origination and provision of survey data;
        ii. procedure design services;
        iii. electronic terrain data;
        iv. electronic obstacle data.

FASID TABLE AIM-1: Responsibility for the provision of AIM Services

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 the 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						
Egypt						
Iran						
Iraq						
Jordan						
Kuwait						
Lebanon						
Oman						
Qatar						
Saudi Arabia						
Syria						
UAE						
Yemen						

FASID TABLE AIM-2: Provision of AIM products and services based on Integrated Aeronautical Information Database (IAID)

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which the provision of 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

PI – Partially Implemented

NI – Not Implemented

Note 1 — The IAID of a State is a single access point for one or more databases (AIS, Terrain, Obstacles, AMDB, etc). The minimum set of databases which should be integrated is defined in Annex 15.

Note 2 — Information providing detail of "PI" should be given in the Remarks column (the implemented components of the IAID).

Note 3 — 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:

FC – Fully compliant (eAIP: Text, Tables and Charts)

PC – Partially compliant

NC – Not compliant

Note 4 — AIP production includes, production of AIP, AIP Amendments and AIP Supplements

4 Requirement for an IAID driven NOTAM production, shown by:

FC – Fully Compliant

NC – Not compliant

5 Requirement for an IAID driven SNOWTAM production, shown by:

FC – Fully Compliant

NC – Not compliant

6 Requirement for an IAID driven PIB production, shown by:

FC – Fully compliant

NC – Not compliant

7 Requirement for Charting systems to be interoperable with the IAID, shown by:

FC – Fully compliant

PC – Partially compliant

NC – Not compliant

8 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

9 Requirement for ATS systems to be interoperable with the IAID, shown by:

FI – Fully Implemented

PI – Partially Implemented

NI – Not Implemented

10 Action Plan — short description of the State's Action Plan with regard to the provision of AIM products and services based on the IAID, including planned date(s) of full compliance, as appropriate.

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

State	IAID	AIP	NOTAM	SNOWTAM	PIB	Charting	Procedure Design	ATS	Action Plan	Remarks
1	2	3	4	5	6	7	8	9	10	11
Bahrain										
Egypt										
Iran										
Iraq										
Jordan										
Kuwait										
Lebanon										
Oman										
Qatar										
Saudi Arabia										
Syria										
UAE										
Yemen										

FASID TABLE AIM-3: Terrain and Obstacles datasets and Airport Mapping Databases (AMDB)

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacles datasets and AMDB are required.

2 Compliance with requirement for the provision of Terrain datasets, shown by:

FC – Fully compliant
PC – Partially compliant
NC – Not compliant

3 Compliance with requirement for the provision of Obstacle datasets, shown by:

FC – Fully compliant
PC – Partially compliant
NC – Not compliant

4 Implementation of AMDB, shown by:

FI – Fully Implemented
PI – Partially Implemented
NI – Not implemented

5 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacles datasets and implementation of AMDB.

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

State	Terrain Datasets	Obstacle datasets	AMDB	Action Plan	Remarks
1	2	3	4	5	6
Bahrain					
Egypt					
Iran					
Iraq					
Jordan					
Kuwait					
Lebanon					
Oman					
Qatar					
Saudi Arabia					
Syria					
UAE					
Yemen					

FASID TABLE AIM-4: 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
PC – Partially 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 – Fully 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
PC – Partially compliant
NC – Not compliant

9 Action Plan — short description of the State's Action Plan with regard to aeronautical data quality requirements implementation, including planned date(s) of full compliance, as appropriate.

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

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
Bahrain									
Egypt									
Iran									
Iraq									
Jordan									
Kuwait									
Lebanon									
Oman									
Qatar									
Saudi Arabia									
Syria									
UAE									
Yemen									

FASID TABLE AIM-5: 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, including planned date(s) of full compliance, as appropriate.

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

State	FIR/ENR	Terminal	AD	GUND	Action Plan	Remarks
1	2	3	4	5	6	7
Bahrain						
Egypt						
Iran						
Iraq						
Jordan						
Kuwait						
Lebanon						
Oman						
Qatar						
Saudi Arabia						
Syria						
UAE						
Yemen						

FASID TABLE AIM-6: Aeronautical Charts

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which aeronautical charts are required

2 Compliance with the requirements for the Enroute Chart — ICAO (ENRC) and the ATC Surveillance Minimum Altitude Chart — ICAO (ATCSMAC), shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

3 Compliance with requirements for ICAO charts related to terminal areas (Instrument Approach Chart, Area Chart, Standard Departure Chart — Instrument (SID) and Standard Arrival Chart — Instrument (STAR), Visual Approach Chart) shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

4 Compliance with the requirement for ICAO Aerodrome charts Aerodrome/Heliport Chart, Aerodrome Ground Movement Chart and Aircraft Parking/Docking Chart, shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

5 Compliance with the requirements for ICAO Obstacle Charts Aerodrome Obstacle Chart —Type A (Operating Limitations), Aerodrome Terrain and Obstacle Chart — Electronic and Precision Approach Terrain Chart shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

6 Compliance with the requirement for ICAO World Aeronautical Chart (WAC), shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

7 Action plan — short description of the State's Action Plan with regard to aeronautical charts implementation, including planned date(s) of full compliance, as appropriate.

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

State	ENRC & ATCSMAC	Charts related to Terminal Areas	AD Charts	Obstacle Charts	WAC	Action Plan	Remarks
1	2	3	4	5	6	7	8
Bahrain							
Egypt							
Iran							
Iraq							
Jordan							
Kuwait							
Lebanon							
Oman							
Qatar							
Saudi Arabia							
Syria							
UAE							
Yemen							

FASID TABLE AIM-7: 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 1— When Aeronautical Charts — ICAO 1:500 000 or Aeronautical Navigation Charts — ICAO Small Scale, are made available instead of the 1:1 000 000 chart, this is to be indicated in the Remarks column.
Note 2— 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.

State	Sheet number(s)	Remarks
1	2	3
Bahrain	2547	
Egypt	2447, 2448, 2543, 2544	
Iran	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*
Oman	2563, 2670	
Qatar		
Saudi Arabia	2446, 2545, 2546, 2564, 2565, 2566, 2668, 2669	
Syria	2426	*Note: Syria to cover its own territory within Damascus FIR*
UAE		
Yemen	2686, 2687	

FASID TABLE AIM-8: Pre-Flight Information Services

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 Compliance with the requirements for the provision of Pre-Flight Information Bulletins (PIB) against each type of PIB, shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

Note 1 — AD: Aerodrome type bulletins
Area: Area type bulletins (FIR or group of FIRs or States)
FIR route: FIR route specific bulletin
Narrow route: Narrow path route specific bulletin

3 Compliance with the requirements for the availability of the elements of the Integrated Aeronautical Information Publications (IAIP), maps and charts to the flight operations personnel, shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

4 Requirement for a common point of access to aeronautical information and meteorological information briefings, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

5 Action Plan — short description of the State's Action Plan with regard to Pre-Flight Information Services, including planned date(s) of full compliance, as appropriate.

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

State	PIB				IAIP	Aeronautical and Meteorological information	Action Plan	Remarks
	AD	Area	FIR route	Narrow route				
1	2				3	4	5	6
Bahrain								
Egypt								
Iran								
Iraq								
Jordan								
Kuwait								
Lebanon								
Oman								
Qatar								
Saudi Arabia								
Syria								
UAE								
Yemen								

FASID TABLE AIM-9: AIM Certification

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which implementation of AIM Certification is required.

2 Availability of AIM Regulations, shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

3 Compliance with the requirements for the establishment of a Safety Oversight System for ensuring the effective implementation of safety-related policy and procedures in the area of AIM, shown by:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

Note 1 — A Safety Oversight System is based on the eight (8) Critical Elements (CEs) as defined in the ICAO Safety Oversight Manual (Doc 9734, Part A).

Note 2— As part of the Safety Oversight System, States should, in particular:

a) establish an entity responsible for the safety oversight of the AIS/AIM service provider(s)(not necessarily limited to the safety oversight of AIM) with clearly defined functions and responsibilities, or delegate this function to a Regional/Sub-Regional Organization;

b) ensure the availability of sufficient number of qualified AIM inspectors;

c) establish minimum qualifications and experience for the AIM inspectorate staff;

d) establish detailed job descriptions reflecting all the regulatory and safety oversight tasks for the AIM inspectorate staff;

e) establish the necessary procedures for the AIM inspectorate staff;

f) establish and implement a formal surveillance programme for the continuing supervision of the AIS/AIM service provider(s) and ensure that safety oversight is effectively conducted; and

g) establish and implement a mechanism/system for the elimination of deficiencies identified by the AIM inspectorate staff.

4 Compliance with the requirements for implementation of AIM certification, shown by:
FC – Fully compliant

PC – Partially compliant

NC – Not compliant

Note 3 — AIM Certification may be performed within the framework of ANS Certification

5 Action Plan — short description of the State's Action Plan with regard to the implementation of the different requirements of AIM certification, including planned date(s) of full compliance, as appropriate.

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

State	AIM Regulations	AIM Safety Oversight	AIM Certification	Action Plan	Remarks
1	2	3	4	5	6
Bahrain					
Egypt					
Iran					
Iraq					
Jordan					
Kuwait					
Lebanon					
Oman					
Qatar					
Saudi Arabia					
Syria					
UAE					
Yemen					

REPORT ON AGENDA ITEM 7: FUTURE WORK PROGRAMME

7.1 The meeting reviewed the Terms of Reference of the CNS/ATM/IC Sub-Group and was of the view that it is reflecting the current and near future work programme of the Sub-Group. Accordingly, the meeting agreed to maintain the same TOR without changes.

7.2 The meeting noted that MIDANPIRG/13 meeting is scheduled for April 2012 and MIDANPIRG/14 for end of 2013. Accordingly, the meeting agreed that the CNS/ATM/IC SG/7 meeting be held in the second half of 2013. The venue will be Cairo, unless a State is willing to host the meeting.

REPORT ON AGENDA ITEM 8: ANY OTHER BUSINESS

8.1 Nothing has been discussed under this Agenda Item.

CNS/ATM/IC SG/6
Attachment A to the Report

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