INTERNATIONAL CIVIL AVIATION ORGANIZATION

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

(CNS/ATM/IC SG/4)

(Cairo, 19-21 January 2009)

The views expressed in this Report should be taken as those of the CNS/ATM/IC SG Fourth 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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History of the Meeting

PART I - HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The Fourth Meeting of the MIDANPIRG CNS/ATM/IC SG was held at the ICAO MID Regional Office in Cairo, Egypt from 19 to 21 January 2009.

2. OPENING

2.1 Mr. Jehad Faqir, Deputy ICAO Regional Director Cairo welcomed delegates to this meeting. He drew the attention of the meeting that one of the major subject which will be tasked to this meeting will be review and update the MID Region Performance Objective using the newly Performance Framework Forms which were developed and standardized by ICAO Headquarters for both the Regional and States Plans and reminded the meeting that these will be submitted to MIDANPIRG/11 which will be held in Feb 2009 for the final endorsement. Mr. Faqir informed the meeting that they will be also discussing the new ICAO flight plan model which is to be implemented by 2012 and advised that this might sound far but this is not correct as States need to check their systems and to ensure the required modifications and upgrades are completed before the deadline date. Mr. Faqir concluded by wishing the meeting productive deliberations and outcome.

2.2 Mr. Waleed Madani, Manager Operation Planning ATM, General Authority of Civil Aviation, Saudi Arabia, was elected as a Chairperson. The elected Chairperson also welcomed all the participants to the meeting and expressed his wishes fruitful dialogue among the experts of the Sub-Group to reach the final objective of the meeting.

3. ATTENDANCE

3.1 The meeting was attended by a total of 30 participants, which included delegates from nine (9) States and three (3) International Organizations. The list of participants is at Attachment A.

4. OFFICERS AND SECRETARIAT

4.1 Mr. R.Gulam, RO/CNS, Mr. S.Machobane, RO/ATM of ICAO MID Office acted as Secretaries of 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 and election of Chairpersons

Agenda Item 2: Follow-up on the outcome of MIDANPIRG/10 Meeting and MSG/1

2.1 Review of action taken by the ANC on the Report of MIDANPIRG/10

2.2 Review status of MIDANPIRG/10 and MSG/1 Conclusions and Decisions relevant to CNS/ATM planning and implementation

Agenda Item 3: MID Region CNS/ATM performance Objectives

Agenda Item 4: Developments in MID Regional Air Navigation Planning and Implementation

Agenda Item 5: Review of the outcome of the ATM/SAR/AIS SG/10 and CNS SG/2

Agenda Item 6: Future Work Programme

Agenda Item 7: 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 4/1: REGIONAL PERFORMANCE FRAMEWORK

DRAFT CONCLUSION 4/2: NATIONAL PERFORMANCE FRAMEWORK

DRAFT CONCLUSION 4/3: ESTABLISHMENT OF MID-FANS IMPLEMENTATION TEAM

DRAFT CONCLUSION 4/4:	INTRODUCTION OF FANS 1/A CAPABILITIES IN THE MID REGION
DRAFT CONCLUSION 4/5:	MID FIT IMMEDIATE TASKS
DRAFT CONCLUSION 4/6:	GNSS STUDIES IN MID REGION
DRAFT CONCLUSION 4/7:	STRATEGY FOR THE IMPLEMENTATION OF GNSS IN THE MID REGION
DRAFT CONCLUSION 4/8:	IMPLEMENTATION OF THE NEW ICAO MODEL FLIGHT PLAN FORM
DRAFT CONCLUSION 4/9:	MID TC PROJECT
DRAFT CONCLUSION 4/10:	MID REGION STRATEGY FOR THE IMPLEMENTATION OF ADS-B
DRAFT DECISION 4/11:	REVISED TOR OF THE CNS/ATM/IC SUB-GROUP

PART II: REPORT ON AGENDA ITEMS

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

Adoption of Provisional Agenda

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

Election of Chairpersons

1.2 In accordance with the MIDANPIRG Procedural Handbook, Third Edition – April 2007, para 6.1, it was noted that the Chairperson, should assume his functions at the end of the meeting but since the chairperson Mr. Mohammed Al-Alawi from GACA Saudi Arabia had retired and the vice chairperson was not present moreover he had changed his post, thus in compliance with the MIDANPIRG Procedural Handbook, the meeting proceeded to the election of a new Chairpersons.

1.3 Bahrain nominated Mr. Waleed Madani, Manager Operations Planning ATM department, GACA Saudi Arabia, the nomination was supported by Egypt, Iran, Kuwait, UAE and Yemen, the meeting unanimously elected Mr. Waleed Madani, as the new Chairman of the CNS/ATM/IC Sub-Group.

1.4 Egypt nominated Mr. Fareed Alawi, Head of Air Traffic Operation Bahrain, the nomination was supported by Iran, Jordan, Kuwait, Sauidi Arabia and UAE the meeting unanimously elected Mr. Fareed Alawi, as the new vice Chairman of the CNS/ATM/IC SG.

1.5 The elected chairperson Mr. Waleed from GACA KSA assumed the duties at the start of the meeting and thanked the participants for their confidence in electing him.

REPORT ON AGENDA ITEM 2: FOLLOW-UP ON THE OUTCOME OF MIDANPIRG/10 MEETING AND MSG/1

2.1 The meeting noted that the report of the MIDANPIRG is reviewed by the Air Navigation Commission (ANC) and subsequently by the Council if deemed necessary. During these reviews, the ANC and Council note the report, make comments thereon and provide guidance to the MIDANPIRG as appropriate.

2.2 Furthermore the meeting noted that MIDANPIRG/10 report was reviewed by the ANC during the fifth meeting of its 177th Session held on 7 February 2008, as presented by the ANC Working Group on Regional Plans (WG/RPL) in AN-WP/8299 and an action plan was developed.

2.3 The meeting noted and updated the status of MIDANPIRG/10 Conclusions and Decisions related to the CNS and ATM relevant to MIDANPIRG Steering Group MSG/1 Draft Conclusions and Decisions.

2.4 The meeting noted that the MIDANPIRG Steering Group (MSG/1) held in Dubai, UAE, 1-3 July 2008 recalled that MIDANPIRG/9 meeting was presented with the list of outstanding Conclusions and Decisions emanating from MIDANPIRG 5, 6, 7 and 8 meetings and endorsed a list of consolidated Conclusions/Decisions as MIDANPIRG/9 Conclusions/Decisions. Accordingly, the meeting agreed that those MIDANPIRG/10 Conclusions/Decisions which were considered current by the appropriate MIDANPIRG subsidiary body should be presented to MIDANPIRG/11 for endorsement as a MIDANPIRG/11 Conclusions/Decisions (with new numbers i.e. Conclusion 11/XX).

2.5 The meeting noted that MSG/1 agreed that, in accordance with the ICAO Business Plan and the requirements for performance monitoring, the MIDANPIRG Conclusions/Decisions and associated follow-up action plan should be formulated with clear tasks, specific deliverables and defined target dates, further more MSG/1 meeting was also of view that those Conclusions/Decisions which are of general nature and whose status of implementation would be “Ongoing” for many years are more suitable for inclusion in Handbooks, Manuals, Guidelines, etc, as appropriate.

2.6 Based on the above, the meeting reviewed the follow-up action taken on the Conclusions and Decisions and updated the status of the follow-up action on the CNS and ATM related Conclusions and Decisions of ANC, MIDANPIRG/10, and MSG/1 as at **Appendices 2A** to the Report on Agenda Item 2.

CNS/ATM/IC SG/4
Appendix 2A to the Report on Agenda Item 2

FOLLOW-UP ACTION ON RELEVANT ANC, MIDANPIRG/10 AND MSG/1 CONCLUSIONS AND DECISIONS

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/3: PRESENTATION OF WORKING PAPERS (WPS) TO MIDANPIRG That, to the extent possible: a) only those subjects which are mature enough (discussed within the appropriate MIDANPIRG subsidiary body) be presented to MIDANPIRG; and b) States and International Organizations refrain from presenting WPs of technical nature directly to MIDANPIRG.	Follow up with States and International Organizations	ICAO States International Organizations	Subjects of technical nature are presented to the appropriate MIDANPIRG subsidiary bodies	Dec. 2008	Ongoing Will be consolidated under procedural handbook
CONC. 10/4: PAPERLESS MEETINGS That, with the objective to reduce printing and distribution costs of the MID Regional Office, to the extent possible: a) All meetings of MIDANPIRG (including meetings of Sub-Groups, Working Groups and Task Forces, etc.) be conducted in paperless format whereby all meetings documentation and working papers are made available on the MID Regional Office website and/or the MID Forum; and b) meeting reports and Amendment Proposals to the Air Navigation Plan of the MID Region be posted on the MID Regional Office website.	Conduct paperless meetings	ICAO	Electronic WPs/IPs, meeting reports and ANP/FASID Amendment Proposals	Sep 2007	Ongoing Will be consolidated under procedural handbook

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/7: MID BASIC ANP AND FASID (DOC 9708) That, with a view to have the final version of the MID BASIC ANP and FASID (Doc 9708) published prior to 31 December 2007: a) the ICAO MID Regional Office, on behalf of MIDANPIRG, initiate all necessary Amendment Proposals to the MID Basic ANP and FASID, prior to 31 May 2007, in order to update the AIS, AOP, ATM, CNS and MET regional requirements and reflect the changes made to the FASID Tables; and b) ICAO allocate sufficient resources and higher priority for the publication of Doc 9708 in English and Arabic versions, incorporating all approved Amendments.	Process Amendments Proposals to the MID Basic ANP and FASID Finalize and publish the approved version of Doc 9708	ICAO	Amendment Proposal issued Amendment Proposal approved and incorporated in the final version of Doc 9708	Jun. 2007 Dec. 2007	Completed TBD A draft amendment proposal 08/05 –AOP for MID ANP was circulated on 14 Sep 08 to all concerned States and Int'l Orgs
CONC. 10/8: EGNOS STUDIES IN THE MID REGION That, European Space Agency (ESA) and GNSS Supervisory Authority (GSA) define the EGNOS architecture and feasibility of using additional Ranging Integrity Monitoring Stations (RIMS) for achieving APV and to support the regional cost benefits analysis in the MID Region.	Follow-up with ESA and GSA Cost benefit analysis (CBA)	ICAO States	ESA and GSA inputs CBA Reports	May 2008 Sept 2008	Oct 2008 Replaced superseded By draft con 4/6
CONC. 10/9: REVISED STRATEGY FOR THE IMPLEMENTATION OF GNSS IN THE MID REGION That, the Revised Strategy for the Implementation of GNSS in the MID Region is to be amended as shown at Appendix 5.1A to the Report on Agenda Items 5.1.	Implementation of the Strategy.	GNSS TF CNS/ATM/ IC SG	GNSS TF/6 Report CNS/ATM/IC SG/4 Report	Jul. 2007 Sept 2008	Completed Replaced superseded By draft con 4/7

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/10: COORDINATION OF GNSS ACTIVITIES That, a) all GNSS activities are to be coordinated in order to be inline with the MID Region GNSS Strategy; b) MID States: i) share experience gained during demos, test bed trials and implementation; ii) provide input to the GNSS Task Force; iii) are encouraged to participate in the GNSS Research and Development in a coordinated manner; and iv) designate GNSS focal points and send their contact details to the ICAO MID Regional Office prior to 31 May 2007.	Follow up the R&D Participate in GNSS TF and CNS/ATM/IC SG meetings Designate Focal Points	ICAO States GNSS TF	State Letter Updated R&D results posted on the MID Forum Updated List of GNSS focal points GNSS TF/6 Report CNS/ATM/IC SG/4 Report	Jun. 2007 TBD Jun. 2007 Jul. 2007 Sept 2008	Completed TBD SL ME 3/56.7.205 Completed Completed Completed
DEC. 10/11: REVISED TERMS OF REFERENCE AND WORK PROGRAMME FOR THE GNSS TASK FORCE That, the revised Terms of Reference and Work Programme of the GNSS Task Force is adopted as at Appendix 5.1B to the Report on Agenda Item 5.1.	Follow up of the Work Programme	GNSS TF CNS/ATM/IC SG	GNSS TF/6 Report CNS/ATM/IC SG/4 Report	Jul. 2007 Sept 2008	Completed Completed
CONC. 10/12: PARTICIPATION IN THE GNSS TF MEETINGS That, a) MID States are urged to participate more actively in the work of the GNSS TF meeting; and b) ICAO MID Regional Office is to send invitation to organization that can support GNSS TF Work Programme	Participate in GNSS TF	States ICAO	Sufficient number of experts Invitation letter	Jun. 2007 May 2007	Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/13: MID REGION STRATEGY FOR THE IMPLEMENTATION OF THE GLOBAL PLAN INITIATIVES (GPIS) That, the MID Region Strategy for the implementation of the Global Plan Initiatives (GPIs) be adopted as at Appendix 5.1C to the Report on Agenda Item 5.1.	Implementation of Strategy	ICAO States MIDANPIRG Subsidiary bodies	Feedback from States National Plans Status of implementation of GPIs	Jun 2008	Ongoing Replaced superseded By draft con 4/1 and 4/2
CONC. 10/14: IMPLEMENTATION OF WORK PROGRAMME IN SUPPORT OF STRATEGIC PERFORMANCE OBJECTIVES That, in support of the evolution from a systems-based approach to a performance-based approach to planning and implementation of air navigation, the following projects are to be reflected in the MID Region implementation plan: a) Improvement of the MID ATS route structure (FUA, dynamic and flexible ATS route management, improved Civil/Military coordination, etc); b) enhancement of MID States' TMA management; c) MID RMA operations continuity; d) support of the introduction and implementation of SMS in the MID States; e) development of MID States' contingency plans; f) improvement of the quality and efficiency of aeronautical information services provided by MID States; g) provision of eTOD by MID States; h) establishment of Initial FPL Processing System (IFPS) in the MID Region; i) implementation of ATN in the MID Region;	Follow up progress on each project	ICAO States MIDANPIRG Subsidiary bodies	Feed back on each project a) Report status of implementation. b) Detailed Action plan for project implementation, c) Advise if ICAO assistance is needed	2nd half of 2009	On going Replaced superseded By draft con 4/1 and 4/2

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
j) improvement of communication infrastructure; k) implementation of GNSS; l) implementation of Certification of aerodromes and SMS at aerodromes in the MID Region; m) preparedness to accommodate NLAs at some existing/new aerodromes in the MID Region; n) support the establishment and implementation of Runway surface pavement maintenance programme in the MID Region; o) enhancement of Runway incursion prevention programme; and p) enhancement of surface movement guidance and control systems (SMGCS) at MID Aerodromes.					
CONC. 10/15: MID REGION STRATEGY FOR THE IMPLEMENTATION OF ADS-B That, a) MID States, in collaboration with the airspace users, are encouraged to develop and implement ADS-B trials programme, when cost-benefit models warrant it; and b) the Strategy at **Appendix 5.1D** to the Report on Agenda Item 5.1 is endorsed as the MID Region Strategy for the implementation of ADS-B.	Implementation of Strategy Follow-up of ADS-B trials activity	Users Service providers; ICAO CNS SG/2 CNS/ATM/IC SG	Feedback from States on ADS-B trials Report of the CNS/ATM/IC SG/4 meeting Report CNS SG/2	Sept 2008 Sept 2008 Nov. 2008	Replaced superseded By draft con 4/10
CONC. 10/16: FANS 1/A ACTIVITIES IN THE MID REGION That, MID States, in coordination with users, are encouraged to implement FANS 1/A (ADS-C/CPDLC) as an interim solution, until a fully ATN compliant ADS/CPDLC system is made available.	Follow-up trials, demonstrations and implementation activities	States Users Data link service providers	FANS 1/A Trials and Feed Back from States on FANS 1/A activities	Sept 2008	Replaced superseded By draft con 4/4

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/17: SURVEY RELATIVE TO THE IMPROPER HANDLING OF FPLS AND ASSOCIATED ATS MESSAGES That, a) the methodology for the identification of causes of improper handling of FPLs and associated ATS messages at **Appendix 5.1E** to the Report on Agenda Item 5.1 is endorsed; and b) MID States are to carry out a survey relative to the improper handling of FPLs and associated ATS messages based on this methodology for a period of at least one month	Carryout survey and analyze results	ICAO States CNS/SG CNS/ATM/IC ATM/SAR/AIS	State Letter Survey Replied Analysis of Result	Jun 2007 TBD TBD	~~Survey carried out. Low response~~ ~~Problem is no longer issue~~ Completed
CONC. 10/18: ESTABLISHMENT OF AN INTEGRATED INITIAL FPL PROCESSING SYSTEM (IFPS) IN THE MID REGION That, a) MID States designate their IFPS focal points and send their contact details to the ICAO MID Regional Office prior to 31 May 2007; b) the IFPS focal points participate in the finalization of the feasibility study for the implementation of an IFPS in the MID Region, to be finalized by Bahrain; and c) coordination be carried out with Eurocontrol with a view to benefit from their experience and expertise in the implementation of an IFPS, including the development of a regulatory framework.	Designate focal points Follow up the progress on the finalization of the Study Coordination with Eurocontrol	States ICAO Bahrain CNS SG/1 CNS/ATM/ICSG	State Letter Updated list of focal points Regulatory framework definition Study finalized	Jun. 2007 Sept 2007 Sept 2008 TBD	SL 3/56 – 208 Completed Replaced superseded By CNS SG/2 draft con 2/4

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DEC. 10/24: MID ATS ROUTE NETWORK That, a) the Secretariat initiates action, in accordance with established procedures, for the amendment of the MID Basic ANP Table ATS 1 to reflect the changes at Appendix 5.3A to the Report on Agenda Item 5.3; and b) the list of Future ATS Route requirements at Appendix 5.3B to the Report on Agenda Item 5.3, be used within the framework of the ATM/SAR/AIS Sub Group for future improvements of the MID ATS route network**.**	Update the MID Basic ANP Radical review of the MID ATS route network	ICAO MID Office	MID Basic ANP Amendment Proposal Revised/enhanced MID ATS route network	June 2007 Dec 2007	~~PFA of the MID Basic ANP (ATS routes) circulated and approved~~Completed. ~~List to be referred to ARN TF~~
CONC. 10/25: CIVIL/MILITARY COORDINATION That, with a view to ensure effective/optimum civil/military co-ordination and joint use of airspace with a maximum degree of safety, regularity and efficiency of international civil air traffic, States which have not yet done so, are urged to: a) Implement Assembly Resolution A35-14 Appendix P and the provision of Annexes 2, 11 and 15 as well as LIM MID (COM/MET/RAC) RAN Meeting 1996, Recommendations 2/9, 2/10 and 2/13; b) give due consideration to the urgent establishment of civil/military coordination bodies for airspace management and air traffic control; c) arrange for Letters of Agreement (LOAs) to be signed between ATS authorities and Military authorities in order to establish coordination procedures for the exchange of information; and d) ensure that the Military authorities are:	Implement the Conclusion Conduct Seminar	States ICAO	State Letter Civil/Military coordination Seminar Input from States	Jul 2007 Oct 2008 TBD	~~SL~~Ltate Letter AN 6/27 – 240 dated 15 ~~July 2007 sent.~~ ~~Seminar tentatively scheduled for~~held ~~May 2008~~ Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
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.					
CONC. 10/26: COORDINATION OF FLIGHTS OPERATING OVER HIGH SEAS That, taking into consideration that the Convention on International Civil Aviation shall be applicable only to civil aircraft: a) All parties involved are urged to ensure that proper coordination between the ATS authorities and foreign military units operating over the high seas be carried out to the extent practicable; b) State aircraft operating in airspace over high seas, should: i. adhere, to the extent practicable, to ICAO provisions; or ii. operate with "Due Regard" for the safety of navigation of civil aircraft where there are operational situations that do not lend themselves to ICAO flight procedures. c) States report any incident relating to uncoordinated flights operating over high seas, in a timely manner (within 15 days) and in accordance with the suggested mechanism illustrated in the flow chart at Appendix 5.3C to the Report on Agenda Item 5.3.	Implement Conclusion Conduct seminar	States ICAO MID Regional Office IATA	State letter Civil/ Military coordination seminar Input from States	July 2007 Oct 2008 ~~TBD~~Ongoing	~~State letter sent (AN 6/27-240 dated 15 July 2007)~~ ~~Seminar tentatively scheduled for May 2008~~Completed ~~No~~ input ~~received~~(ongoing)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/27: UNCOORDINATED FLIGHTS OVER THE RED SEA AREA That, a) the procedures at Appendix 5.3D to the Report on Agenda Item 5.3 be followed by all civil uncoordinated flights and, to the extent practicable, by military aircraft operating over the Red Sea area; b) States, that have not yet done so, publish an AIP Supplement, as soon as possible, for the promulgation of these procedures; c) IATA continue its effort in ensuring that concerned operators are fully conversant with these procedures; d) all parties involved, through their proper channels, take appropriate action to ensure that the airspace users be informed of and comply with the agreed procedures; and States: i) report without delay all incidents relating to civil uncoordinated flights over the Red Sea Area; and ii) report any incident relating to State aircraft operating over the Red Sea Area, in a timely manner (within 15 days) and in accordance with the suggested mechanism illustrated in the flow chart at Appendix 5.3C to the Report on Agenda Item 5.3.	Implement Conclusion Conduct seminar	States ICAO MID Regional Office IATA	State letter Civil/ Military coordination seminar Input from States	July 2007 Oct 2008 TBD	~~State letter sent (AN 6/27-240 dated 15 July 2007)~~Completed ~~Seminar tentatively scheduled for May 2008~~Completed ~~No input received~~Ongoing

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/36: SPECIAL BAGHDAD FIR COORDINATION MEETING That, with a view to address coordination issues between Iraq and its adjacent States, a Special Baghdad FIR Coordination Meeting be organized under the aegis of ICAO with the attendance of Bahrain, Iraq, Iran, Jordan, Kuwait, Saudi Arabia, Syria, Turkey, IATA, IFALPA, FAA, the Combined Forces Air Component Commander (CFACC) and the MID RMA.	Conduct the meeting	ICAO Iraq and adjacent States	Report of the meeting	2nd Q 2008	~~Meeting tentatively scheduled for April 2008~~Completed
CONC. 10/42: ESTABLISHMENT OF THE RVSM/PBN TASK FORCE That, a) the RVSM and RNP/RNAV Task Forces are merged; and b) the TOR of the new established RVSM/PBN Task Force are at Appendix 5.3L to the Report on Agenda Item 5.3.	Conduct the RVSM/PBN TF/1 meeting	ICAO	Report of RVSM/PBN TF/1	Dec.2007	PBN/GNSS TF. ESTABLIHED
DEC. 10/43: MID REGION PBN STRATEGY That, the RVSM /PBN Task Force: a) follow up the developments related to Performance Based Navigation (PBN); and b) develop a MID Region strategy to implement the PBN concept.	Conduct a PBN Seminar and the RVSM/PBN TF/1 meeting	ICAO RVSM/PBN TF	Seminar Report of the meeting MID Region PBN Strategy	Nov. 2007 Dec. 2007 Dec. 2007	. Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DEC. 10/44: ESTABLISHMENT OF A MID REGION SSR CODE STUDY GROUP That, the MID Region SSR Code Study Group is established with the Terms of Reference as at Appendix 5.3M to the Report on Agenda Item 5.3.	Conduct the meeting(s)	ICAO	Report of the meeting(s) Guidance material	Dec. 2007	~~SSRCASG/1 held August 2007 SSRCASG/2 scheduled for March 2008~~Completed
CONC. 10/45: DEVELOPMENT AND PROMULGATION OF CONTINGENCY PLANS That, a) States are urged to develop and promulgate contingency plans in accordance with Annex 11 and Annex 15 provisions; b) ICAO MID Office carry out a survey on the status of development and promulgation of contingency plans in the Region; c) States use the template at Appendix 5.3N to the Report on Agenda Item 5.3 for the development and promulgation of contingency plans; and d) the relevant subsidiary bodies of MIDANPIRG revise their Terms of Reference (TOR) to include the development of regional guidance material leading to a MID Regional Contingency Plan for ATM including supporting CNS elements	Carry out the survey and analyze the results	ICAO States	State Letter Survey replies Analysis of results	Jun. 2007 Aug. 2007 Dec. 2007	~~Survey carried out. Response low~~Completed ~~Survey Results presented to~~Completed ~~ATM/SAR/AIS SG/9~~Completed

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/49: 406 MHZ BEACON REGISTRATION DATABASE (IBRD) That, MID States are: a) urged to require ELT owners and users of 121.5/243 Mhz ELTs to upgrade to 406 Mhz ELT as soon as possible and in any case before 1 February 2009; b) urged to require ELT owners to register their 406 Mhz ELTs in the IBRD database; and c) invited to designate an IBRD focal point and request Cospas-Sarsat to allocate the designated person a user identification and password in order to access the IBRD database and take advantage of the service available.	Follow up with States	ICAO States	State Letter Input from States on registration of 406 MHz ELTs in the IBRD database	Sep. 2007 Dec. 2008	~~SL Ref. AN 13/2.1 – 322 dated 25 September 2007 sent~~Cmpleted
CONC. 10/63: ORGANIZATION OF COMMUNICATION INFRASTRUCTURE SEMINAR That, MID States: a) support ICAO MID Regional Office in organizing Communication Infrastructure Seminar/Workshop during year 2007 by hosting this event; and b) participate in the Seminar/Workshop by sending their appropriate experts.	Seminar Agenda Hosting State defined Participate in event	ICAO ICAO/States States	Final Agenda Participants List Seminar Recommendations	Aug. 2007 Sept. 2007 Nov. 2007	Completed
CONC. 10/64: IMPLEMENTATION OF IPS BASED ATN That, MID States: a) consider the developments towards an IPS based ATN internet and to take these into account when considering developing plans for upgrading the aeronautical communications infrastructure; and b) update the ICAO MID Regional Office with their ATN and AMHS Plans.	Follow up development at ACP States Plans prepared States AMHS addressing	ICAO States	IPS based ATN documentation States updated Plans Updated AMHS register	Sept 2007 Sept 2007 Sept 2007	IPS working group established CNS SG/2 - Draft con 2/3

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/65: TERMS OF REFERENCE OF THE AD-HOC ACTION GROUP That, the Terms of Reference and Work Programme of the Ad-Hoc Action Group is adopted as, at **Appendix 5.5A** to the Report on Agenda Item 5.5.	Follow-up work programme	States Ad-Hoc Action Group	Updated list of experts Group Report	Jun. 2007 Sept 2007	Replaced and supersede by CNS SG/2 - Draft con 2/3
CONC. 10/66: SUPPORT ICAO POSITION FOR WRC 07 That, MID States: a) support ICAO position during the ITU WRC 07; and b) Civil Aviation Authorities, aviation experts participate with their national delegations to the ITU, WRC 07.	States delegate expert Support to experts	States ICAO HQ	Sufficient CA experts Coordination during WRC	Oct. 2007	Completed
CONC. 10/67: FUTURE SUPPORT FOR ICAO POSITION WITH REGARD TO WRC That, a) the Ad-Hoc Action Group for the support of Aeronautical Frequency Bands; is to follow-up the developments related to ICAO position regarding future ITU in order to highlight it to the MID States; and b) MID States Civil Aviation Authorities, experts participate with their appropriate ministerial delegations in the drafting of the national radio plans in the support of ICAO position.	Follow up developments	Ad-hoc Action Group CNS SG/2	Ad-Hoc Action Group reports	Nov. 2008	Replaced and supersede by CNS SG/2 - Draft con 2/3

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/68: MID VSAT PROJECT FINALIZATION That, in order to expedite the implementation of the MID VSAT Project, concerned MID States commit themselves to the project, by signing the Memorandum of Understanding (MOU) leading to form a structure for managing the MID VSAT Project.	MOU ready	ICAO HQ States CNS SG/2	Draft MOU CNS SG/2 Report	Sept 2007 Nov. 2008	Completed ~~Replaced and superseded by Con. CNS 1/9~~ Replaced and superseded by Con MSG 1/8
DEC. 10/69: DISSOLVING THE CNS/MET SUB-GROUP AND ESTABLISHMENT OF A CNS SUB-GROUP AND A MET SUB-GROUP That, a) the CNS/MET Sub-Group is dissolved; and b) a separate CNS Sub-Group and a separate MET Sub-Group are established.	Conduct CNS SG/1 and MET SG/1 meetings and follow up work programmes	ICAO States	CNS SG/1 Report MET SG/1 Report	Sept 2007 July 2008	Completed
DEC. 10/70: DISSOLUTION OF THE AFS/ATN TASK FORCE That, the AFS/ATN Task Force is dissolved and its work programme is to be incorporated in to that of CNS Sub-Group.	TF dissolved Work programme carry out	CNS SG/1	CNS SG/1 Report	Sept. 2007	Completed
CONC. 10/76: ENHANCEMENT OF MID REGION'S AIR NAVIGATION DEFICIENCY DATABASE That, ICAO MID Regional Office provide searching feature for the MID Air Navigation Deficiency database on the website.	Implement the conclusion	ICAO MID Office	Searching feature for MID AN Def. Database is provided	TBD	Ongoing;

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/77: ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE MID REGION That, a) MID States 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; b) MID States increase their efforts to overcome the delay in mitigating air navigation deficiencies identified by MIDANPIRG and explore ways and means to eliminate deficiencies; c) MID States experiencing difficulties in financing the elimination of safety-related deficiencies may wish to take advantage of the funding opportunity offered by the International Financial Facility for Aviation Safety (IFFAS); d) users of air navigation facilities and services in the MID Region report to the ICAO MID Regional Office when the remedial action on a deficiency has been taken, and e) ICAO continues to provide assistance to States for the purpose of rectifying deficiencies; and when required, States request ICAO assistance through Technical Co-operation Programme and/or Special Implementation Projects (SIP).	Follow-up implementation of the conclusion	States ICAO Users IFFAS	Concerned States eliminate their air navigation deficiencies	Nov. 2008	Ongoing In work programme of all subgroups

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/80: REPORTING MECHANISM AND SHARING OF SAFETY-RELATED INFORMATION That, MID States: a) update their legislation to support a "just culture" reporting environment as part of their safety programme; b) develop and implement non-punitive reporting mechanisms as part of their safety programme for the identification of hazards and assessment of risks in order to implement appropriate mitigating measures; c) designate focal points to whom operators can send incident reports for investigation and resolution and from whom they could request information for clarification purpose; and e) share information on ATS incidents and accidents.	Urge States to comply with the Conclusion	ICAO States	State Letter Update list of focal points Reports from States	Sept 2007 Nov. 2007 TBD	~~State Letter sent. Survey response low~~Completed
DRAFT CONC. 1/1: FOLLOW UP ON MIDANPIRG CONCLUSIONS AND DECISIONS That: a) States send their updates related to the MIDANPIRG follow up action plan to the ICAO MID Regional Office on regular basis (at least once every six months); b) the MIDANPIRG subsidiary bodies review the appropriate actions/tasks of the MIDANPIRG follow up action plan and undertake necessary updates based on the feedback from States; and c) ICAO MID Regional Office post the MIDANPIRG follow up action plan on the ICAO MID website and ensure that it is maintained up-to-date.	Implement Conclusion	ICAO States Subsidiary Bodies ICAO	State Letter Updated Action Plan Updated Action Plan Posted updated Action Plan on web	Every six months Every six months Every six months	On going

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DRAFT DEC. 1/2: REVISED MIDANPIRG ORGANIZATIONAL STRUCTURE That, with a view to increase MIDANPIRG efficiency, MIDANPIRG Organizational Structure be updated as at **Appendix 4A** to the Report on Agenda Item 4.	Present to MIDANPIRG	ICAO	Approved MIDANPIRG revised structure	Feb 2009	MIDANPIRG/11 Approval
DRAFT CONC. 1/3: INCREASING THE EFFICIENCY OF MIDANPIRG That, with a view to increase the efficiency of MIDANPIRG: a) States appoint an ICAO Focal Point Person(s) (ICAO-FPP) using the form at **Appendix 4E** to the Report on Agenda Item 4; who would: i) ensure the internal distribution of all ICAO MID Office correspondences related to MIDANPIRG activities and the follow-up within civil aviation administration; ii) follow up the ICAO MID Office postings of tentative schedule of meetings, MIDANPIRG follow up action plan, State Letters, documentations (working/ information papers, reports of meetings, etc.) on both the ICAO MID website and the MID Forum; and iii) ensure that required action and replies are communicated to ICAO MID Regional Office by the specified target dates. b) ICAO MID Regional Office copy all correspondences related to MIDANPIRG activities to the designated ICAO-FPP as appropriate.	Implement Conclusion	ICAO States	State Letter List of ICAO FPP	Aug 08 Nov 08	State letter sent On going

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DRAFT CONC. 1/4: IMPROVING THE EFFICIENCY OF THE ICAO MID FORUM That, Bahrain in coordination with ICAO: a) explore ways and means for improving the efficiency of the ICAO MID Forum; and b) investigate the possibility of using the ICAO MID Forum for the posting of AIS publications by States.	Present WP to MIDANPIRG	ICAO Bahrain	Draft Feasibility Study	Feb 09	MIDANPIRG/11
DRAFT CONC. 1/5: DISCONTINUATION OF THE RVSM/PBN AND GNSS TASK FORCES AND ESTABLISHMENT OF THE PBN/GNSS TASK FORCE That, taking into consideration the status of implementation of RVSM and PBN in the MID Region and the close inter-relationship between the PBN goals and GNSS implementation and with a view to enhance the efficiency of MIDANPIRG: a) the RVSM/PBN and the GNSS Task Forces are abolished and the PBN/GNSS Task Force is established with TOR as at **Appendix 5B** to the Report on Agenda Item 5; b) GNSS matters not related to PBN be discussed separately from PBN matters; and c) the remaining RVSM work programme be addressed by the ATM/SAR/AIS SG and the MID RMA Board.	Follow-up work programme	MIDANPIRG/11	MIDANPIRG/11 Approval	Feb 09	MIDANPIRG/11 Approval

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DRAFT CONC. 1/8: COMPLETION OF THE MID VSAT PROJECT That, following the successful implementation of Phase I of the MID VSAT project and in order to avoid the proliferation of the VSAT networks; MID States requiring VSAT connections may join the NAFISAT network project and participate in its Steering Group.	Implement the Conclusion	ICAO	MIDANPIRG/11 Approval	Feb 09	MIDANPIRG/11 Approval
DRAFT DEC. 1/9: REVISED TERMS OF REFERENCE OF MSG That, the Terms of Reference of MSG be updated as at **Appendix 7B** to the Report on Agenda Item 7.	Implement Work Programme	ICAO States	MSG/2 Report	31 Mar 2010	On going

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REPORT ON AGENDA ITEM 3: MID REGION CNS/ATM PERFORMANCE OBJECTIVES

3.1 The meeting noted that at its 179th Session the ICAO Council adopted the amended Global Air Navigation Plan for CNS/ATM Systems, which has now been renamed the Global Air Navigation Plan (GANP). The Global Plan Initiatives (GPIs) which form one of the main structures of the Global Plan were developed by the Air Navigation Commission on the basis of an industry developed roadmap which was aimed at bringing near and medium term benefits to aircraft operators, taking advantage of currently available aircraft capabilities and ATC infrastructure and technology.

3.2 Furthermore, the meeting noted that the GPIs 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. A set of interactive planning tools (e.g. software applications, planning documentation, web-based reporting forms, project management tools) that support the Global Plan, will assist with the analytical process.

3.3 The meeting was informed that first meeting of the MIDANPIRG Steering Group (MSG/1 Dubai, UAE from 1 to 3 July 2008) proposed an update of MID Strategy for the Implementation of the GPIs in order to reflect the outcome of the 36th General Assembly and to concentrate on the incorporation of advanced aircraft navigation capabilities into the air navigation system infrastructure.

3.4 The meeting recalled that in order to guide the PIRGs and States regarding the implementation of GPI's, the ALLPIRG/5 meeting developed Conclusion 5/2: *Implementation of Global Plan Initiatives (GPIs)*. Furthermore, that the 23 GPIs, as described in the Global Plan, provide a global strategic framework for planning for air navigation systems and are designed to contribute to achieving the regional/national performance objectives, and that each performance objective should be mapped to the corresponding GPIs.

3.5 The meeting noted that in order to facilitate the realization of a performance based Global ATM system, ICAO has made significant progress in the development of relevant guidance material. This includes the Manual on Global Performance of the Air Navigation System, which was developed in February 2008. Furthermore, meeting was apprised on the processes relating to the ICAO transition to a performance based approach to planning including related processes and advantages.

3.6 The meeting was also apprised, more specifically, on the mechanism and process related to Regional National Planning, as well as on the Performance Framework Form (PFF) and explanatory notes as at **Appendix 3A** to the Report on Agenda Item 3, which is a common template that facilitates ease of understanding, harmonization and has been standardized for application to both the regional and the national planning framework.

3.7 The meeting noted the importance of monitoring and reporting integrated into the above planning processes. That, amongst others, PIRGs should identify the individual parties responsible for achieving the performance objectives and establish a monitoring mechanism. The responsibilities and timeframe should be clearly defined so that the involved parties are aware of their commitments throughout the planning process, and the Regional plans should include information on progress achieved and provide periodic reports to ICAO Headquarters, through the Regional mechanisms.

3.8 The meeting acknowledged that a global ATM system, which is intended to bring needed benefits to aircraft operators over the near and medium terms, will emerge through the implementation of many initiatives over several years on an evolutionary basis. ICAO will continue to develop newer initiatives on the basis of the ATM operational concept, which will subsequently be placed in the Global Plan. At first, the planning and implementation activities begin with application of available procedures, processes and capabilities. The evolution progresses to the application of emerging procedures, processes and capabilities and, ultimately, migrates to the ATM system based on the operational concept.

3.9 Based on the above, and considering the need to have a clearly defined strategy to implement ATM systems as well as the need to align work programmes of the States, Regions and ICAO Headquarters, the meeting agreed and endorsed the following Draft Conclusions:

DRAFT CONCLUSION 4/1: REGIONAL PERFORMANCE FRAMEWORK

That,

a) a regional performance framework be adopted on the basis of and alignment with the Global Air Navigation Plan, the Global ATM Operational Concept, and ICAO guidance material and planning tools. The performance framework should include the identification of regional performance objectives and completion of regional performance framework forms; and

b) ALLPIRG/5 Conclusion 5/2: Implementation of Global Plan Initiatives (GPIs, be incorporated into the terms of reference of the MIDANPIRG subsidiary bodies.

DRAFT CONCLUSION 4/2: NATIONAL PERFORMANCE FRAMEWORK

That, MID States be invited to adopt a national performance framework on the basis of ICAO guidance material and ensure their alignment with the regional performance objectives, the Regional Air Navigation Plan and the Global ATM Operational Concept. The performance framework should include identification of national performance objectives and completion of national performance framework forms.

3.10 Furthermore, the meeting agreed that the above Draft Conclusions obviate and accordingly are to supersede MIDAPIRG/10 Conclusion 10/13*: MID Region Strategy for the Implementation of the Global Plan Initiatives (GPIs) and 10/14 Implementation of Work Programme in support of Strategic Performance Objectives.*

3.11 The meeting reviewed and updated the PFFs containing the initial performance objectives relating to the fields of ATM, CNS, AIS and AGA, which were developed by the relevant MIDANPIRG subsidiary bodies and the Secretariat, and updated the planning material therein as necessary as at **Appendix 3B** (ATM), **Appendix 3C** (CNS), **Appendix 3D** (AIS) and **Appendix 3E** (AGA), to the Report on Agenda Item 3.

3.12 The meeting noted with appreciation that Saudi Arabia has already commenced development of national performance objectives. To this effect, the meeting noted PFFs in respect of "Improvement of KSA ATS Rout Structure" and "Implementation of Flexible Use of Airspace (FUA) Concept" developed by Saudi Arabia, which will be further populated with necessary details. Saudi Arabia showed interest to host PFF workshop which will be confirmed by end of March 2009, and State Letter will be forwarded to Saudi Arabia in this regard.

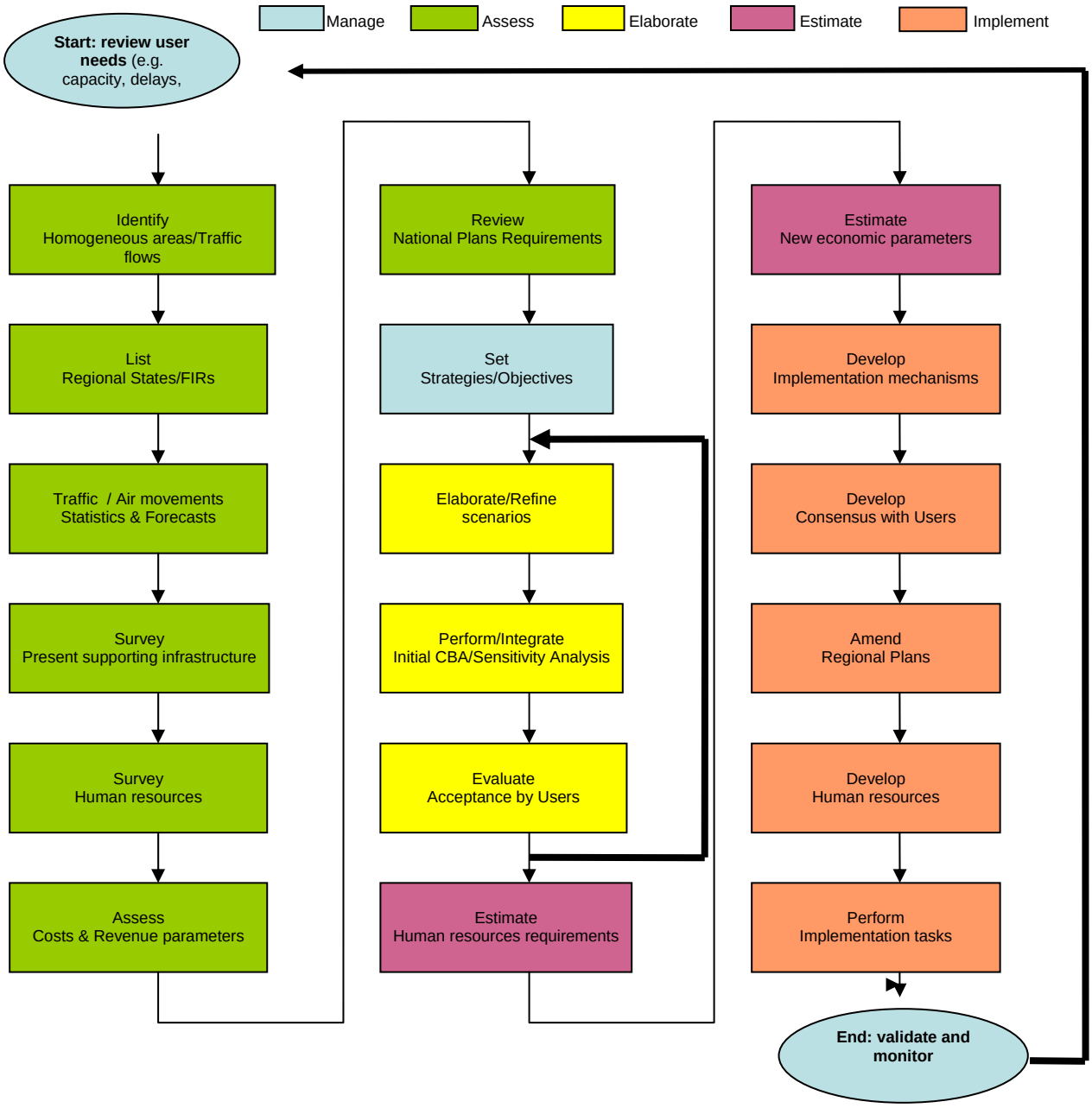


Figure 1. Planning flow chart

Extracted from Global Air Navigation Plan -Doc 9750, Chapter 1

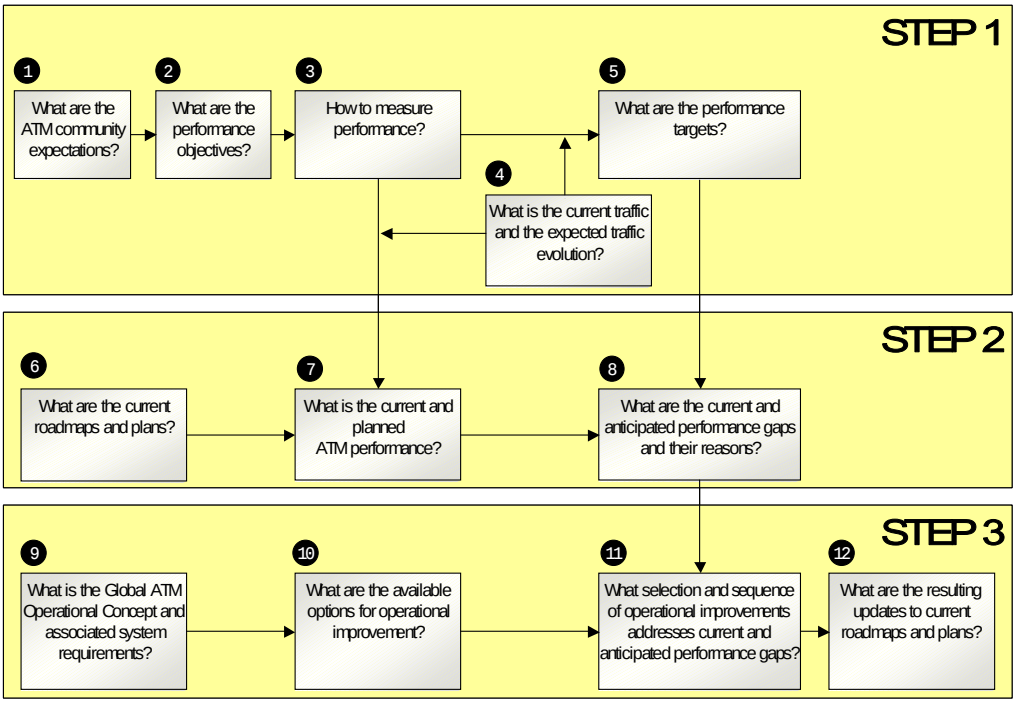


Figure 2 – Performance-based transition approach

Extracted from Part II of the
Manual on Global Performance of the Air Navigation System-Doc 9883

PERFORMANCE FRAMEWORK FORM

(a sample)

REGIONAL PERFORMANCE OBJECTIVES /NATIONAL PERFORMANCE OBJECTIVES — OPTIMIZE THE ATS ROUTE STRUCTURE IN EN-ROUTE AIRSPACE				
Benefits				
Environment **Efficiency**	• reductions in fuel consumption; • ability of aircraft to conduct flight more closely to preferred trajectories; • increase in airspace capacity; • facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.			
Strategy **Short term (2010)** ***Medium term (2011 - 20015)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AOM	***En-route airspace*** • analyze the en-route ATS route structure and implement all identifiable improvements; • implement all remaining regional requirements (e.g. RNP 10 routes); and • finalize implementation of WGS-84 • monitor implementation progress • develop a strategy and work programme 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; • monitor implementation progress	2005-2008		
linkage to GPIs	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.			

PERFORMANCE FRAMEWORK FORM - EXPLANATORY NOTES

1. **Performance framework form:** This form is an output and management form which is applicable to both regional and national planning and includes references to the Global Plan. Other formats may be appropriate but should contain as a minimum the elements described below

2. **Performance objective:** Regional /national performance objectives should be developed using a performance based approach that best reflects the necessary activities needed to support regional/national ATM systems. During their life cycle, performance objectives may change depending on the ATM system's evolution; therefore, throughout the implementation process, these should be coordinated with and be available to all interested parties within the ATM Community. The establishment of collaborative decision making processes ensures that all stakeholders are involved in and concur with the requirements, tasks and timelines.

3. **Regional performance objective:** Regional performance objectives are the improvements required to the air navigation system in support of the global performance objectives, and are related to the operating environments and priorities applicable at the regional level.

4**.** **National performance objective:** National performance objectives are the improvements required to the air navigation system in support of the regional performance objectives, and are related to the operating environments and priorities applicable at the State level.

5**.** **Benefits:** The regional/national performance objectives should meet the expectations of the ATM community as described in the operational concept and should lead to benefits for stakeholders and be achieved through operational and technical activities aligned with each performance objective.

6. **Strategy:** ATM evolution requires a clearly defined progressive strategy including tasks and activities which best represent the national and regional planning processes in accordance with the global planning framework. The goal is to achieve a harmonized implementation process evolving toward a seamless global ATM system. For this reason, it is necessary to develop short (1 to 5 years) and medium term (6 to 10 years) work programmes, focusing on improvements to the system indicating a clear work commitment for the parties involved.

7. **ATM operational concept components;** Each strategy or set of tasks should be linked with associated components of the ATM operational concept. The designators for ATM components are as follows:

- AOM – Airspace organization and management
- DCB – Demand and capacity management
- AO – Aerodrome operations
- TS – Traffic synchronization
- CM – Conflict management
- AUO – Airspace user operations
- ATM SDM – ATM service delivery management

8 **Tasks:** The regional/ national work programmes, using this PFF templates, should define tasks in order to achieve the said performance objective and at the same time maintain a direct relation with ATM system components. The following principles should be considered when developing work programme:

- The work should be organized using project management techniques and performance-based objectives in alignment with the strategic objectives of ICAO.

- All tasks involved in meeting the performance objectives should be developed using strategies, concepts, action plans and roadmaps which can be shared among parties with the fundamental objective of achieving seamlessness through interoperability and harmonization.

- The planning of tasks should include optimizing human resources as well as encouraging dynamic use of electronic communication between parties such as the Internet, videoconferences, teleconferences, e-mail, telephone and facsimile. Additionally, resources should be efficiently used, avoiding any duplication or unnecessary work.

- The work process and methods should ensure that performance objectives can be measured against timelines and the national and regional progress achieved can be easily reported to PIRGs and ICAO Headquarters respectively.

9. **Timeframe:** Indicates start and end time period of that particular task(s).

10. **Responsibility:** Indicates the organization/entity/person accountable for the execution or management of the related tasks.

11**.** **Status:** The status is mainly focused on monitoring the progress of the implementation of that task(s) as it progresses toward the completion date.

12**.** **Linkage to global plan initiatives(GPIs)*:*** The 23 GPIs, as described in the Global Plan, provide a global strategic framework for planning for air navigation systems and are designed to contribute to achieving the regional/national performance objectives. Each performance objective should be mapped to the corresponding GPIs. The goal is to ensure that the evolutionary work process at the State and regional levels will be integrated into the global planning framework.

CNS/ATM/IC SG/4
Appendix 3B to the Report on Agenda Item 3

SEAMLESS ATM SYSTEM

MID ATM WORK PROGRAMME

REGIONAL PLANNING PROCESS

The regional planning process shall be conducted in accordance with the global plan initiatives (GPIs) of the Global Plan (Doc 9750) and the ICAO vision for an integrated ATM system, harmonized and interoperable, as established in the Global ATM Operational Concept (Doc 9854).

The objective is to achieve the maximum level of inter-operability and harmonization among sub-systems for a seamless and interoperable regional ATM system for all users during all phases of flight, complying with agreed levels of safety, providing optimum economic operations, to be environmentally sustainable and to fulfil national aviation security requirements.

The planning should be developed based on clearly defined performance objectives. The planning horizon should be focused on the strategies of development, activities or main tasks for two periods – that of less than 5 years (short-term) and 6 to 10 years (medium-term). Some already identified tasks to be analyzed beyond this period may be included if they conform to ICAO ATM requirements**.**

ATM PERFORMANCE OBJECTIVES

The performance objectives for regional ATM work programmes should be developed with performance based approach that best reflects the necessary activities needed to support regional ATM system implementation.

During its life cycle, the performance objectives may change in a dynamic manner depending on the ATM system's evolution; therefore, these should be coordinated with and available to all interested parties within the ATM Community in order to achieve timely communication throughout the implementation process. The establishment of collaborative decision making processes (CDM) ensures that all stakeholders are involved in and concur with the requirements, tasks and timelines.

The following sections describe aspects pertaining to the performance objectives and required changes, and how these changes foster harmonized improvements throughout the regional ATM system.

Benefits

The ATM implementation strategies should provide a group of common benefits for all stakeholders and be achieved through the operational and technical activities planned in each performance objective. These benefits should be in accordance with the ICAO strategic objectives.

Identification of work

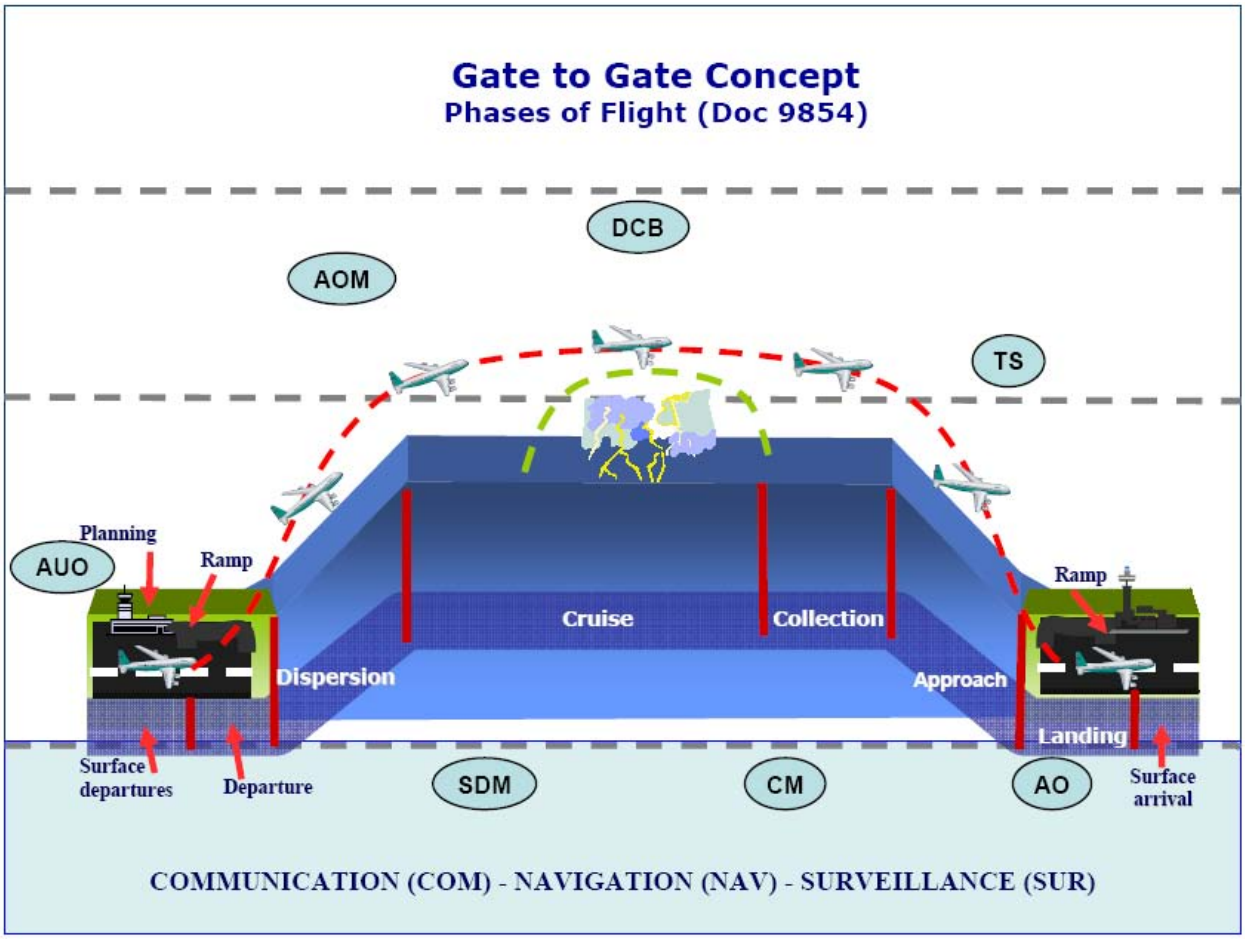
Each strategy or set of activities should be identified with associated components of the ATM system when describing the tasks. According to the Doc 9854, the designators for ATM components are as follows:

- **AOM** — Airspace organization and management
- **DCB** — Demand and capacity balancing
- **AO** — Aerodrome operations
- **TS** — Traffic synchronization
- **CM** — Conflict management
- **AUO** — Airspace user operations
- **ATM SDM** — ATM service delivery management

Each ATM system component pertains to tasks and activities related to phases of air operations (en-route, terminal and airport), capacity management, airspace management including its flexible use and aeronautical information management.

The infrastructure includes the ground technical systems and capacity required to support operations such as communications, navigation and surveillance, data processing, inter-operability of systems, information management system and spectrum management, including both civil and military systems.

The following diagram shows the ATM components in relation to the phases of flight:



Work Programmes

ATM evolution requires a clearly defined progressive strategy including tasks and activities which best represent the regional and national planning processes in accordance with the global planning framework. The goal is to obtain a harmonized regional implementation evolving toward a seamless global ATM system.

For this reason, it is necessary to develop short and medium term work programmes, focusing on the necessary changes to the system in which a clear work commitment will be carried out by the parties involved.

The regional work programmes should define additional tasks and activities, maintaining a direct relation with ATM system components such as airspace organization, civil-military coordination, human factors, aeronautical regulations, operational safety systems management and environmental protection, among others.

The referenced framework for regional activities should also include the coordination of activities with military authorities who play an important role in helping to ensure that the best use is made of the available airspace resources by all airspace users while still safeguarding national security.

The following principles should be considered when developing work programmes:

- The work should be organized using project management techniques and performance-based objectives in alignment with the strategic objectives of ICAO. The work programmes should be in accordance with the progress, characteristics and regional implementation needs.

- All activities involved in accomplishing the performance objectives should be designed following strategies, concepts, action plans and roadmaps which can be shared among States to align the regional work with the fundamental objective of achieving interoperability and seamlessness to the highest level.

- The planning of activities should include optimizing human resources, as well as encouraging dynamic use of electronic communication between States such as the Internet, videoconferences, teleconferences, e-mail, telephone and facsimile. Additionally, it should be ensured that resources will be efficiently used, avoiding any duplication or unnecessary work.

- The new work process and methods should ensure that performance objectives can be measured against timelines and the regional progress achieved can be easily reported to the Air Navigation Commission and to the ICAO Council.

Status

The status is mainly focused on monitoring the progress of the implementation activity as it progresses toward a specific completion date. The status of the activity is defined as follows:

- **Valid** the feasibility and benefits of an activity has been confirmed, work has been initiated but the activity itself has not been finalized.
- **Completed** implementation of the activity has been finalized by the involved parties.
- **Tentative** the feasibility and benefits of an activity is being investigated or developed.

A tentative status indicates a potential activity; normally this activity will not be included in the regional planning documents unless it is an ICAO defined requirement.

Relationship between Performance Objectives and Global Plan Initiatives

The 23 GPIs provide a global strategic framework and are designed to contribute to achieving the regional performance objectives and to support the logical progression of regional implementation work programmes.

Each performance objective should be referenced to the pertinent GPIs. The goal is to ensure that the evolutionary work process will be integrated into the global planning framework.

NATIONAL ACTION PLANS

States shall develop their own national action plans reflecting the specific activities or tasks along with the expected benefits to be obtained and the date by which each one should be completed according to its own needs and based on the regionally-agreed performance objectives. States should submit their national action plans to the ICAO regional Offices so they may report regional achievements to the Council of ICAO.

The activities should include the necessary detailed actions to successfully achieve the national performance objectives, relating these activities with the short and medium term regionally-agreed performance objectives.

National plans should identify the individual parties responsible for achieving the objectives as well as a means for monitoring and eventually reporting progress on the actions to ICAO. The responsibilities and time-tables should be clearly defined so that the involved parties are aware of their commitments throughout the planning process.

Additionally, national action plans should include adequate means to provide information on implementation progress achieved such as through a periodic reporting process. This facilitates senior management levels' efforts to prioritize the actions and resources required. The same information provided to ICAO will allow feedback and assistance to be provided specific for each Region as they work to achieve a Global ATM system.

ATM PERFORMANCE OBJECTIVES

OPTIMIZATION OF THE ATS ROUTE STRUCTURE EN-ROUTE AIRSPACE				
Benefits				
Environment **Efficiency**	▪ reductions in fuel consumption; ▪ ability of aircraft to conduct flight more closely to preferred trajectories; ▪ increase in airspace capacity; ▪ facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.			
Performance Matrixes:	i. PBN routes implemented ii. Routes structure actual distance to required distance iii. CO_2 reduction of new routes			
Short-term Strategy(2008-2012)				
TASK	**DESCRIPTION**	**START-END**	**RESPONSIBILITY**	**STATUS**
AOM	***En-route airspace***			
	Develop regional strategic plan	2008-2009	MIDANPIRG/11 (PBN /GNSS TF)	PBN/GNSS TF/1 agreed on Draft for presentation at ATM/SAR/AIS SG/10
	Develop regional implementation plan	2008-2009	MIDANPIRG /11 (PBN /GNSS TF)	PBN/GNSS TF/1 agreed on Draft for presentation at ATM/SAR/AIS SG/10
	Develop regional action plan	2009-2010	MIDANPIRG /12 (PBN /GNSS TF)	Need identified by PBN/GNSS TF/1. Small WG to be formed to draft action plan.
	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	2009-2010	ATM/SAR/AIS (ARN TF)	ARN TF/2 to start work
	Develop State PBN implementation plans	2008-2009	MIDANPIRG/12 (ATM/SAR/AIS, States	States preparing plans
	Standards and Procedures	2008-2010	States	Ongoing
	Formulate safety plan (assessment and monitoring)	2009	ATM/SAR/AIS SG (MID RMA)	MID RMA to start work
	Establish collaborative decision making (CDM) process	2008-2010	MIDANPIRG/12 (ATM/SAR/AIS SG, CNS SG)	
	ATC Automated Systems	2009-2012	States	

	Publish national regulations for aircraft and operators approval using PBN manual as guidance material	2008-2010	States	Review and adapt available foreign approval guidance material
	Training	2008-2010	States	Identify training needs and develop corresponding guidelines
	System performance measurement	2010-2012	ATM/SAR/AIS SG (ARN TF)	ARN TF/2 to start work
	Implement the designed ATS route network	2009-2012	MIDANPIRG/12 (ATM/SAR/AIS) STATES	
	monitor implementation progress in accordance with MID PBN implementation roadmap and States implementation plan	2008-2012	MIDANPIRG/12 (ATM/SAR/AIS SG, CNS SG)	
References	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 ATS ROUTE STRUCTURE IN TERMINAL AIRSPACE				
Benefits				
Environment **Efficiency**	▪ reductions in fuel consumption; ▪ ability of aircraft to conduct flight more closely to preferred trajectories; ▪ increase in airspace capacity; ▪ facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.			
Strategy ***Short term (2008-2012)***				
TASK	**DESCRIPTION**	**START -END**	**RESPONSIBILITY**	**STATUS**
AOM, AO	***In terminal airspace***			
	Develop regional strategic plan	2008-2009	MIDANPIRG/11 (PBN /GNSS TF)	PBN/GNSS TF/1 agreed on Draft for presentation at ATM/SAR/AIS SG/10
	Develop regional implementation plan	2008-2009	MIDANPIRG /11 (PBN /GNSS TF)	PBN/GNSS TF/1 agreed on Draft for presentation at ATM/SAR/AIS SG/10
	Develop regional action plan	2009-2010	MIDANPIRG /12 (PBN /GNSS TF)	Need identified by PBN/GNSS TF/1. Small WG to be formed to draft action plan.
	Develop Airspace Concept based on the MID PBN implementation plan, in order to design and implement optimized standard instrument departures (SIDs), standard instrument arrivals (STARs), instrument flight procedures, holding, approach and associated procedures (particular RNAV 1 and Basic RNP1) in accordance with Regional Plan.	2009-2010	States	
	Develop State PBN implementation plans	2008-2009	MIDANPIRG/12 (ATM/SAR/AIS SG), States	States preparing plans
	Standards and Procedures	2008-2010	States	Ongoing
	Formulate safety plan (assessment and monitoring)	2009-2012	States	
	Establish collaborative decision making (CDM) process	2008-2010	MIDANPIRG/12 (ATM/SAR/AIS SG, CNS SG)	

	Publish national regulations for aircraft and operators approval using PBN manual as guidance and considering available foreign approval material	2008-2010	States	Review and adapt available foreign approval guidance material
	ATC Automated Systems	2009-2012	States	
	Training	2008-2010	States	States to identify training needs and develop corresponding guidelines
	System performance measuring (measurement and monitoring plan	2009-2012	States, ATM/SAR/AIS SG	States to start work
	Implement SIDs and STARs	2009-2012	States	
	Monitor implementation progress in accordance with MID PBN implementation roadmap and States implementation plan	2009-2012	States, ATM/SAR/AIS SG	
References	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.			

IMPLEMENTATION OF VERTICALLY GUIDED RNP APPROACHES				
Benefits				
Efficiency **Safety**	▪ Improvements in capacity and efficiency at aerodromes. ▪ Improvements in safety at aerodromes.			
Strategy ***Short term (2008-2012)***				
TASK	**DESCRIPTION**	**START -END**	**RESPONSIBILITY**	**STATUS**
AOM, AO	***At airports***			
	Develop regional strategic plan	2008-2009	MIDANPIRG/11 (PBN /GNSS TF)	PBN/GNSS TF/1 agreed on Draft for presentation at ATM/SAR/AIS SG/10
	Develop regional implementation plan	2008-2009	MIDANPIRG /11 (PBN /GNSS TF)	PBN/GNSS TF/1 agreed on Draft for presentation at ATM/SAR/AIS SG/10
	Develop regional action plan	2009-2010	MIDANPIRG /12 (PBN /GNSS TF)	Need identified by PBN/GNSS TF/1. Small WG to be formed to draft action plan.
	Develop Airspace Concept based on the MID PBN Implementation Plan, in order to design and implement RNP APCH with Baro-VNAV in most possible airports; RNP AR APCH at airports where there are obvious operations airports.	2009-2012	States	
	Develop State PBN implementation plans	2008-2009	MIDANPIRG/12 (ATM/SAR/AIS SG), States	States preparing plans
	Standards and Procedures	2012-2010	States	Ongoing
	Formulate safety plan (assessment and monitoring)	2009-2012	States	
	Establish collaborative decision making (CDM) process	2008-2012	States	
	Publish national regulations for aircraft and operators approval using PBN manual as guidance and considering available foreign approval material	2008-2010	States	Review and adapt available foreign approval guidance material
	Training	2008-2010	States	States to identify training needs and develop corresponding guidelines

	System performance measuring (measurement and monitoring plan	2009-2012	States, ATM/SAR/AIS SG	States to start work
	Implement APV procedures	2009-2012	States	
	Monitor implementation progress in accordance with MID PBN implementation roadmap and States implementation plan	2009-2012	States, ATM/SAR/AIS SG	
References	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: FMS-based arrival procedures.			

ENHANCE CIVIL/MILITARY COORDINATION AND CO-OPERATION				
Benefits				
Efficiency ▪ increase airspace capacity; and ▪ allow a more efficient ATS route structure				
Continuity: ▪ ensure safe and efficient action in the event of unlawful interference; ▪ make available military restricted airspace more hours of the day so that aircraft can fly on their preferred trajectories; and ▪ improve search and rescue services.				
Strategy (2008-2012)				
TASK	**DESCRIPTION**	**START-END**	**RESPONSIBILITY**	**STATUS**
AOM, AUO	***En-route and terminal airspace***			
	▪ conduct a regional review of special use airspace;	2009-2009	MIDANPIRG/12 (ATM/SAR/AIS SG), States	
	▪ develop Regional guidance material on civil/military coordination and co-operation to be used by States to develop national policies, regulations and procedures to achieve optimum use of the airspace by all its users, civil or military;	2009-2010	ATM/SAR/AIS SG	
	▪ establish civil/military coordination bodies at national level;	2008-2009	States	
	▪ arrange for permanent liaison and close cooperation between civil ATS units and appropriate air defence units;	2009-	States	
	▪ Implement collaborative civil/military airspace planning at national level	2009-	States	
	▪ Increase role of civil/military coordination forums		States, MIDANPIRG	
	▪ develop a regional strategy and work programme 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;	2009-2010	MIDANPIRG/12 (ATM/SAR/AIS SG), States	
	▪ Implement FUA	2008-	States	
	▪ monitor implementation progress	2008-	ATM/SAR/AIS SG	
GPI References	GPI/1: flexible use of airspace, GPI/5: performance-based navigation.			

ALIGN UPPER AIRSPACE CLASSIFICATION				
Benefits				
Efficiency ▪ enhanced airspace capacity ▪ enhanced airspace management coordination, message exchange capabilities and utilization of flexible and dynamic airspace management techniques; ▪ harmonization of interregional coordination processes;				
Continuity ▪ improvement of airspace interoperability and seamlessness; and ▪ improvement in ATM contingency planning and implementation				
Safety ▪ provision of positive air traffic control services to all aircraft operations in the upper airspace				
Strategy (2008-2012)				
TASK	**DESCRIPTION**	**START-END**	**RESPONSIBILITY**	**STATUS**
AOM	▪ Develop a regional implementation strategy and work programme for the implementation of ICAO Annex 11 airspace Class A above FL 195.	2009-2010		
	▪ identify key stakeholders, air traffic controllers, pilots, and relevant international organisations for coordination and cooperation on changes for new airspace organization, using a CDM process;			
	▪ Coordinate changes for regional and national documents; • Doc 8733, CAR/SAM ANP, AIP, and ATS letters of agreement			
	▪ carry out improvements in ground systems to support new airspace organization configurations, as necessary;			
	▪ publish national regulatory material for implementation of new rules and procedures to reflect airspace organizational changes;			
	▪ train air traffic controllers, pilots and airspace users (civil and military), as required in new procedures,;			
	▪ monitor implementation progress.			
GPI References	GPI/4: align upper airspace classification.			

COMPLETE IMPLEMENTATION OF RVSM OPERATIONS IN THE MID REGION				
Benefits				
Environment ▪ reduced fuel consumption and related reduction in emissions.				
Efficiency ▪ increased airspace capacity;				
Strategy Near term (2008-2012)				
TASK	**DESCRIPTION**	**START-END**	**RESPONSIBILITY**	**STATUS**
AOM	▪ Review and foster implementation of RVSM requisite conditions in the Baghdad and Kabul FIRs	2008-2009		
	▪ Coordinate RVSM implementation/operations with adjacent regions.			
	▪ Implement RVSM in the remaining FIRs (Baghdad and Kabul) ▪ Monitor RVSM operations in the MID Region;			
	▪ Ensure MID RMA operations continuity;			
GPI References	GPI/2: reduced vertical separation minima			

IMPROVE DEMAND AND CAPACITY BALANCING				
Benefits				
Environment ▪ reduction in weather- and traffic-induced holding, leading to reduced fuel consumption and emissions.				
Efficiency ▪ improved traffic flows; ▪ improved predictability; ▪ improved management of excess demand for service in ATC sectors and aerodromes; ▪ improved operational efficiency; ▪ enhanced airport capacity; ▪ enhanced airspace capacity.				
Safety ▪ improved safety management.				
Strategy Near term (2008-2012)				
TASK	**DESCRIPTION**	**START-END**	**RESPONSIBILITY**	**STATUS**
DCB	▪ identify key stakeholders (ATC service providers and users, military authorities, airport authorities, aircraft operators and relevant international organisations) for purposes of coordination and cooperation, using a CDM process;			
	▪ identify and analyse traffic flow problems and develop methods for improving efficiencies on a gradual basis, as needed, through enhancements in current: o airspace organization and management (AOM) and ATS routes structure and SID and STARS, o CNS systems, o aerodrome capacity, o ATS capacity, o training for controllers and pilots; and o ATS letters of agreement;			
	▪ define common elements of situational awareness between FMUs; o common traffic displays, o common weather displays (Internet), o communications (teleconferences, web, etc.), and o daily teleconference/messages methodology advisories;			
	▪ develop methods to establish demand/capacity forecasting;			
	▪ develop a regional strategy and work programme for harmonized implementation of ATFM service; and			
	▪ monitor implementation progress.			
GPI References	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/13: aerodrome design and management; GPI/14: runway operations; GPI/15: match IMC and VMC operating capacity; and GPI/16: decision support and alerting systems.			

IMPROVE ATM SITUATIONAL AWARENESS				
Benefits				
Efficiency ▪ enhanced traffic surveillance; ▪ enhanced collaboration between flight crew and the ATM system; ▪ improved collaborative decision-making through sharing electronic aeronautical data information; ▪ reduced of workload for both pilots and controllers; ▪ improved operational efficiency; ▪ enhanced airspace capacity; ▪ improved implementation on a cost-effective basis;				
Safety ▪ improved available electronic terrain and obstacle data in the cockpit; ▪ reduced of the number of controlled flight into terrain related accidents; and ▪ improved safety management.				
Strategy ***Near term (2008-2012)***				
TASK	**DESCRIPTION**	**START-END**	**RESPONSIBILITY**	**STATUS**
SDM	▪ identify parties concerned			
	▪ identify the automation level required according to the ATM service provided in airspace and international aerodromes, assessing o operational architecture design, o characteristics and attributes for interoperability, o data bases and software, and o technical requirements;			
	▪ improve ATS inter-facility communication			
	▪ implement flight plan data processing system and electronic transmission tools			
	▪ implement radar data sharing programs where benefits can be obtained			
	▪ develop situational awareness training programmes for pilots and controllers			
	▪ implement ATM surveillance systems for situational traffic information and associated procedures			
	▪ implement ATS automated message exchanges, as required o FPL, CPL, CNL, DLA, etc.			
	▪ implement automated radar handovers, where able;			
	▪ implement ground and air electronic warnings, as needed o Conflict prediction of Terrain proximity o MSAW o DAIW o surface movement surveillance systems			
	▪ implement data link surveillance technologies and applications: ADS, CPDLC, AIDC, as required.			
	▪ implement automated MET information systems for hazardous weather phenomena alerts including low-level wind shear and runway wake vortices			

Medium term (2016)				
	▪ implement additional/advanced automation support tools to increase sharing of aeronautical information			
	▪ implement surveillance tools to identify airspace sector constraint			
	▪ implement teleconferences with ATM stakeholders			
	▪ monitor implementation progress			
GPI References	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; and GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/13: aerodrome design and management; GPI/14: runway operations; and GPI/16: decision support and alerting systems; GPI/17: implementation of data link applications; GPI/18: aeronautical Information; GPI/19: meteorological systems.			

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AERONAUTICAL RADIO SPECTRUM **MID-ITU-01 - Implement Radio Spectrum Management and processes to protect the aeronautical spectrum**				
Benefits				
Efficiency	• Administer the use of the allocated aviation spectrum			
Safety	• Assurance of aviation spectrum			
	•			
Strategy **Short term (2010)** ***Medium term (2011 - 2015)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO, ATMSDM	• Ensure Regional coordination for the protection of the aviation spectrum at WRC-11, and beyond • Ensure Participation of Civil Aviation Experts in State's delegation to ITU WRC Meetings •	2009	ICAO, States	
	• Disseminate ICAO policy statements of requirements for aeronautical radio frequency spectrum	2009	ICAO	
	• Implement frequency spectrum management		States	
	• Delete of MID States name from footnote affecting Aviation spectrum	2009-2011	States	On going
	• Support ICAO Position during WRC-11	2011	States	On going
Linkage to GPIs	GPI-9: SITUATIONAL AWARENESS GPI-21: Navigation Systems, GPI-22: Communications Infrastructure; GPI-23: Aeronautical radio spectrum			

DECISION SUPPORT AND IMPROVEMENT OF SITUATIONAL AWARENESS **MID-RCI-01 - Implement an IFPS in the MID Region**				
Benefits				
Efficiency	• Reduce the number of occurrences of non-receipt of FPLs and associated ATS messages;			
Safety	• Improved planning and coordination between adjacent Centres;			
	• Improved safety and efficiency.			
	• Support the implementation of the Centralized Flow Management Unit (CFMU) in the Region			
Strategy **Short term (2008- 2012)** ***Medium term (2016)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO DCB, ATMSDM AOM,	• Develop a feasibility study;	2010	Bahrain, States, ICAO	Initial Study completed using Bahrain Traffic data. Further data from other States to be provided
	• Define the legal framework for the MID IFPS;		States, ICAO	
	• Commitment of States through the signature of MOU;		States, ICAO	
	• Agreement on a funding mechanism;		States	
	• Define focal points	2009-2010	States	On going
	• Provide data to Bahrain	2009-	State	
	• Run trials	2011-	Bahrain, ICAO, States	Not Started
	• Implementation and operation of the MID IFPS	2011-		
	•			
linkage to GPIs	GPI-6: Air Traffic Flow Management GPI-9: Situational Awareness, GPI-16: Decision Support and Alerting Systems, GPI-17: Data Link Applications, GPI-19: Meteorological Systems, GPI-22: Communication Infrastructure			

IMPROVEMENT OF COMMUNICATION INFRASTRUCTURE **MID-RCI-02 - Implement communication infrastructure to support ground-to-ground voice and data communication**				
Benefits				
Efficiency	• Improvement in operational efficiency			
	• Better coordination • Support the migration to ground-ground ATN applications			
Safety	• Improved safety			
	•			
Strategy **Short term (2008-2012)** ***Medium term (2016)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO AOM, ATMSDM	• Follow up on the implementation of the Aeronautical Fixed Services (AFS)	2009	ICAO, States	
	• Follow up the implementation on voice communications			
	• Migrate from AFTN/CIDIN to AMHS			
	• Implement high speed digital circuits between main centres	2008-2012	STATES	High speed digital circuits implemented at some centers
	• Monitor the implementations		CNS SG	
	• Follow up the developments in the Panels		CNS SG	
	• Implement the appropriate developments		STATES	
	•			
Linkage to GPIs	GPI-22: Communications Infrastructure;			

IMPROVEMENT OF COMMUNICATION INFRASTRUCTURE **MID-RCI-03 -Implementation of ATN in the MID region**				
Benefits				
Efficiency	• Improvement in operational efficiency			
	• Better coordination			
Safety	• Improved safety			
	•			
Strategy **Short term (2008-2012)** ***Medium term (2016)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO	• Develop Regional ATN Planning document	2008-2012	ICAO, States, IPS Working Group	
	• Review of ATN implementation problems and develop coordinated solutions		IPS WG/ CNS SG	Not Started
	• Develop ATN Operation procedures		IPS WG/ CNS SG	
	• Develop conformance procedures and check list for AMHS and ATN routers		IPS WG/ CNS SG	
	• Develop Information Security policy			
	• Develop information Security Guidance			
	• Coordinate and monitor implementation to be harmonized and interoperable globally			
	• Follow-up activities of panels and other regions			
	•			
Linkage to GPIs	GPI-22: Communications Infrastructure;			

IMPROVEMENT OF COMMUNICATION INFRASTRUCTURE **MID-RCI-04 - Implement advanced technologies to support data link services**				
Benefits				
Efficiency	• Improvement in operational efficiency			
	• Better coordination			
Safety	• Improved safety			
	•			
Strategy **Short term (2008-2012)** ***Medium term (2016)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO DCB, ATMSDM	• Identify & implement selected, harmonized data links to ensure interoperability between States and Regions D-ATIS	2008-	ICAO, States	
	• Plan for implementing technologies	2009	States, CNS SG CNSATM/IC SG	
	• Technical audit of available supporting infrastructure	2008		
	• Implement available technologies in to facilitate ground and airborne applications (CPDLC, ADS-C, ADS-B)		States , user	
	•			
Linkage to GPIs	GPI-22: Communications Infrastructure; GP!-17: Data Link Application			

MID-RNI-01 - IMPLEMENTATION OF GNSS IN THE MID REGION				
Benefits				
Efficiency	• Optimal use of advanced technologies			
	• Optimization of infrastructure			
	• Operational Efficiency			
Safety	• Reduced navigational errors			
Environment	• Reduction in environmental impact			
	•			
Strategy **Short term (2008-2012)** ***Medium term (2016)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO AOM,	• Carry out GNSS trials, demonstrations and test beds;		States, ICAO	
	• Determine the most appropriate augmentation system for the MID Region based on cost-benefit analysis;			
	• Introduce, in an evolutionary manner, the use of GNSS with appropriate augmentation system in the MID Region			
	• Define required infrastructure			
	• Implement required infrastructure		States	
	• Monitor implementation progress		PBN/GNSS TF and CNS SG	
	•			
Linkage to GPIs	GPI-21: NAVIGATION SYSTEMS			

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PERFORMANCE FRAMEWORK FORM

REGIONAL PERFORMANCE OBJECTIVES /NATIONAL PERFORMANCE OBJECTIVES **IMPROVEMENT OF THE QUALITY AND EFFICIENCY OF AERONAUTICAL INFORMATION SERVICES PROVIDED BY MID STATES**				
Benefits				
Environment **Efficiency** **Safety**	• reductions in fuel consumption; • improved planning and management of flights; • efficient use of airspace.; • improved safety			
Strategy **Short term (2010)** ***Medium term (2011 - 20015)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AUO, ATM SDM				
	• improve the compliance with the AIRAC system;	2008-2010	States & AIS/MAP TF	valid
	• advance posting of the AIRAC information on the web	2009-2011	States & AIS/MAP TF	valid
	• use of email to enhance the communication between the AIS community in the MID Region	2008-2010	States & AIS/MAP TF	valid
	• monitor the implementation of WGS-84 until complete implementation of the system by all States	2008-2010	States & AIS/MAP TF	valid
	• monitor the implementation of AIS automation in the MID Region in order to ensure availability, sharing and management of electronic aeronautical information;	2008-2013	States & AIS/MAP TF	valid
	• monitor the implementation of QMS until complete implementation of the requirements by all MID States;	2008-2013	States & AIS/MAP TF	valid
	• plan for the transition from AIS to AIM and develop necessary planning and guidance materials.	2009-2013	States & AIS/MAP TF	valid
	• promote the awareness about the requirements for the provision of electronic Terrain and Obstacle Data (eTOD);	2008-2010	ICAO & AIS/MAP TF	valid
	• harmonize, coordinate and support the eTOD implementation activities on a regional basis;	2008-2012	ICAO & AIS/MAP TF	valid

	• provide Terrain and Obstacle data for area 1.	2008-2010	States	valid
	• provide Terrain data for area 4.	2008-2010	States	valid
	• provide Terrain and Obstacle data for area 2.	2010-2012	States	valid
	• provide Terrain and Obstacle data for area 3.	2010-2012	States	valid
linkage to GPIs	GPI/9: Situational awareness, GPI/18: Aeronautical Information, GPI/20: WGS-84			

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PERFORMANCE FRAMEWORK

REGIONAL PERFORMANCE OBJECTIVES /NATIONAL PERFORMANCE OBJECTIVES **IMPROVEMENT OF THE QUALITY AND EFFICIENCY OF AERODROME FACILITIES, SERVICES AND ENHANCEMENT OF SAFETY OF RUNWAY OPERATIONS PROVIDED BY MID STATES**				
Benefits				
Efficiency **Safety**	• Increased capacity and enhanced efficiency of aerodrome facilities and services; • Improved safety at aerodromes operations			
	• Reduction of runway incursions and improve safety of runway operations			
Strategy **Short term (2010)** ***Medium term (2011 - 20015)***				
ATM OC COMPONENTS	**TASKS** **(As part of Certification of Aerodrome process and implementation of Safety Management for aerodrome operations)**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, CM, TS, AUO	• Establish collaborative bodies with ATM, aircraft operators and aerodrome operators for developing plans to increase aerodrome capacity to meet the actual air traffic or forecast demand	2008 -2010	States & AOP SG	On-going
	• Implement aerodrome ground infrastructure commensurate with operational expectations including operations of new larger aircrafts at existing aerodromes,	2008-2013	States & AOP SG	On-going
	• Implement, where warranted, precise surface guidance to and from a runway to improve capacity and efficiency,	2009-2011	States & AOP SG	On-going
	• Implement collaborative aerodrome operational procedures with ATM, ground services providers and associated operations support services	2008-2010	States & AOP SG	On-going
	• Develop, Implement and make available to ATM at aerodromes a positioning system for all vehicles and aircrafts operating on the movement area on a cost-benefit basis.	2008-2012	States & AOP SG	On-going
	• Implement procedures and technologies to enhance the performance of runway operations and optimize runway capacity	2008 - 2013	States & AOP SG	On-going
	• Establish collaborative bodies with ATM, aircraft operators and aerodrome operators for implementing plans and measures aimed at prevention of runway incursion	2008-2013		

	• Develop and implement a runway physical characteristics maintenance programme	208-2010		
	• Implement safety management system for aerodrome operations	2008-2013	States & AOP SG	On-going
linkage to GPIs	GPI/13: Aerodrome design and management, GPI/14: Runway operations, GPI/21: Navigation Systems			

REPORT ON AGENDA ITEM 4: DEVELOPMENTS IN MID REGIONAL AIR NAVIGATION PLANNING AND IMPLEMENTATION

4.1 The meeting noted that at its ninth meeting in December 2007, the ATM/SAR/AIS Sub-Group reviewed the role of the existing MIDANPIRG subsidiary bodies with regard to RVSM and PBN issues, and that with the objective to increase efficiency within the MIDANPIRG framework, the meeting agreed on the establishment of a PBN Task Force. Furthermore, cognizant of the strong and increasing relationship between GNSS and PBN implementation, agreed that the merging of the GNSS and PBN Task Forces should be explored.

4.2 Subsequent to ATM/SAR/AIS SG/9 , the RVSM/PBN TF/1, GNSS TF/7 and MSG/1 meetings considered the establishment of the PBN/GNSS Task Force. Accordingly, the MSG/1 formulated Draft Conclusion 1/5 dissolving the RVSM/PBN and the GNSS Task Forces, and establishing the PBN/GNSS Task Force.

4.3 Regarding global developments related to the implementation of PBN, the meeting noted that the PBN/GNSS TF/1 was apprised, among others, on the Flight Procedure Implementation Programme (Flight Procedure Office) concept which is getting high acceptance in various regions of the world. The FPO will address some of the important challenges in the implementation of PBN. Furthermore, that the FPO concept is the result of realization that the implementation of PBN, in particular for the terminal and approach phases of flight, requires expertise, data quality control and data management that are not easily accessible for many States. The meeting noted that most ICAO Regions were experiencing the same difficulties.

4.4 The meeting noted that the Special AFI Regional Air Navigation (SP AFI/RAN) meeting held in Durban, South Africa in 2008, agreed that one of the most promising aspects of PBN was related to the implementation of new instrument flight procedures, which would take advantage of the databases on aircraft. However, that for PBN procedures, quality assurance in the flight procedure design process would take an added significance. The meeting was of the same view that of SP AFI/RAN meeting recognized that many MID States lacks the expertise to establish a sustainable internal procedure design capability that meets the requirements of Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS Doc 8168), and Annex 15 with regard to quality of their instrument flight procedures.

4.5 The meeting noted that the objective of the FPO would be to foster implementation of flight procedures, developed with the appropriate quality systems, especially PBN and vertically guided instrument approach procedures by:

a) assisting those States with sufficient density of procedures to establish a sustainable internal procedure design capability capable of meeting the requirements of PANS-OPS and their responsibility under Annex 15 for the quality of their procedures;

b) providing the appropriate level of technical expertise necessary to enable States that do not have the density of procedures necessary to sustain an internal procedure design capability, to meet their responsibilities under Annex 15 and PANS-OPS; and

c) providing a vehicle to improve quality in the States' procedure design process through access to procedure design automation solutions and associated data storage.

4.6 The meeting noted that, in deliberating the issues related to the development of the Strategy and Plan for implementation of PBN in the MID Region, in addition to Assembly Resolution A36-23, the PBN/GNSS TF/1 meeting took into consideration, *inter alia*, current status of implementation of PBN in the MID Region (which started before the PBN concept), developments related to implementation of PBN in other ICAO Regions, relevant guidance material including the PBN concept's application of specification by flight phase, as well as supporting navigation infrastructure.

4.7 The meeting noted that there are challenges for the implementation of the PBN and was supportive of the PBN/GNSS TF conclusion that was also agreed by the ATM/SAR/AIS SG/10:

DRAFT CONCLUSION 10/27: PBN IMPLEMENTATION SUPPORT

That, in order to address challenges in PBN implementation, stakeholders in the PBN implementation (Air navigation service providers (ANSP's), aircraft operators, user communities, etc.) be encouraged to provide support including resources to the States and ICAO PBN programme.

4.8 The meeting noted that PBN/GNSS TF/1 closely examined the current and proposed application of the RNAV specification, and agreed that the RNAV 5 cannot be used for oceanic/remote airspace and that in principle RNAV-10 should be used for that particular airspace., the Task force also recognized, that presently some of the airspace that had previously been classified as remote continental/oceanic, now has the required surveillance capability to support RNAV 5. Nevertheless, there remains other airspace in the MID region that still can be classified as oceanic (due to lack of surveillance) and therefore, RNAV 10 would be appropriate as the navigation specification, at least for the short term (2008-2012).

4.9 The meeting acknowledged that the PBN/GNSS TF/1 after thoroughly examining the various navigation specifications for applications in all applicable phases of flight and the planning time frames (short, medium and long terms), successfully completed development of both the PBN Implementation Regional Strategy and Implementation plan as at **Appendices 4A** and **4B** respectively to the Report on Agenda Item 4, which will allow sufficient time for the MID States to complete development of their individual national implementation plans by 2009, pursuant to Assembly Resolution A36-23, noting the following Draft Conclusion: 10/28 *MID REGION PBN IMPLEMENATION STRATEGY AND PLAN.*

4.10 The meeting noted that in accordance with the above Strategy, which follows other ICAO Regional planning norms, the material from State implementation plans, considered as requirements, will be processed in accordance with established procedures for incorporation into the MID Region Air Navigation Plan (ANP).

4.11 The meeting further noted that in order to facilitate States' to develop their individual PBN State implementation plans, the PBN/GNSS TF/1 agreed on the template to be used by States in developing State implementation plans, and formulated Draft Conclusion 1/5*: PBN State Implementation plan.* The ATM/SAR/AIS SG10 reviewed and endorsed the template as at **Appendix 4C** to the Report on Agenda Item 4.

4.12 The meeting was apprised that the PBN action plan which is at **Appendix 4D** to the Report on Agenda Item 4, provides a systematic plan of all tasks that need to be undertaken to achieve PBN implementation according to the PBN strategy and Implementation plan. The action plan is divided into three sub-plans, one for en-route, one for terminal and another for approach implementation. The action plan is furthermore, supported by the PBN performance objectives which provide the benefits and the high level tasks (actions).

4.13 The meeting recalled that ICAO has been developing planning tools to support the Global Air Navigation Plan. To this end, ICAO has developed a common output and management form designated as the "Performance Framework Form (PFF), which is applicable to both the Regional and national planning frameworks to facilitate ease of understanding and harmonization at global and Regional levels. The PFF contains the performance objectives for the Region, which were addressed by the meeting under agenda item 3. The noted also, that the PBN/GNSS TF/1 developed MID Region PBN Implementation Performance Objectives which are now incorporated under the ATM Operational Objective for the Region.

4.14 Regarding the issue of the SSR Code Allocation Plan (CAP) for the MID Region, the meeting noted with concern that the Secondary Surveillance Radar Codes Allocation Study Group (SSGCASG) had held two meetings within which it was hoped that its work would be completed. However, this had not been possible due to traffic data that had not been forthcoming from States. MID States were accordingly urged to make the data available in order to facilitate the Study Group to complete its work at its third meeting in March 2009.

4.15 The meeting noted that the ATM/SAR/AIS SG/10 meeting had been informed that some FIRs such as Bahrain, continue to face problems with respect to some adjacent FIRs that do not use the SSR codes as allocated in the MID SSR CAP. This resulted in the air traffic controllers in Bahrain ACC having to change codes as part of coordinating traffic from the said FIRs, consequently creating unnecessary workload burden on the controllers. The meeting noted also that, coordination and code assignment changes involving aircraft from the Baghdad FIR into Jeddah and Kuwait FIRs is also a continuing problem. The meeting noted that the representatives from Iraq and from Saudi Arabia would hold a side meeting to address issues of common interest raised herein.

4.16 Concerning improvements to the current CAP, the meeting note the three (3) Draft Conclusions endorsed by the ATM/SAR/AIS SG/10: Draft Conclusion 10/14: *Measures to address non-system SSR code Assignment problems*, Draft Conclusion 10/16: *SSR Codes Sharing in the MID Region*, and Draft Conclusion 10/17: *Reduction of SSR Code Occupancy Time*. Moreover, that in order to facilitate the use of SSR code series 75 and 76 in the MID Region, the MID Regional Office had circulated a State Letter requesting information to this effect from States. Accordingly States were urged to ensure that responses were provided as soon as possible in order to allow the third SSRCASG meeting in March 2009 to take necessary action.

4.17 The meeting noted also, that the ATM/SAR/AIS SG/10 had adopted Draft Conclusion 10/15: *Adoption of the Originating Region Code Assignment Method (ORCAM) in the MID Region*, conditionally adopting the approach of three ORCAM Participating Areas (PA); the number of PAs to be finalised based on studies of Regional traffic patterns and volume data, and coordination with adjacent ICAO Regions.

4.18 The meeting noted that Aeronautical Telecommunication Network (ATN) applications support similar functionality, but with different avionics requirements. Many internationally-operated aircraft are equipped with FANS-1/A avionics initially to take advantage of data link services offered in certain oceanic and remote regions. FANS-1/A equipage on international business aviation aircraft is underway and is expected to increase. Further more IATA supported the implementation of FANS 1/A in the Region.

4.19 The meeting noted that MIDANPIRG/10 agreed that any implementation of FANS 1/A should be supported by safety case and had adopted Conclusion 10/16:

CONCLUSION 10/16: FANS 1/A ACTIVITIES IN THE MID REGION

That, MID States, in coordination with users, are encouraged to implement FANS 1/A (ADSC/CPDLC) as an interim solution, until a fully ATN compliant ADS/CPDLC system is made available.

4.20 The meeting noted that Saudi Arabia informed CNS SG/2 that there some trials will take place during 2009 and the CNS SG/2 was supportive of these trails as these are on right track since it is essential to cooperate with adjacent FIRs with FANS equipage and then running trials on those routes.

4.21 The meeting was in support that a technical audit to be accomplished prior to the start of trial operations to confirm that the ANSP ground infrastructure is in place to support operations. A plan should be developed to test each of the proposed ground systems to make sure they properly function.

4.22 The meeting was of the view that the experience from other regions should be taken into consideration as majority of the issues that have been discovered in past trials have been associated with ground equipage and ground-ground coordination and the trails should consider pilot and controller training, also access to CRA services is critical. The MID Region should seek the assistance of BOB-FIT in this regards and with regard to all other materials (e.g. FANS Operational Manual FOM etc..) that the MID region may require as the APAC Region is no longer in trial phase but in implementation Phase.

4.23 The meeting noted that the informal Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG) was accepted as a member of the FIT-BOB about a year ago, this gives ASIOACG access to the data link CRA functions provided by the BOB-CRA (Boeing) and this opportunity has also been extended to Saudi Arabia as well. The ASIOACG membership also includes Oman (who Chair ASIOACG) and Yemen.

4.24 The meeting noted FANS 1/A activity is in line with the recommendation of the MID Seminar on Aeronautical communication infrastructure held in Jeddah, Saudi Arabia, 06 − 07 November 2007.

4.25 Based on the above and since FANS1/A satisfies the requirement of RCP the meeting supported CNS SG/2 draft conclusions 2/10 and 2/11 and tasked the first meeting of the MID-FIT to adopt the necessary APAC documents with suitable modification to apply to MID Region and perform the tasks that were agreed during the AFIG meetings but were not done, consequently the meeting agreed to the following Draft Conclusions:

DRAFT CONCLUSION 4/3: ESTABLISHMENT OF MID-FANS IMPLEMENTATION TEAM

That, MID-FIT is established with similar TOR to other FIT teams in order to foster the data link implementation in the MID region considering the BOB-FIT material in ***Appendix 4E*** *to the Report on Agenda Item 4.*

DRAFT CONCLUSION 4/4: INTRODUCTION OF FANS 1/A CAPABILITIES IN THE MID REGION

That, MID States, in coordination with users, are encouraged to consider implementing FANS 1/A (ADS-C/CPDLC) as communication system satisfying RCP as appropriate to the desired operational outcome.

DRAFT CONCLUSION 4/5: MID-FIT IMMEDIATE TASKS

That,

a) MID States, appoint the members to the MID-FIT and do all possible to participate in the Iridium trails in spring 2009; and

b) MID-FIT, reschedule all the tasks that were not done under AFIG and use the material from other ICAO Regions to for the preparations of the MID Region documentation.

4.26 The meeting recalled MIDANPIRG/10 10/8 conclusion ***EGNOS STUDIES IN THE MID REGION,*** and noted that PBN/GSS TF/1 received presentation on the ACAC Regional GNSS (ARG) study that was composed of two main tasks: the ARG infrastructure implementation definition (Task 1) and the ARG service implementation definition (Task 2). It addressed all GNSS application domains with a special emphasis on civil aviation. In this activity ESA provided technical support to the European GNSS Supervisory Authority (GSA).

4.27 The study showed that the extension of European Geostationary Navigation Overlay Service (EGNOS) over the ARG-3 area (Arabian peninsula and Iraq) is technically feasible through the implementation of a Regional Extension Module (REM) for which duplication with functions and assets already in service in Europe is avoided. The REM concept implies that the ARG-3 area and Europe become “co-producers” of the ARG-3 EGNOS service.

4.28 The study also showed that in order to avoid costly overlaps between ARG-3 States and Europe counter part, as well as implementation delays and difficulties in the certification process, it is recommended that ARG-3 States adopt a regional approach for the institutional framework that can be implemented step-by-step in parallel with the technical development of the infrastructure.

4.29 The PBN/GNSS TF/1 meeting was of the view that the cost benefit analysis is of complex nature and not possible without further studies (to validate regional Approach assumptions) that need to be carried out which should be based on the operational requirements and in close coordination with users and when the users demonstrates a conclusive need, the meeting noted that the current operational needs are met with Basic GNSS (GPS augmented with ABAS) from en-route down to non-precision approaches (NPA).

4.30 The meeting was of the same view of the PBN/GNSS TF/1 that close follow-up and monitoring is to be carried on the implementation of EGNOS in EUR region in order to gain the benefit from operational experience with the EGNOS system and associated aircraft equipment and procedures that would be gained in the EUR Region (the primary service area of EGNOS), consequently the meeting endorsed PBN/GNSS TF/1 meeting Draft Conclusion 1/3 which will replace and supersede 10/8:

DRAFT CONCLUSION 4/6: GNSS STUDIES IN MID REGION

That,

a) ICAO MID Regional Office Communicate with GSA/ESA to provide more support and detailed studies on EGNOS Extension to the MID Region;

b) MID States able to support the cost benefit analysis to provide same to PBN/GNSS TF for the whole region benefits; and

c) MID States and organizations share experience on GNSS.

4.31 The meeting noted that the PBN/GNSS TF reviewed the Strategy for the implementation of GNSS in the MID Region and integrated the PBN implementation requirement to the Strategy and developed the revised Strategy for the implementation of GNSS in the MID Region, consequently the meeting endorsed this Strategy which is at **Appendix 4F** to Report on Agenda Item 4 and agreed to the following Draft Conclusion that will supersede MIDANPIRG/10 Conclusion 10/9:

DRAFT CONCLUSION 4/7: STRATEGY FOR THE IMPLEMENTATION OF GNSS IN THE MID REGION

*That, the Revised Strategy for implementation of GNSS in the MID Region is adopted as at **Appendix 4F** to the Report on Agenda Item 4.*

4.32 The meeting also noted that PBN training is required by some of the MID States which has to be coordinated with ICAO MID Regional Office and the hosting State. It was highlighted that PBN Seminar / trainings are completed by ICAO globally and further training could only be done upon States request.

4.33 The meeting received an update from Jordan on the developments in the AFTN/AMHS center where the traffic growth and the need for more capacity and efficiency in related information and data communication, placed a need for optimum utilization of available technologies, adding to this need, the requirement for higher concerns for harmonization and unification of system implementation and procedures. In response to this, Jordan Civil Aviation Regulatory Commission (CARC) has adopted several actions, among which is the Introduction of an AFTN/AMHS system, that was installed, tested, commissioned and operated since 4 December 2008 being an important step in the modernization of the AFTN network, serving 22 internal user, 3 adjacent centers meanwhile 2 other centers are not connected due to the other site infrastructure inadequacy.

4.34 The meeting noted that the new System supports AMHS, and AFTN providing an AFTN/AMHS gateway, thus ensuring interoperability between the AFTN and the AMHS networks, conformant to ICAO standards the system also has monitor and control functions.

4.35 CARC, while assuring its commitment towards the safety, security, efficiency, economy and information sharing with the aviation industry, informed the meeting that Jordan are ready to connect through AMHS channels and test the performance of the new installed system with other States, in this regard the meeting was of the view that since Egypt have also installed AMHS and have a direct link with Jordan that testing to be carried out the soonest and information passed to the IPS WG and other appropriate sub group as necessary.

4.36 The meeting also received update from Bahrain where the National Plan for the CNS/ATM Systems is aligned with the Regional plan, in this regard the meeting noted that Bahrain had implemented new Integrated Voice Communication Control System (IVCCS) in September 2007

4.37 The meeting also noted that Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, Singapore and the UAE have upgraded the circuits serving the ATS direct speech circuit to digital technology by employing high speed digital links and routers, AFTN and CIDIN circuits have been implemented and RADAR data exchange have been tested successfully.

4.38 Furthermore a new AFTN/CIDIN/AMHS system implemented in Bahrain Communications Centre during the month of July 2008 and accordingly Bahrain ready to test the AMHS. Based on the forging the secretariat advised the meeting that IPS WG will be meeting next month and will coordinate the testing and produce the necessary testing analysis report.

4.39 The meeting further noted that Bahrain had installed new long range VHF air-ground communication system, and appointed consultant firm to provide the consultancy services for the new RADAR project that include RADAR with Mode (S) capabilities Studies are also ongoing regarding the introduction of ADS (B) and Multilteration system in Bahrain.

4.40 During February 2008 Bahrain implemented new fully automated ATIS/VOLMET System which include (D-ATIS and D-VOLMET), while complete new Air Traffic Management System (ATM) will be installed during December 2009. This would include Flight Data Management System, RADAR Data Processing System which would have the capabilities of OLDI-AIDC, CPDLC, ADS C/ADS B, in addition to Air Traffic Simulator.

4.41 The meeting noted the east part of Bahrain FIR has been restructured with effect of July 2008 to cope with the vast increase of air traffic, most of the airways have been realigned to give more space for adding a new westbound airway for the boundary of Bahrain/UAE FIR to the north of Bahrain island.

4.42 The meeting also noted that RNAV SIDS and STARS project been finalized for Bahrain International airport which will be usable by August 2009, the Air Navigation Directorate is managing the project in coordination with local airline operators to ensure all procedure designs are most beneficial for the provider and the users, the meeting was of view that all details concerning this activity is to be submitted to the appropriate sub groups.

4.43 The meeting received verbal briefing form Iran informing that they have already implemented many 64K digital links with other States and would like to make testing with Bahrain in this regard Bahrain had confirmed that they would provide focal point contacts for the conduct of the necessary test. Bahrain even assured that they are ready to do testing with any State willing to do so, the meeting was of the view that this will require additional PTT links which can not be justified by States for testing purposes.

4.44 The meeting also received verbal update from Saudi Arabia of the Factory acceptance tests on the AMHS which will be installed during MID April 2009.

4.45 The meeting encouraged all MID States to provide details on the projects on-going in their States as this will enable to harmonize any testing and will realize the regional Implementation that will eventually lead to seamless global ATM.

4.46 The meeting noted that on 27 May 2008, Amendment No. 1 to the Fifteenth Edition of the Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444) was approved. The amendment, becomes applicable on 15 November 2012, encompasses a substantial revision to the ICAO flight plan as contained in Appendix 2 to the PANS-ATM. Approval of the Amendment by the Air Navigation Commission was communicated to States through State Letter Ref. AN 13/2.1-08/50 dated 25 June 2008, to which was attached copy of the Amendment (consisting of a change to the ICAO model flight plan form, related ATS messages and procedures) which is at **Appendix 4G** to the Report on Agenda Item 4.

4.47 The meeting noted that the new ICAO model flight plan form and related provisions are necessary to allow air traffic management (ATM) systems to make optimum use of advanced aircraft capabilities as well as to meet the evolving requirements of automated ATM systems, while taking into account compatibility with existing systems, human factors, training, cost and transition aspects The new flight plan addresses among other for reduced vertical separation minimum (RVSM), performance-based navigation (PBN), required communication performance (RCP), 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.

4.48 The meeting may wish to note that the amendment to the flight plan is an interim step towards a completely revamped system of interaction between aircraft and the ATM system, wherein the aircraft will be an integral part of the ATM system as envisaged in the Global ATM Operational Concept.

4.49 The meeting noted that CNS SG/2 held in Cairo 28-30 Oct 2008, agreed to the following draft conclusion 2/8 for the implementation of the New ICAO Model Flight Plan form:

DRAFT CONCLUSION 2/8: IMPLEMENTATION OF THE NEW ICAO MODEL FLIGHT PLAN FORM

That, MID States, in order to comply with Amendment No. 1 to the 15th Edition of the PANS-ATM (Doc 4444),

a) establish a study group to develop the technical audit guidance material and prepare a regional Strategy for the transition; and

b) implement the new ICAO model Flight Plan form by applicability date

4.50 The meeting was provided with a basic checklist in the form of a performance framework form (PFF) as at A**ppendix 4H** to the Report on Agenda Item 4, and noting that impact of the modifications to flight data processing systems will vary from one air navigation service provider and State to another depending on their data requirements, the level of validation necessary and the types of systems in place, the meeting was of the view to add the check list in the above conclusion the meeting agreed to the following Draft Conclusion :

DRAFT CONCLUSION 4/8: IMPLEMENTATION OF THE NEW ICAO MODEL FLIGHT PLAN FORM

That, MID States, in order to comply with Amendment No. 1 to the 15th Edition of the PANS-ATM (Doc 4444),

a) establish a study group to develop the technical audit guidance material and prepare a regional Strategy for the transition;

b) implement the new ICAO model Flight Plan form by applicability date; and

*c) the study group follow the performance framework form in **Appendix 4H** to the Report on Agenda Item 4.*

4.51 Noting the urgency for the implementation of the NEW ICAO MODEL FLIGHT PLAN the States present agreed that they shall participate in the study group and send their nomination to the study group after receiving the ICAO MID Regional Office State Letter also a time frame until end of the year 2009 will be given to the study group to finalize the needed Regional Guidance material furthermore the States present will provide all need support to accomplish this task.

4.52 The meeting recognized that ICAO Technical Cooperation (TC) projects serve as an important mechanism to support the implementation of air navigation systems in a progressive, cost effective and cooperative manner in order to achieve a Global ATM system. Also, TC projects allow for active and timely participation of specialists from different areas of States/international organizations that would ensure an orderly implementation of the infrastructure.

4.53 The meeting noted the ICAO CAR/SAM Region had successfully implemented TC project RLA/98/003 and currently implementing a TC project RLA/06/901 and noted the successful model in which nine States are participants of the project and benefit from it.

4.54 The meeting also that the CNS SG/2 meeting recommended that MID Region follow the model which has been successfully used in the SAM Region for implementing a TC project with deliverable that the MID region require and agreed to Draft Conclusion 2/6:

DRAFT CONCLUSION 2/6: MID INFRASTRUCTURE PROJECTS OFFICE

*That, in support of the implementation of the various MID CNS project, a "MID Infrastructure Project Office" is to be established modelled as at **Appendix 4C** to the Report on Agenda Item 4 (CNS SG/2 Report).*

4.55 The meeting was of the view that the model is appropriate for the MID region and will allow the common benefit, but the scope which is mentioned is not appropriate for the sub group consequently the meeting agreed and defined urgent deliverable needed from the desired MID TC project for CNS/ATM as to finalization and implementation cost for IFPS, hardware and software requirements for the Implementing new ICAO flight Plan model, requirement for implementation of MID ATN Network with cost model and Implementation of Flight Procedure Office (FPO).

4.56 The meeting also agreed that the focal point for the project will be chairperson and the secretary of the MIDANPIRG CNS SG and agreed to the following Draft Conclusion which will supersede CNS SG/2 Draft Conclusion 2/6:

DRAFT CONCLUSION 4/9: MID TC PROJECT

That,

a) TC project document be prepared by ICAO (jointly by the Technical Cooperation Bureau and the MID Regional Office, for the following deliverable:

- *Finalization and implementation cost for IFPS*
- *Hardware and software requirements for implementing new ICAO flight Plan model*
- *Requirement for implementation of MID ATN Network with cost model*
- *Implementation of FPO*

b) MID States provide their commitment status towards the project after 1 month from receiving the document.

4.57 The meeting was of the view that other subgroups could join the TC project once they define their deliverable and see if they have the need for such project.

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

MID REGION PBN STRATEGY

1. INTRODUCTION

1.1 This document provides the high level strategy that is further detailed in the regional implementation plan (roadmap). 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.

1.2 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.

2. EN-ROUTE OPERATIONS

2.1 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.

2.2 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.

3. TERMINAL OPERATIONS

3.1 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.

3.2 In this context, the States should develop their own national plans for the implementation of PBN in TMAs, based on the MID PBN Regional 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.

4. INSTRUMENT APPROACHES

4.1 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 non-precision approach procedures at a certain point when deemed operational suitable and taking in consideration GNSS integrity requirements.

5. IMPLEMENTATION STRATEGY

5.1 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 operation requirements for continental en-route and local/domestic en-route applications at least until 2016.

Note: All current RNP-5 applications shall be redefined as RNAV-5 or, depending on operational needs, as RNAV-1.

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

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

e) Replacement 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) The target date for the completion of implementation for the Approach procedures with vertical guidance (APV) (APV/Baro-VNAV and/or APV/SBAS) for all instrument runway ends is 2016: The development of new conventional non-precision approach procedures should be discouraged. Existing conventional non-precision approach procedures should be phased out not later than 2016, pending readiness of stand-alone GNSS.

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

Note: Although SBAS APV-I and II is currently not referenced in ICAO Doc9613, in accordance with the general Assembly resolution (A36-23) it is included in this Strategy as part of APV.

DRAFT MID PERFORMANCE-BASED NAVIGATION IMPLEMENTATION REGIONAL PLAN

1. EXECUTIVE SUMMARY

1.1 This Middle East PBN Implementation Regional Plan has been produced in line with Resolution A 36/23 adopted by ICAO Assembly in its 36th Session held in September 2007. 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.

1.2 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 (2011 – 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 **Middle East PBN Implementation Plan -** A document offering appropriate guidance for air navigation service providers, airspace operators and users, regulating agencies, and international organizations, on the evolution of navigation, as one of the key systems supporting air traffic management, and which describes the RNAV and RNP navigation applications that should be implemented in the short, medium and long term in the MID Region.

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
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
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
GRAS	Ground-based Regional Augmentation System
IATA	International Air Transport Association
IFALPA	International Federation of Air Line Pilots' Associations
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
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 performance based navigation (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, 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 cock-pit 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/10 meeting required that PBN be implemented in a strategic manner in the MID Region and accordingly established the RVSM/PBN 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 the MID States together with the international organizations concerned (AACO, ACAC, IATA, IFALPA, IFATCA), 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 organizations

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.

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. he 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 incorporated 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 neighboring 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 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 non-precision approach procedures at a certain point when deemed operational suitable and taking in consideration GNSS integrity requirements.

Implementation Strategy

5.9 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 operation requirements for continental en-route and local/domestic en-route applications at least until 2016.

Note: All current RNP-5 applications shall be redefined as RNAV-5 or RNAV-1 depending on operational needs.

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

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

e) Replacement 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) The target date for the completion of implementation for the Approach procedures with vertical guidance (APV) (APV/Baro-VNAV and/or APV/SBAS) for all instrument runway ends is 2016: The development of new conventional non-precision approach procedures should be discouraged. Existing conventional non-precision approach procedures should be phased not later than 2016, pending readiness of stand-alone GNSS.

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

Note: Although SBAS APV-I and II is currently not referenced in ICAO Doc9613, in accordance with the general Assembly resolution (A36-23) it is included in this Strategy as part of APV.

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 May 2006. 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

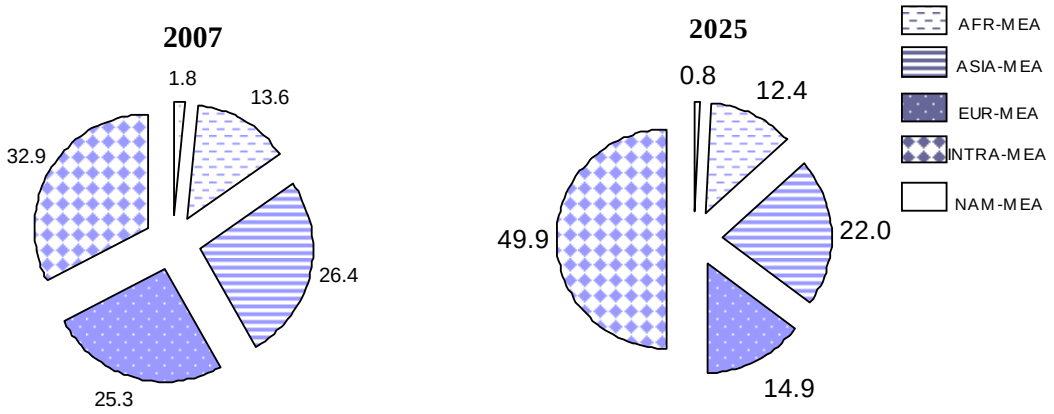
AIRCRAFT MOVEMENTS FORECAST TO THE YEAR 2025

	Actual 2007	Forecast 2025	Average Annual Growths (per cent) 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 …..

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), Ground-Based Augmentation System (GBAS), and Ground-based Regional Augmentation System (GRAS).

Other PBN Infrastructure

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

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

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

6.17 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

6.18 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

6.19 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

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,.

Terminal

7.8 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.

7.9 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.

7.10 **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

7.11 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.

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

7.13 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.

7.14 **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.

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

SUMMARY TABLE AND IMPLEMENTATION TARGETS

SHORT TERM (2008-2012)	
Airspace	***Navigation Specification***
En-route – Oceanic	RNAV-10
En-route - Remote continental	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 most possible airports; RNP AR APCH in airport where there are obvious operational benefits.

Implementation Targets

- RNP APCH (with Baro-VNAV) in 30% of instrument runways 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
- RNP-5 and B-RNAV which is implemented in MID Region to be redefined as per ICAO PBN terminology by 2009 (MIDANPIRG/11), full implementation of PBN by 2012 for continental en-route.

Medium Term (2013-2016)

En-route

7.16 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.

7.17 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.
7.18

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/acceptable)***
En-route – Oceanic	Nil
En-route - Remote continental	Nil
En-route – Continental	RNAV-1, RNAV-5
En-route - Local / Domestic	RNAV-1 , RNAV-5
TMA – (Arrival, Departure)	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
Implementation Targets ▪ RNP APCH with Baro-VNAV or APV 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	

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.

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.

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 (to be developed) 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)

(To be Developed)

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

(To be Developed)

PROPOSED LIST OF CONTENTS (TEMPLATE) FOR THE STATE PBN IMPLEMENTATION PLAN

- Background
  - Future Demands on Aviation
  - Operational Efficiency
  - Environmental Issues
- Strategic objective and Airspace concepts
- Performance Based Navigation
  - PBN
  - Current Status of PBN
- Benefits of PBN and Global Harmonization (Safety, Efficiency, Environment)
- Challenges
  - Transition to the PBN System
  - Increasing Demands
  - Efficient Operations
  - Environmental Impact
- Implementation Strategy
  - Short Term (Now until end of 2012)
    - En-route
    - Departures and Arrivals
    - Approaches
    - NAVAID Infrastructure
      - Ground based
      - Space based
  - Medium Term (2013 until end of 2016)
    - En-route
    - Departures and Arrivals
    - Approaches
    - NAVAID Infrastructure
      - Ground based
      - Space based
  - Long Term (2016 and beyond)
    - En-route
    - Departures and Arrivals
    - Approaches
    - NAVAID Infrastructure
      - Ground based
      - Space based
- Implementation Schedule
  - En-route
  - Departures and Arrivals
  - Approaches

PBN IMPLEMENTATION REGIONAL ACTION PLAN

PBN en-route Action Plan

PBN en-route Action Plan GPI 1, 4, 5, 7, 8, 10, 11, 12, 16, 21,23			
	Start	**End**	**Remarks**
1 AIRSPACE CONCEPT			
1.1 Establish and prioritize Strategic Objectives (Safety, Capacity, Environment, etc)			
1.2 Collect air traffic data to understand airspace traffic flows in a particular airspace.			
1.3 Analyse navigation capability of the fleet			
1.4 Analyse communication, ground navigation (VOR, DME) and surveillance for navigation specification and reversionary mode compliance.			
1.5 Optimise the airspace structure, by reorganising the network or implementing new routes based on the strategic objective of the airspace concept. Consider Airspace Modelling, ATC simulations (fast time and/or real time), Live Trials, etc.			
2 DEVELOP PERFORMANCE MEASUREMENT PLAN			
2.1 Prepare Performance Measurement Plan, including gas emission, safety, efficiency, etc.			
2.2 Conduct Performance Measurement Plan			
3 AIRSPACE SAFETY ASSESSMENT			
3.1 Determine which methodology shall be used to evaluate airspace safety and ATS routes spacing, depending on the navigation specification. Consider Airspace Modelling, ATC simulations (fast time and/or real time), Live Trials, etc.			
3.2 Prepare a data collection programme for airspace safety assessment			
3.3 Prepare preliminary airspace safety assessment			

PBN en-route Action Plan GPI 1, 4, 5, 7, 8, 10, 11, 12, 16, 21,23			
	Start	**End**	**Remarks**
3.4 Prepare final airspace safety assessment			
4 ESTABLISH COLLABORATION DECISION MAKING (CDM) PROCESS			
4.1 Coordinate planning and implementation needs with Air Navigation Service Providers, Regulators, Users, aircraft operators and military authorities			
4.2 Establish implementation date			
4.3 Establish the documentation format of CAR/SAM RNAV/RNP Website			
4.4 Report planning and implementation progress to the corresponding Regional Office			
5 ATC AUTOMATED SYSTEMS			
5.1 Evaluate the PBN implementation in the ATC Automated Systems, considering the Amendment 1 to the PANS/ATM (FPLSG).			
5.2 Implement the necessary changes in the ATC Automated Systems			
6 AIRCRAFT AND OPERATORS APPROVAL			
6.1 Be aware of the national implementation programme and of the required navigation specifications			
6.2 Analyse aircraft approval requirements, aircrew and operator approval requirements for the navigation specifications to be implemented, as contained in the ICAO PBN Manual			
6.3 Publish the national regulations to implement the required ICAO navigation specifications			
6.4 Approval of aircraft and operators for each type of procedure and navigation specification			

PBN en-route Action Plan GPI 1, 4, 5, 7, 8, 10, 11, 12, 16, 21,23				
		Start	**End**	**Remarks**
6.5	Establish and keep updated a record of approved aircraft and operators			
6.6	Verify operations with a continuing monitoring programme			
7	**STANDARDS AND PROCEDURES**			
7.1	Evaluate regulations for GNSS use, and if such were the case, proceed to its publication.			
7.2	Finalize implementation of WGS-84			
7.3	Develop and publish AIC notifying PBN implementation planning			
7.4	Publish AIP Supplement including applicable standards and procedures			
7.5	Review Procedural Manuals of the ATS units involved			
7.6	Update Letters of Agreement between ATS units			
7.7	Develop amendment to the regional documentation, if necessary			
7.8	Provide procedures to accommodate non-approved RNAV/RNP aircraft, when applicable			
7.9	Identify transition areas and procedures, if necessary			
7.10	Conduct ATC simulations to identify the workload/operational factors, if necessary, and report the simulations activities to the ATM Committee			
8	**TRAINING**			
8.1	Develop a training programme and documentation for operators (pilots, dispatchers and maintenance)			
8.2	Develop training programme and documentation for Air Traffic Controllers and AIS Operators			
8.3	Develop training programme to regulators (aviation safety inspectors)			

PBN en-route Action Plan GPI 1, 4, 5, 7, 8, 10, 11, 12, 16, 21,23			
	Start	**End**	**Remarks**
8.4 Conduct training programmes			
8.5 Hold seminars oriented to operators, indicating the plans and the operational and financial benefits expected			
9 DECISION FOR IMPLEMENTATION			
9.1 Evaluate operational documentation availability (ATS, OPS/AIR)			
9.2 Evaluate the percentage of approved aircraft and operations (mixed equipage concerns)			
9.3 Review safety assessment results			
10 SYSTEM PERFORMANCE MONITORING			
10.1 Develop post-implementation en-route operations monitoring programme			
10.2 Execute post-implementation en-route operations monitoring programme			
Pre operational implementation date			
Definitive implementation date			

PBN TMA Action Plan

PBN TMA Action Plan GPI 5, 7, 8, 10, 11, 12			
	Start	**End**	**Remarks**
1 AIRSPACE CONCEPT			
1.1 Establish and prioritize Strategic Objectives (Safety, Capacity, Environment, etc)			
1.2 Collect air traffic data to understand airspace traffic flows in the TMA.			
1.3 Analyse aircraft fleet navigation capacity operating in the TMA			
1.4 Analyse communication, ground navigation (VOR, DME) and surveillance for navigation specification and reversionary mode compliance			
1.5 Optimise the airspace structure, by implementing new SID and STARS, based on the strategic objective of the airspace concept. Consider Airspace Modelling, ATC simulations (fast time and/or real time), Live Trials, etc.			
2. DEVELOP PERFORMANCE MEASUREMENT PLAN			
2.1 Prepare Performance Measurement Plan, including gas emission, safety, efficiency, etc.			
2.2 Conduct Performance Measurement Plan			
3 AIRSPACE SAFETY ASSESSMENT			
3.1 Determine which methodology shall be used to evaluate airspace safety and routes spacing, depending on the navigation specification. Consider Airspace Modelling, ATC simulations (fast time and/or real time), Live Trials, etc.			
3.2 Prepare a data collection programme for airspace safety assessment			
3.3 Prepare preliminary airspace safety assessment			

PBN TMA Action Plan GPI 5, 7, 8, 10, 11, 12			
	Start	**End**	**Remarks**
3.4 Prepare final airspace safety assessment			
4 ESTABLISH COLLABORATION DECISION MAKING (CDM) PROCESS			
4.1 Coordinate planning and implementation needs with Air Navigation Service Providers, Regulators, Users, aircraft operators and military authorities			
4.2 Establish implementation date			
4.3 Establish the documentation format of CAR/SAM RNAV/RNP Website			
4.4 Report planning and implementation progress to the corresponding Regional Office			
5 ATC AUTOMATED SYSTEMS			
5.1 Evaluate the PBN implementation in the ATC Automated Systems, considering the Amendment 1 to the PANS/ATM (FPLSG).			
5.2 Implement the necessary changes in the ATC Automated Systems			
6 AIRCRAFT AND OPERATOR APPROVAL			
6.1 Be aware of the national implementation programme and of the required navigation specifications			
6.2 Analyse aircraft approval requirements, aircrew and operator approval requirements for the navigation specifications to be implemented, as contained in the ICAO PBN Manual			
6.3 Publish the national regulations to implement the required ICAO navigation specifications			
6.4 Approval of aircraft and operators for each type of procedure and navigation specification			

PBN TMA Action Plan GPI 5, 7, 8, 10, 11, 12			
	Start	**End**	**Remarks**
6.5 Establish and keep updated a record of approved aircraft and operators			
6.6 Verify operations with a continuing monitoring programme			
7 STANDARDS AND PROCEDURES			
7.1 Evaluate regulations for GNSS use, and if such were the case, proceed to its publication.			
7.2 Develop and publish AIC notifying PBN implementation planning			
7.3 Publish AIP Supplement including applicable standards and procedures			
7.4 Review Procedural Manuals of the ATS units involved			
7.5 SID and/or STAR Ground Validation and Flight Inspection/Flight Validation			
7.6 Data Base Validation Requirements/Procedures			
7.5 Update Letters of Agreement between ATS units			
7.6 Provide procedures to accommodate non-approved RNAV/RNP aircraft, when applicable			
7.7 Conduct ATC simulations to identify the workload/operational factors, if necessary.			
8 TRAINING			
8.1 Develop a training programme and documentation for operators (pilots, dispatchers and maintenance)			
8.2 Develop training programme and documentation for Air Traffic Controllers and AIS Operators			

PBN TMA Action Plan GPI 5, 7, 8, 10, 11, 12			
	Start	**End**	**Remarks**
8.3 Develop training programme to regulators (aviation safety inspectors)			
8.4 Conduct training programmes			
8.5 Hold seminars oriented to operators, indicating the plans and the operational and financial benefits expected			
9 DECISION FOR IMPLEMENTATION			
9.1 Evaluate operational documentation availability (ATS, OPS/AIR)			
9.2 Evaluate the percentage of approved aircraft and operations (mixed equipage concerns)			
9.3 Review safety assessment results			
10 SYSTEM PERFORMANCE MONITORING			
10.1 Develop post-implementation TMA operations monitoring programme			
10.2 Execute post-implementation TMA operations monitoring programme			
Pre operational implementation date			
Definitive implementation date			

PBN Approach Action Plan

PBN APP Action Plan GPI 1, 12, 16, 21, 23			
	Start	**End**	**Remarks**
1 AIRSPACE CONCEPT			
1.1 Establish and prioritize Strategic Objectives (Safety, Capacity, Environment, etc)			
1.2 Analyse aircraft fleet navigation capacity operating in the Airport			
1.3 Analyse communication, ground navigation (VOR, DME) and surveillance for navigation specification and reversionary mode compliance			
1.4 Design Instrument Approach Procedure (RNP APCH/APV Baro-VNAV or RNP AR), based on the strategic objective of the airspace concept. Consider Airspace Modelling, ATC simulations (fast time and/or real time), Live Trials, etc.			
2 DEVELOP PERFORMANCE MEASUREMENT PLAN			
2.1 Prepare Performance Measurement Plan, including gas emission, safety, efficiency, etc.			
2.2 Conduct Performance Measurement Plan			
3 PROCEDURE SAFETY ASSESSMENT			
3.1 Determine which methodology shall be used to evaluate procedure safety, depending on the navigation specification. Consider Airspace Modelling, ATC simulations (fast time and/or real time), Live Trials, etc.			
3.2 Prepare a data collection programme for airspace safety assessment			
3.3 Prepare preliminary procedure (s) safety assessment			

PBN APP Action Plan GPI 1, 12, 16, 21, 23			
	Start	**End**	**Remarks**
3.4 Prepare final procedure (s) safety assessment			
4 ESTABLISH COLLABORATION DECISION MAKING (CDM) PROCESS			
4.1 Coordinate planning and implementation needs with Air Navigation Service Providers, Regulators, Users, aircraft operators and military authorities			
4.2 Establish implementation date			
4.3 Establish the documentation format of CAR/SAM RNAV/RNP Website			
4.4 Report planning and implementation progress to the corresponding Regional Office			
5 ATC AUTOMATED SYSTEMS			
5.1 Evaluate the PBN implementation in the ATC Automated Systems, considering the Amendment 1 to the PANS/ATM (FPLSG).			
5.2 Implement the necessary changes in the ATC Automated Systems			
6 AIRCRAFT AND OPERATOR APPROVAL			
6.1 Be aware of the national implementation programme and of the required navigation specifications			
6.2 Analyse aircraft approval requirements, aircrew and operator approval requirements for the navigation specifications to be implemented, as contained in the ICAO PBN Manual			
6.3 Publish the national regulations to implement the required ICAO navigation specifications			
6.4 Approval of aircraft and operators for each type of procedure and navigation specification			

PBN APP Action Plan GPI 1, 12, 16, 21, 23			
	Start	**End**	**Remarks**
6.5 Establish and keep updated a record of approved aircraft and operators			
6.6 Verify operations with a continuing monitoring programme			
7 STANDARDS AND PROCEDURES			
7.1 Evaluate regulations for GNSS use, and if such were the case, proceed to its publication.			
7.2 Develop and publish AIC notifying PBN implementation planning			
7.3 Publish AIP Supplement including applicable standards and procedures			
7.4 Review Procedural Manuals of the ATS units involved			
7.5 Update Letters of Agreement between ATS units, if necessary			
7.6 Provide procedures to accommodate non-approved RNAV/RNP aircraft, when applicable			
7.7 Conduct ATC simulations to identify the workload/operational factors, if necessary.			
8 TRAINING			
8.1 Develop a training programme and documentation for operators (pilots, dispatchers and maintenance)			
8.2 Develop training programme and documentation for Air Traffic Controllers and AIS Operators			

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9 DECISION FOR IMPLEMENTATION			
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9.2 Evaluate the percentage of approved aircraft and operations (mixed equipage concerns)			
9.3 Review safety assessment results			
10 SYSTEM PERFORMANCE MONITORING			
10.1 Develop post-implementation APP operations monitoring programme			
10.2 Execute post-implementation APP operations monitoring programme			
Pre operational implementation date			
Definitive implementation date			

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA AND PACIFIC OFFICE

GUIDANCE MATERIAL FOR

END-TO-END SAFETY AND PERFORMANCE MONITORING OF

AIR TRAFFIC SERVICE (ATS) DATA LINK SYSTEMS

IN THE ASIA/PACIFIC REGION

Version 3.0 – May 2008

Issued by the ICAO Asia and Pacific Office, Bangkok

TABLE OF CONTENTS

1. Background

1.1 The Asia Pacific Airspace Safety Monitoring (APASM) Task Force established by the Asia Pacific Air Navigation Planning Implementation Regional Group (APANPIRG) during 2001 noted that requirements for monitoring aircraft height-keeping performance and the safety of reduced vertical separation minimum (RVSM) operations had been more comprehensively developed than for other Air Traffic Management (ATM) services, such as reduced horizontal separation based on required navigation performance (RNP) and the monitoring of ATS data link systems.

1.2 For example, to assist RVSM operations a handbook with detailed guidance on the requirements for establishing and operating Regional Monitoring Agencies (RMA) was developed by the ICAO Separation and Airspace Safety Panel (SASP). There was no comparable document under development by ICAO for ATS data link applications and so the APASM Task Force developed draft guidance material covering safety and performance monitoring for ATS data link applications.

1.3 The experience gained by the Informal Pacific ATC Coordinating Group (IPACG) and the Informal South Pacific ATS Coordinating Group (ISPACG) FANS Interoperability Teams (FITs) and the supporting Central Reporting Agencies (CRAs) to monitor automatic dependent surveillance - contract (ADS-C) and controller pilot data link communication (CPDLC) performance for both aircraft and ground systems was used as a resource from which to develop monitoring guidance material.

1.4 From 2004, the APASM Task Force was succeeded by the Regional Airspace Safety Monitoring Advisory Group (RASMAG) of APANPIRG, which decided to adopt and extend the APASM material to become the standard guidance material for end-to-end safety and performance monitoring of ATS data link systems in the Asia/Pacific region. Following significant development of the material, APANPIRG/16 (2005) adopted the *Guidance Material for the End-to-End Monitoring of ATS Data Link Systems in the Asia/Pacific Region* under the terms of Conclusion 16/20.

1.5 Within the remainder of the Asia/Pacific Region, the Bay of Bengal and South East Asia ATS Coordination Groups are following the lead of IPACG and ISPACG and have created FANS-1/A implementation teams and data link CRAs to accomplish this activity. These implementation teams also perform the interoperability activities which will continue after the implementation of CPDLC and ADS-C is complete. This guidance material focuses on interoperability issues, both prior to and following implementation of a data link system

1.6 During 2008, agreement was reached between Asia/Pacific and North Atlantic data link interoperability/implementation groups that the global harmonization of data link monitoring activities was desirable. Accordingly, the APANPIRG, NAT SPG and ICAO Secretariat would coordinate to the extent possible in order to develop proposals to implement required monitoring infrastructure and arrangements that would be global and cost effective.

2. Requirements for Safety and Performance Monitoring

2.1 Annex 11, at paragraph 2.27.5, states:

"Any significant safety-related change to the ATC system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met and users have been consulted. When appropriate, the responsible authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met."

2.2 The *Manual of Air Traffic Services Data Link Applications* (Doc 9694) describes ATS data link applications as including DLIS, ADS, CPDLC, DFIS, AIDC and ADS-B. ATS data link applications, such as ADS-C, CPDLC and ATS interfacility data communication (AIDC), are increasingly being used in support reduced horizontal separation minima. It is therefore necessary to apply the safety monitoring requirements of Annex 11 to these data link services.

Note: *For the purposes of this guidance material, 'data link systems' (or applications) generally refer to CPDLC, ADS-C and/or AIDC.*

2.3 Data link applications comprise both a technical and an operational element. The guidelines in this document - which apply only to the technical element - propose a structure and methodology for monitoring the technical end-to-end safety performance of air-ground and ground-air data link services. The operational aspects of data link monitoring – such as reviewing the correct use of CPDLC message elements - are carried out by the appropriate safety monitoring agency.

2.4 Ground-ground data link systems supporting applications such as AIDC are essentially simpler and more direct than air-ground systems, and monitoring can be achieved directly between the concerned ATSUs. However, it should be noted that States have a responsibility to ensure that monitoring of ground-ground data link systems is carried out in support of the implementation of reduced separation minima. Monitoring of ground-ground AIDC performance is outlined in **Appendix A.**

2.5 The requirement for on-going monitoring after implementation of a datalink system is based on several factors, including:

a) degradation of performance with time,

b) increasing traffic levels, and

c) changes to equipment and/or procedures which may occur from time to time,

2.6 On-going monitoring also permits the detection of errors that may been introduced by a third party (e.g. a communications service provider).

2.7 The use of ADS-B to support separation and the introduction of the Aeronautical Telecommunication Network (ATN) will bring significant changes to operational systems that will also require the establishment of monitoring programmes.

3. Purpose of Guidance Material

3.1 The purpose of this guidance material is to:

a) Provide a set of working principles common to all Asia/Pacific States implementing ATS data link systems;

b) Provide detailed guidance on the requirements for establishing and operating a FANS-1/A implementation/interoperability team (FIT);

c) Provide detailed guidance on the requirements for establishing and operating a Central Reporting Agency (CRA);

d) Promote a standardized approach for implementation and monitoring within the Asia/Pacific Region; and

e) Promote interchange of information among different Regions to support common operational monitoring procedures.

4. Establishment and Operation of an Implementation/Interoperability Team and CRA

4.1 Recognizing the safety oversight responsibilities necessary to support the implementation and continued safe use of ATS data link systems, the following standards apply to any organization intending to fill the role of an implementation/interoperability team:

a) The organization must receive authority to act as an implementation/ interoperability team as the result of a decision by a State, a group of States or a regional planning group, or by regional agreement.

b) States should appoint a CRA that has the required tools and personnel with the technical skills and experience to carry out the CRA functions.

c) States should ensure that the CRA is adequately funded to carry out its required functions.

5. Interoperability Teams

5.1 ATS data link functionality exists in several different domains (e.g. aircraft, satellite, ground network, air traffic service units and human factors) and these elements must be successfully integrated across all domains. Airborne and ground equipment from many different vendors, as well as the sub-systems of several different communication networks, must inter-operate successfully to provide the required end-to-end system performance. In addition, standardised procedures must be coordinated among many different airlines and States to provide the desired operational performance. Technical and operational elements must then combine to allow the various applications to demonstrate mature and stable performance. It is only when this has been achieved that benefits can start being realized.

5.2 A team approach to interoperability is essential to the success of any ATS data link implementation, an important lesson learned by ISPACG, whose members were the first to implement CNS/ATM applications using FANS-1/A systems. Stakeholders had worked closely together during the initial development and subsequent certification of FANS-1/A. However, even though a problem-reporting system was in place when FANS-1/A operations commenced, many problems went unresolved. Consequently it was not possible in the short term to adopt the new operational procedures that would provide the expected benefits of higher traffic capacity and more economic routes.

5.3 An interoperability team (the ‘FIT’) was formed and tasked to address both technical and operational issues and to assist in ensuring that benefits would result. Because daily attention and occasional significant research would be required, ISPACG realized that a traditional industry team approach would not be effective. To address these concerns, the FIT created a dedicated sub-team, the CRA, to perform the daily monitoring, coordination, testing and investigation of the problem reports submitted by the team. This approach aligns with that taken for RVSM implementations where specialist supporting groups provide height keeping monitoring services.

5.4 Although the monitoring process described above was developed for FANS-1/A based CPDLC and ADS-C applications, it applies equally to AIDC and to ATN-based ATS applications. The latter was validated during the Preliminary EUROCONTROL Test of Air/ground data Link (PETAL) implementation of ATN-based ATS data link services in Maastricht ACC.

Role of the Interoperability Team

5.5 The role of the interoperability team is to address technical and operational problems affecting the transit of data link aircraft through international airspace. To do this, the interoperability team must oversee the end-to-end monitoring process to ensure the data link system meets, and continues to meet, its performance, safety, and interoperability requirements and that operations and procedures are working as specified.

5.6 The specific tasks of an interoperability team are:

a) Initiate and oversee problem reporting and problem resolution processes;

b) Initiate and oversee end-to-end system performance monitoring processes;

c) Oversee the implementation of new procedures; and

d) Report to the appropriate State regulatory authorities and to the appropriate ATS coordinating group.

5.7 Terms of reference for an interoperability team are shown at **Appendix B.**

Interoperability Team Members

5.8 The principal members of an interoperability team are the major stakeholders of the sub-systems that must interoperate to achieve the desired system performance and end-to-end operation. In the case of ATS data link systems, the major stakeholders are aircraft operators, air navigation services providers (ANSPs) and communication services providers (CSPs). Other stakeholders such as international organizations, and airframe and avionics manufacturers also play an important role and should be invited by the major stakeholders to contribute their expertise.

6. Central Reporting Agencies

6.1 Work must be conducted on a daily basis for an interoperability team to achieve its important goals of problem resolution, system performance assurance, and planning and testing of operations that will enable benefits. A dedicated sub-team, the CRA, is required to do the daily monitoring, coordination, testing and problem research tasks for the interoperability team. **Appendix C** shows a table of CRA tasks and the associated resource requirements.

6.2 A CRA should be established in order to determine the safety performance of the ADS-C and CPDLC data link systems before the implementation of reduced separation minima in a particular area, and it should remain active throughout the early stages of implementation. However, as the performance of the systems stabilises to a satisfactory level, it should be possible to reduce the number of CRAs in the region by combining responsibility for different areas.

6.3 The functions of a CRA are:

a) To develop and administer problem report processes;

b) To maintain a database of problem reports;

c) To process monthly end-to-end system performance reports from air traffic service providers;

d) To coordinate and test the implementation of new procedures resulting from ATS data link systems for a given region;

e) To administer and monitor an informal end-to-end configuration process;

f) To manage data confidentiality agreements as required;

g) To identify trends; and

h) To provide regular reports to the interoperability team.

CRA Resource Requirements

6.4 To be effective, the CRA must have dedicated staff and adequate tools. Staffing requirements will depend on the complexity of the region being monitored. There are several factors that affect regional complexity from an ATS monitoring standpoint such as dimensions of the airspace, variety in operating procedures, number of airlines, number of airborne equipment variants, number of ANSPs, number of ground equipment variants and number of CSPs.

6.5 The CRA must be able to simulate an ATS ground station operational capability to the extent of exercising all combinations and ranges of CPDLC uplinks and ADS-C reports. The CRA must also have access to airborne equipment: a test bench is adequate, though engineering simulators that can be connected to either the ARINC or SITA communication network can offer additional capability for problem solving. In support of the data link audit analysis task, the CRA must have software that can decode CSP audit data and produce usable reports. Without these tools it is virtually impossible for a CRA to resolve problems or monitor system performance.

6.6 Coordination is an important component of the CRA's function. In the pursuit of problem resolution, action item resolution, monitoring and testing, many issues arise that require coordination among the various stakeholders. The CRA has a primary responsibility to provide this coordination function as delegated by the interoperability team. Coordination between CRAs is also important, particularly to expand the information database on problems and trends; there may be a need for CRA coordination within the region and with CRAs in other regions. An incident may appear to be an isolated case, but the collation of similar reports by a number of CRAs might indicate an area that needs more detailed examination.

7. Working Principles for Central Reporting Agencies

7.1 The working principles in this guidance material result from the combined experience of the North Atlantic FANS Implementation Group (NATFIG), ISPACG FANS Interoperability Team, IPACG FANS Interoperability Team, and the ATN implementation in Maastricht ACC.

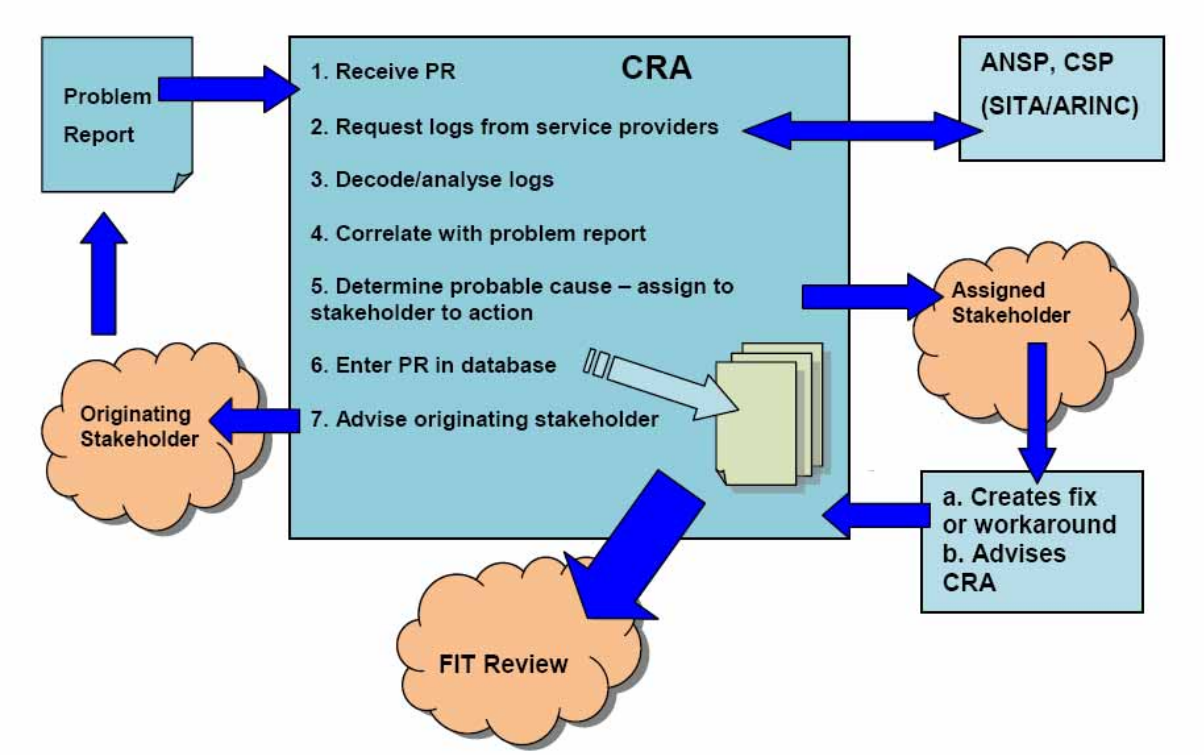
Confidentiality Agreements

7.2 Confidentiality of information is an established principle for problem reporting, and so reports must be de-identified before being made accessible to other agencies. However, it is necessary for the CRA to retain the identity of the original reports so that problem resolution and follow-up action can be taken.

7.3 The CRA must initiate and maintain confidentiality agreements with each entity providing problem reports.

Problem Identification and Resolution

7.4 The problem identification and resolution process, as it applies to an individual problem, consists of a data collection phase, followed by problem analysis and coordination with affected parties to secure a resolution, and recommendation of interim procedures to mitigate the problem in some instances. This is shown in the diagram below.



7.5 The problem identification task begins with receipt of a report from a stakeholder, usually an operator, ANSP or CSP. If the person reporting the problem has used the problem reporting form provided in the appropriate regional manual, then data collection can begin. If not, additional data may have to be requested from the reporter.

7.6 The data collection phase consists of obtaining message logs from the appropriate parties, which will depend on which service providers were being used and the operator service contracts in place at the time. Today, this usually means obtaining logs for the appropriate period from the CSPs involved. In the future, with ATN development, additional providers will become involved and airborne recordings as per EUROCAE ED-112 should become available. Usually, a log for a few hours before and after the event that was reported will suffice but, once the analysis has begun, it is sometimes necessary to request additional data and perhaps for several days prior to the event if the problem appears to be an on-going one.

7.7 Additionally, some airplane-specific recordings may be available that may assist in the data analysis task. These are not always requested initially as doing so would be an unacceptable imposition on the operators, but may occur when the nature of the problem has been clarified enough to indicate the line of investigation that needs to be pursued. These additional records include:

- Aircraft maintenance system logs, and
- Built-In Test Equipment data dumps for some airplane systems, and
- SATCOM activity logs.

7.8 Logs and printouts from the flight crew and recordings/logs from the ATSUs involved in the problem may also be necessary. It is important that the organization collecting data for the analysis task requests all this data in a timely manner, as much of it is subject to limited retention.

7.9 Once the data has been collected, the analysis can begin. For this, it is necessary to be able to decode all the messages involved, and a tool that can decode every ATS data link message type used in the region is essential. These messages include:

- AFN (ARINC 622), ADS-C and CPDLC (RTCA DO-258A/EUROCAE ED-100A) in a region operating FANS-1/A;
- Context Management, ADS-C and CPDLC applications (ICAO Doc 9705 and RTCA DO-280/ED-110) in a region using ATN; and
- FIS or ARINC 623 messages used in the region.

7.10 The analysis of the decoded messages requires a thorough understanding of the complete message traffic, including:

- Media management messages;
- Relationship of ground-ground and air-ground traffic; and
- Message envelope schemes used by the particular data link technology (ACARS, ATN, etc).

7.11 The analyst must also have a good understanding of how the aircraft systems operate and interact to provide the ATS data link functions, as many of the reported problems are airplane system problems.

7.12 This information will enable the analyst to determine a probable cause by working back from the area where the problem was noticed to where it began. In some cases, this may entail manual decoding of parts of messages based on the appropriate standard to identify particular encoding errors. It may also require lab testing using the airborne equipment (and sometimes the ground networks) to reliably assign the problem to a particular cause.

7.13 Once the problem has been identified, then the task of coordination with affected parties begins. The stakeholder who is assigned responsibility for fixing the problem must be contacted and a corrective action plan agreed.

7.14 This information (the problem description, the results of the analysis and the plan for corrective action) is then entered into a database covering data link problems, both in a complete form to allow continued analysis and monitoring of the corrective action and in a de-identified form for the information of other stakeholders. These de-identified summaries are reported at the appropriate regional management forum.

Mitigating Procedures

7.15 The CRA's responsibility does not end with determining the cause of the problem and identifying a fix. As part of that activity, and because a considerable period may elapse while software updates are applied to all aircraft in a fleet, procedural methods to mitigate the problem may have to be developed while the solution is being coordinated. The CRA should identify the need for such procedures and develop recommendations for implementation by the service providers and operators involved.

Routine Data link Performance Reporting

7.16 An important part of data link safety performance is the measurement of the end-to-end performance. This should be carried out prior to implementation of new separation minima, but should continue regularly to provide assurance that the safety requirements continue to be met. Data link performance assessment is based on round-trip time, availability, integrity, reliability and continuity, and ANSPs should provide the CRA with regular measurements of these parameters.

7.17 The CRA will use the information supplied by ANSPs to produce a performance assessment against the established data link requirements for the region. The implementation of Required Communication Performance (RCP) in a region will assist the CRA by providing a statement of the performance requirements for operational communication in support of specific ATS functions. These requirements are set according to the separation minima being applied, and so may differ within different areas according to usage.

7.18 The CRA performance assessment should be made available to the RVSM RMA and horizontal plane Safety Monitoring Agency (SMA) for their calculation of system performance against the minimum values defined in the Oceanic SPR Standard (RTCA DO-306/EUROCAE ED-122 Safety and Performance Standard for Air Traffic Data link Services in Oceanic and Remote Airspace). The system performance criteria are included in **Appendix D**.

7.19 ADS-C round-trip times are normally measured as the time between sending a contract request and receiving the associated Acknowledgement (ACK) or Message Assurance (MAS) message. CPDLC round-trip times are normally determined from the ATSU end-system time stamps for transmission of the uplink message and reception of the associated MAS.

7.20 ADS-C and CPDLC downlink one-way times are defined by the difference between the aircraft time stamp and the ASTU end-system reception time stamp.

7.21 ADS-C and CPDLC success rates are only available for uplink messages. The success rate is expressed as the percentage of messages that receive a successful ACK or MAS within a specified time.

7.22 CPDLC Actual Communications Performance (ACP) used for monitoring the RCP TRN (transaction) is the difference between the time stamp on the CPDLC uplink from the ATSU requiring a WILCO/UNABLE response to reception of the associated downlink from the aircraft.

> ***Note 1.*** *TRN is the overall transaction time, and denotes that part of the operational communication used to define start and end points for monitoring; it does not include uplink message composition or reviewing of the downlink message response by the Controller.*
>
> ***Note 2.*** *When monitoring RCP only those transactions requiring a WILCO/UNABLE response are assessed in order to provide the best modeling of the performance of a CPDLC message used for intervention in a reduced separation scenario.*

7.23 CPDLC Actual Communications Technical Performance (ACTP) used for monitoring RCTP is the sum of the following two time intervals:

1. The difference between the time stamp on the CPDLC uplink and the ATSU end-system reception time stamp of the corresponding MAS divided by two; and
2. The associated CPDLC downlink transit time (calculated by determining the difference between the aircraft time stamp and the ATSU end-system reception time stamp).

7.24 CPDLC Crew Performance is the difference between ACP and ACTP for the same transaction.

7.25 Communication transaction time - The maximum time for the completion of the operational communication transaction after which the initiator should revert to an alternative procedure.

7.26 Position report delivery time – The maximum time for the delivery of a position report from the aircraft to the ATSU.

- Monitored operational performance (TRN) - The portion of the operational communication transaction (used for intervention) that does not include message composition or recognition of the operational response.
- Required Communication Technical Performance (RCTP) – The technical portion of the operational communication transaction (used for intervention) that does not include message composition, operational response, and recognition of the operational response times.

7.27 Continuity - The probability that an operational communication transaction or position report delivery can be completed within the communication transaction time.

- The proportion of intervention messages and responses that can be delivered within the specified TRN for Intervention.
- The proportion of intervention messages and responses that can be delivered within the specified RCTP for Intervention.

7.28 AIDC round trip times may be obtained from the difference between message transmission and reception of the associated application response (Logical Acknowledgement Message (LAM), or Logical Rejection Message (LRM)). The success rate is expressed as the percentage of messages that are delivered to the destination ATSU.

7.29 The integrity of AIDC messaging is not normally monitored, although an analysis of operational data over a long period could reveal undetected errors and their effects. It may also reveal interoperability issues between ground systems in adjoining ATSUs.

Time Standards

7.30 It is critical to the successful measurement and analysis of the data link performance that all elements of the system use a common time system and that the system time is maintained within the required tolerance. In accordance with Annexes 2 and 11, all times used in data link communications must be accurate to within 1 second of UTC.

7.31 It is important to note that, at the time of publishing this guidance material, GPS time is more than 10 seconds ahead of UTC; where GPS time is used as the source, the system time must be corrected to UTC.

Configuration Monitoring

7.32 A variety of technical systems are involved in the data link process and changes, particularly to software and/or software parameters, are not infrequent. Any system change may have an impact on the overall performance of the data link, and it is therefore important that the CRA is kept informed of each change of configuration to each system. With this information it is often possible to identify changes that result it improvements or deteriorations in data link performance or that may be associated with particular problems.

7.33 All ANSPs, CSPs, aircraft operators and avionics suppliers should therefore report all system configuration changes to the CRA. The CRA will then maintain a database of configuration changes for each system or sub-system. It is not necessary for the CRA to know the details of changes, but where a change is expected to affect performance, information on the likely effect should be provided.

New Procedures and Improved Performance Requirements

7.34 The CRA may recommend new end-to-end data link system performance requirements, either to accommodate new operational procedures or to take account of recognised problems.

7.35 The CRA may recommend the testing and implementation of new procedures.

APPENDIX A

METHODOLOGY FOR MONITORING AIDC

1 Introduction

1.1 AIDC plays an important role in ATC coordination, and may become a significant element of ATC in the support of reduced separation minima. The performance of AIDC operations should therefore be monitored as part of the required monitoring process prior to the implementation of reduced separation minima.

1.2 AIDC operates essentially over fixed networks and generally has only two or three involved parties, generally comprising the ATSUs at either end of the network as well as the network provider. It is therefore generally unnecessary to develop a FIT-type approach to safety monitoring; instead such monitoring and problem identification and resolution can be carried out directly by the concerned parties.

1.3 Because fixed networks are used for AIDC, continuous performance monitoring after the implementation of reduced separation minima is not generally necessary, though annual performance and availability checks are recommended. Monitoring should also take place after any changes to the network or the end-user equipment. This will be particularly important during the implementation of the ATN.

2 AIDC Technical Performance

2.1 Two major criteria for monitoring AIDC technical performance are the achievement of acceptable delivery times and the reliability of message delivery. Delivery times can best be measured in terms of the end-to-end round trip time. Reliability is measured as the AIDC message delivery success rate.

3 End-to-End Round-Trip Time

3.1 The end-to-end round trip message time may be measured as the time difference between the transmission of an AIDC message and the reception of the corresponding Logical Acknowledgement Message (LAM) or Logical Rejection Message (LRM). If the originating AIDC system receives neither a LAM nor an LRM from the receiving system within a specified time limit (a variable system parameter, typically between 1 and 3 minutes), it will declare a time-out, and the time-out parameter must be used as the round-trip time.

3.2 All AIDC message requiring a LAM response may be used; measuring results from a variety of message types should give a more representative overall result.

3.3 Because of variations in circuits used for AIDC, separate measurements should be made and reported for each ATSU with which AIDC messages are exchanged.

3.4 A large number of measurements of round-trip times should be averaged for performance reporting.

Note: *If it is not practical to measure end-to-end times, one-way trip times may be measured by comparing the time stamps of the outgoing AIDC message and the received LAM or LRM. The reverse path may be measured from the time stamps of the received AIDC message and the corresponding LAM or LRM.*

4 Message Delivery Success Rate

4.1 The Message Delivery Success Rate is expressed as the percentage of messages successfully delivered to the destination ATSU.

4.2 Unsuccessful delivery is indicated by a time-out due to non-reception of either a LAM or LRM within a specified time.

Note: *For the purpose of this measurement, even if an AIDC message is responded to with an LRM, it is considered to have been "successfully delivered".*

4.3 The time-out indicates non-delivery of the message (and initiates various actions within the AIDC system).

$$\text{Message Delivery Success Rate} = 1 - \frac{TO}{TOT}$$

Where:

TO = number of Time Outs

TOT = total number of messages

4.4 A large number of measurements of delivery success rates should be averaged for performance reporting. Non-typical extensive transit times should also be investigated.

5 Reporting

5.1 ANSPs should report the results of AIDC performance monitoring to the RASMAG.

6 Caution

6.1 It is known that there are incompatibilities between some ATS end-systems leading to a situation in which a satisfactorily received message may not be able to be properly processed. In at least one case, the receiving system has been programmed to send neither LAM nor LRM in response to such messages.

6.2 This will result in a distortion of the average round-trip time and success rate for the originating end-system.

6.3 It is recommended that ANSPs ensure that all involved parties are aware of such situations so that affected messages may be excluded from the performance measurement data.

APPENDIX B

MODEL TERMS OF REFERENCE FOR AN INTEROPERABILITY TEAM

Reporting and problem resolution processes

- To establish a problem reporting system;
- To review de-identified problem reports and determine appropriate resolution;
- To identify trends;
- To develop interim operational procedures to mitigate the effects of problems until such time as they are resolved;
- To monitor the progress of problem resolution; and
- To prepare summaries of problems encountered and their operational implications.

System performance and monitoring processes

- To determine and validate system performance requirements;
- To establish a performance monitoring system;
- To assess system performance based on information from the CRA;
- To authorise and coordinate system testing;
- To identify accountability for each element of the end-to-end system;
- To develop, document and implement a quality assurance plan that will provide a path to a more stable system; and
- To identify configurations of the end-to-end system that provide acceptable data link performance, and to ensure that such configurations are maintained by all stakeholders.

New procedures

- To coordinate testing in support of implementation of enhanced operational procedures

Reporting

- To report safety-related issues to the appropriate State or regulatory authorities for action;
- To provide reports to each meeting of the implementation team or ATS coordinating group, as appropriate; and
- To provide reports to RASMAG.

APPENDIX C

CRA TASKS AND RESOURCE REQUIREMENTS

CRA Task	Resource Requirement
Manage data confidentiality agreements as required.	Legal services Technical expertise
Develop and administer problem report process: • de-identify all reports, • enter de-identified reports into a database, • keep the identified reports for processing, • request audit data from communication service providers, • assign responsibility for problem resolution where possible, • analyse the data, and • identify trends.	Problem reporting data base, ATS audit decode capability and Airborne test bench as a minimum, simulator highly recommended as well as ATS simulation capability (CPDLC and ADS-C)
Coordinate and test the implementation of new procedures	Airborne test bench as a minimum, simulator capability highly recommended ATS simulation capability (CPDLC and ADS-C) ATS audit decode and report capability Technical expertise Operational expertise
Administer and monitor an informal end-to-end configuration process.	Technical expertise
Report to the interoperability team.	Technical expertise

APPENDIX D

SYSTEM PERFORMANCE CRITERIA

The *RTCA DO-306/EUROCAE ED-122 Safety and Performance Standard for Air Traffic Data link Services in Oceanic and Remote Airspace* (Oceanic SPR Standard) contains the safety and performance requirements for data link services that need to be met and verified. This does not prevent ATS service providers from negotiating more constraining contractual requirements with their communication service providers if necessary.

***Note 1**: For reference purposes the original monitoring requirement, from earlier versions of the FANS-1/A Operations Manual (FOM), are included in Attachment A to Appendix D.*

***Note 2**: The Oceanic SPR standard provides an availability requirement for safety of 0.999, however to enable operational efficiency in some environments, the FANS-1/A availability requirement is set at 0.9999. This 0.9999 availability requirement translates on a per ATSP basis to:*

- *No more than 4 outages (affecting a significant portion of aircraft) greater than 10 minutes for any 12 month period;*
- *Failures causing outages for multiple OACs are not counted more than once; and*
- *No more than 50 minutes of total downtime for any 12 month period.*

The tables below summarise the Oceanic SPR Standard requirements.

Performance Criteria	**Definition**	**Values**
RCP 240/D	Normal means of communication for application of 30 NM lateral separation and reduced distance-based longitudinal separation minima	Communication Transaction time (ET) 240 (sec)
***Note:** Communication Transaction time is defined as the maximum time for the completion of an operational transaction after which the initiator reverts to an alternative procedure. (ICAO Doc 8689*)		
RCP400/D	Normal means of communication for application of lateral separation greater than or equal to 50 NM and time-based longitudinal separation. Alternative means of communication for application of 30 NM lateral separation and reduced distance-based longitudinal separation minima	ET 400 (sec)
Surveillance **50 NM Longitudinal** **30 NM Longitudinal** **30 NM Lateral**	Normal Surveillance: (position report delivery) Non-normal Surveillance: (Controller initiated position report request)	ET 180 (sec) ET 240 (sec)
Surveillance **>50NM Lateral** **>=10 mins time based**	Normal Surveillance	ET 400 (sec)

Availability	The probability that an operational communication transaction can be initiated when needed (ICAO Doc 8689)	99.99%
Continuity	The probability that an operational communication transaction can be completed within the communication transaction time (ICAO Doc 9869)	99.9%
Integrity	The probability of one or more undetected errors in a completed communication transaction.	10^{-5}/hour

RCP type	**RCP 240/D**		**RCP 400/D**	
Time Parameter	ET	95%	ET	95%
Time Value	240	210	400	350
RCP Time Allocations				
Initiator	30	30	30	30
TRN	210	180	370	320
TRN Time Allocations				
Responder	60	60	60	60
RCTP	150	120	310	260
RCTP Time Allocation				
Aircraft	15	10	15	10
Communication service	120	100	280	240
ATS unit	15	10	15	10
Note 1: Values shown in seconds.				
Note 2: Expiration time (ET) is at the continuity requirement, which is 99.9%.				

Table 1: *50 longitudinal and 30/30 - intervention (DO-306/ED-122, Table 5-6)*

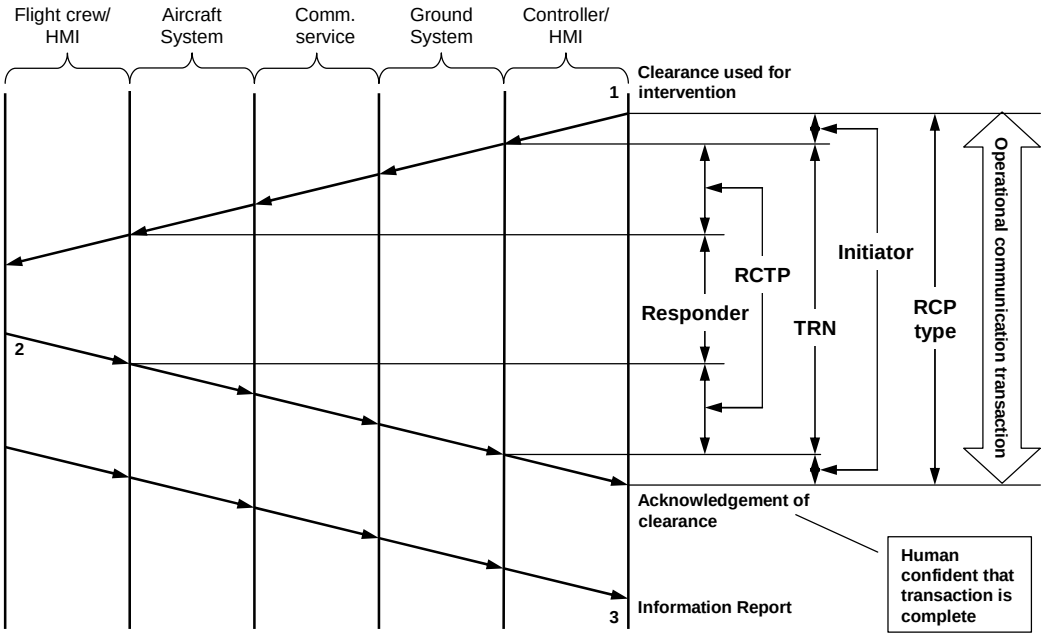


Figure 1: *RCP allocations for intervention capability (DO-306/ED-122, Figure 5-3)*

ATTACHMENT A TO APPENDIX D

FANS-1/A OPERATIONS MANUAL
SYSTEM PERFORMANCE CRITERIA

The table below shows the legacy performance criteria as defined in earlier versions of the FANS-1/A Operations Manual (FOM). These criteria are included for reference purposes only.

Criteria	Definition	Values
Performance	End to end round trip time for uplinks. (sending and reception of MAS)	Round trip time of 2 minutes, 95% of messages. Round trip time of 6 minutes, 99% of messages.
	End to end one way time for downlinks. (comparison of message time stamp and receipt time)	One way time of 1 minute, 95% of messages. One way time of 3 minutes, 99% of messages
	Uplink messages only: Undelivered messages will be determined by: Message assurance failure is received. After trying VHF and, SATCOM Depending on reason code received, the message might, in fact, have reached the aircraft. No message assurance or flight crew response is received by ATSU after 900 seconds	Less than 1% of all attempted messages undelivered
Availability	The ability of the network data link service to perform a required function under given conditions at a given time: The maximum allowed time of continuous unavailability or downtime should be declared MTTR (Mean Time To Repair) *	99.9% TBD
Reliability	The ability of a data link application/system to perform a required function under given conditions for a given time interval: it can be expressed in MTBF (Mean Time Between failure) *	TBD
Integrity	The probability of an undetected failure, event or occurrence within a given time interval.	10^{-6}/hour

* Availability = MTBF x 100/(MTBF+MTTR)

— END —

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

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).

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 A 36-23 (APV) (Baro -VNAV and or augmented GNSS) 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.

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 concept, PBN, GNSS theory 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 2015.

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.

International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

Tel.: +1 (514) 954-6711

25 June 2008

Ref.: AN 13/2.1-08/50

Subject: Approval of Amendment 1 to the PANS-ATM

Action required: a) Implementation of the amendment on 15 November 2012; b) Publication of any differences as of 15 November 2012

Sir/Madam,

1. I have the honour to inform you that the Air Navigation Commission, acting under delegated authority, at the first and second meetings of its 177th Session, on 22 and 24 January 2008, approved Amendment 1 to the *Procedures for Air Navigation Services — Air Traffic Management*, Fifteenth Edition (PANS-ATM, Doc 4444) for applicability on 15 November 2012. The amendment was approved on 27 May 2008 by the President of the Council on behalf of the Council in accordance with established procedure.

2. Amendment 1 stems from the work of the Flight Plan Study Group (FPLSG). The nature and scope of the amendment is to update the ICAO model flight plan form in order to meet the needs of aircraft with advanced capabilities and the evolving requirements of automated air traffic management (ATM) systems, while taking into account compatibility with existing systems, human factors, training, cost and transition aspects.

3. Copies of the interim edition of the amendment are available as attachments to the electronic version of this State letter on the ICAO-NET (www.icao.int/icaonet). The interim edition contains the text as it was approved by the Council and provided to you pending the issue of the replacement pages for the PANS-ATM in which the amendment will be incorporated. Please note that the attached amendment consists solely of a change to the ICAO model flight plan form, related ATS messages and procedures and has an applicability date of 15 November 2012. As the existing ICAO flight plan will remain in use during the interim period it is deemed premature for ICAO to distribute the blue cover State letter containing the replacement pages associated with the amendment. Therefore, the replacement pages will be distributed in October 2012. In the meantime, you may wish to use the amendment contained in this letter to begin updating your flight data processing systems to meet the new requirements which will be applicable in 2012.

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4. In accordance with the decision of the 26th Session of the Assembly, I would like to bring to your attention the Organization's long-standing practice of providing documentation to States upon request. In this regard, I wish to refer you to the ICAO-NET website (www.icao.int/icaonet) where you can access all relevant documentation. The practice of dispatching printed copies of such documentation has now been discontinued.

5. Your Government is invited by the Council to implement the provisions of PANS-ATM as amended. In this connection, I draw your attention to the decision taken by the Council, on 1 October 1973, to discontinue the publication of differences in Supplements to the PANS documents and, instead, to request States to publish up-to-date lists of significant differences from PANS documents in their Aeronautical Information Publications.

6. May I, therefore, invite your Government to publish in your Aeronautical Information Publication a list of any significant differences which will exist on 15 November 2012 between the amended provisions of PANS-ATM and your national regulations and practices.

Accept, Sir/Madam, the assurances of my highest consideration.

Taïeb Chérif
Secretary General

Enclosure:

Amendment to the Foreword of the PANS-ATM

ATTACHMENT to State letter AN 13/2.1-08/50

AMENDMENT TO THE FOREWORD OF THE PANS-ATM, FIFTEENTH EDITION

Add the following at the end of Table A:

Amendment	***Source(s)***	***Subject***	***Approved Applicable***
1	Flight Plan Study Group (FPLSG)	Update the ICAO model flight plan form.	27 May 2008 15 November 2012

— END —

AMENDMENT NO. 1

TO THE

PROCEDURES
FOR
AIR NAVIGATION SERVICES

AIR TRAFFIC MANAGEMENT

(Doc 4444)

INTERIM EDITION

The text of Amendment No. 1 to the PANS-ATM (Doc 4444) was approved by the President of the Council of ICAO on behalf of the Council on **27 May 2008** for applicability on **15 November 2012**. This interim edition is distributed to facilitate implementation of the amendment by States. Replacement pages incorporating Amendment No. 1 are expected to be distributed in October 2012. (State letter AN 13/2.1-08/50 refers.)

MAY 2008

INTERNATIONAL CIVIL AVIATION ORGANIZATION

PROPOSED AMENDMENT TO THE *PROCEDURES FOR AIR NAVIGATION SERVICES — AIR TRAFFIC MANAGEMENT (PANS-ATM, DOC 4444)*

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1.	~~Text to be deleted is shown with a line through it~~	text to be deleted
2.	New text to be inserted is highlighted with grey shading	new text to be inserted
3.	~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

PROCEDURES FOR AIR NAVIGATION SERVICES — AIR TRAFFIC MANAGEMENT (PANS-ATM, DOC 4444)

. . .

CHAPTER 4. GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES

. . .

4.4 FLIGHT PLAN

4.4.1 Flight plan form

Note.— Procedures for the use of repetitive flight plans are contained in Chapter 16, Section 16.4.

. . .

4.4.1.3 Operators and air traffic services units should comply with:

a) the instructions for completion of the flight plan form and the repetitive flight plan listing form given in Appendix 2; and

b) any constraints identified in relevant Aeronautical Information Publications (AIPs).

Note 1.— Failure to adhere to the provisions of Appendix 2 or any constraint identified in relevant AIPs may result in data being rejected, processed incorrectly or lost.

Note 2.— The instructions for completing the flight plan form given in Appendix 2 may be conveniently printed on the inside cover of flight plan form pads, or posted in briefing rooms.

. . .

4.4.2 Submission of a flight plan

4.4.2.1 PRIOR TO DEPARTURE

4.4.2.1.1 Flight plans shall not be submitted more than 120 hours before the estimated off-block time of a flight.

4.4.2.1.~~1~~2 Except when other arrangements have been made for submission of repetitive flight plans, a flight plan submitted prior to departure should be submitted to the air traffic services reporting office at the departure aerodrome. If no such unit exists at the departure aerodrome, the flight plan should be submitted to the unit serving or designated to serve the departure aerodrome.

4.4.2.1.~~2~~3 In the event of a delay of 30 minutes in excess of the estimated off-block time for a controlled flight or a delay of one hour for an uncontrolled flight for which a flight plan has been submitted, the flight plan should be amended or a new flight plan submitted and the old flight plan cancelled, whichever is applicable.

CHAPTER 11. AIR TRAFFIC SERVICES MESSAGES

. . .

11.4 MESSAGE TYPES AND THEIR APPLICATION

. . .

11.4.2 Movement and control messages

. . .

11.4.2.2 MOVEMENT MESSAGES

. . .

11.4.2.2.2 FILED FLIGHT PLAN (FPL) MESSAGES

Note.— Instructions for the transmission of an FPL message are contained in Appendix 2.

. . .

11.4.2.2.2.5 FPL messages ~~shall normally~~should be transmitted immediately after the filing of the flight plan. ~~However, i~~If a flight plan is filed more than 24 hours in advance of the estimated off-block time of the flight to which it refers, ~~that flight plan shall be held in abeyance until at most 24 hours before the flight begins so as to avoid the need for the insertion of a date group into that~~ the date of the flight departure shall be inserted in Item 18 of the flight plan. ~~In addition, if a flight plan is filed early and the provisions of 11.4.2.2.2.2 b) or c) or 11.4.2.2.2.3 apply, transmission of the FPL message may be withheld until one hour before the estimated off-block time, provided that this will permit each air traffic services unit concerned to receive the information at least 30 minutes before the time at which the aircraft is estimated to enter its area of responsibility.~~

. . .

11.4.2.2.4 MODIFICATION (CHG) MESSAGES

A CHG message shall be transmitted when any change is to be made to basic flight plan data contained in previously transmitted FPL or RPL data. The CHG message shall be sent to those recipients of basic flight plan data which are affected by the change. Relevant revised basic flight plan data shall be provided to such affected entities not previously having received this.

Note.— See 11.4.2.3.4 concerning notification of a change to coordination data contained in a previously transmitted current flight plan or estimate message.

. . .

APPENDIX 2. FLIGHT PLAN

. . .

2. Instructions for the completion of the flight plan form

. . .

2.2 Instructions for insertion of ATS data

Complete Items 7 to 18 as indicated hereunder.

Complete also Item 19 as indicated hereunder, when so required by the appropriate ATS authority or when otherwise deemed necessary.

Note 1.— Item numbers on the form are not consecutive, as they correspond to Field Type numbers in ATS messages.

Note 2.— Air traffic services data systems may impose communications or processing constraints on information in filed flight plans. Possible constraints may, for example, be limits with regard to item length, number of elements in the route item or total flight plan length. Significant constraints are documented in the relevant Aeronautical Information Publication.

ITEM 7: AIRCRAFT IDENTIFICATION (MAXIMUM 7 CHARACTERS)

INSERT one of the following aircraft identifications, not exceeding 7 alphanumeric characters and without hyphens or symbols:

~~a~~b) the nationality or common mark and registration mark~~ing~~ of the aircraft (e.g. EIAKO, 4XBCD, N2567GA), when:

1) in radiotelephony the call sign to be used by the aircraft will consist of this identification alone (e.g. ~~OOTEK~~CGAJS), or preceded by the ICAO telephony designator for the aircraft operating agency (e.g. ~~SABENA OOTEK~~BLIZZARD CGAJS);

2) the aircraft is not equipped with radio~~;~~.

OR ~~b~~a) the ICAO designator for the aircraft operating agency followed by the flight identification (e.g. KLM511, NGA213, JTR25) when in radiotelephony the call sign to be used by the aircraft will consist of the ICAO telephony designator for the operating agency followed by the flight identification (e.g. KLM511, NIGERIA 213, ~~HERBIE~~JESTER 25)~~.~~;

Note 1.— Standards for nationality, common and registration marks to be used are contained in Annex 7, Chapter 2.

Note 2.— Provisions for the use of radiotelephony call signs are contained in Annex 10, Volume II, Chapter 5. ICAO designators and telephony designators for aircraft operating agencies are contained in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

ITEM 8: FLIGHT RULES AND TYPE OF FLIGHT (ONE OR TWO CHARACTERS)

Flight rules

INSERT one of the following letters to denote the category of flight rules with which the pilot intends to comply:

I if it is intended that the entire flight will be operated under the IFR
V if it is intended that the entire flight will be operated under the VFR
Y if the flight initially will be operated under the IFR ~~first) and specify in Item 15 the point~~, followed by one or more subsequent changes of flight rules or
Z if the flight initially will be operated under the VFR ~~first)~~, followed by one or more subsequent changes of flight rules

Specify in Item 15 the point or points at which a change of flight rules is planned.

Type of flight

INSERT one of the following letters to denote the type of flight when so required by the appropriate ATS authority:

S if scheduled air service
N if non-scheduled air transport operation
G if general aviation
M if military
X if other than any of the defined categories above.

Specify status of a flight following the indicator STS in Item 18, or when necessary to denote other reasons for specific handling by ATS, indicate the reason following the indicator RMK in Item 18.

. . .

ITEM 10: EQUIPMENT AND CAPABILITIES

Capabilities comprise the following elements:

a) presence of relevant serviceable equipment on board the aircraft;

b) equipment and capabilities commensurate with flight crew qualifications; and

c) where applicable, authorization from the appropriate authority.

Radio communication, navigation and approach aid equipment and capabilities

INSERT one letter as follows:

N if no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable,

OR S if standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1),

AND/OR

INSERT one or more of the following letters to indicate the serviceable COM/NAV/approach aid equipment and capabilities available ~~and serviceable~~:

A	~~(Not allocated)~~GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	~~(Not allocated)~~LPV (APV with SBAS)	K	~~(~~MLS~~)~~
C	LORAN C	L	ILS
D	DME	M1	~~Omega~~ATC RTF SATCOM (INMARSAT)
E1	~~(Not allocated)~~FMC WPR ACARS	M2	ATC RTF (MTSAT)
E2	D-FIS ACARS	M3	ATC RTF (Iridium)
E3	PDC ACARS	O	VOR
F	ADF	~~P~~P1–P9	~~(Not allocated)~~Reserved for RCP
G	~~(~~GNSS~~)~~ (*See Note 2*)	~~Q~~	~~(Not allocated)~~
H	HF RTF	R	~~RNP type certification~~PBN approved *(see Note ~~5~~4)*
I	Inertial Navigation	T	TACAN
J1	~~(Data Link)~~CPDLC ATN VDL Mode 2(*See Note 3*)	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
J4	CPDLC FANS 1/A VDL Mode 2	X	MNPS approved
J5	CPDLC FANS 1/A SATCOM (INMARSAT)	Y	~~when prescribed by ATS~~VHF with 8.33 kHz channel spacing capability
J6	CPDLC FANS 1/A SATCOM (MTSAT)	Z	Other equipment carried or other capabilities *(see Note ~~2~~5)*

Any alphanumeric characters not indicated above are reserved.

*Note 1.— If the letter S is used, s~~S~~tandard equipment is considered to be VHF RTF, ~~*ADF,*~~ VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.*

Note 2.— If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ and separated by a space.

Note ~~2~~5.— If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/ ~~and/or~~, NAV/ and/or DAT, as appropriate.

Note 3.— ~~If the letter J is used, specify in Item 18 the equipment carried, preceded by DAT/ followed by one or more letters as appropriate.~~See RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note ~~4~~6.— Information on navigation capability is provided to ATC for clearance and routing purposes.

Note ~~5~~4.— ~~Inclusion of~~If the letter R is used, the performance based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance based navigation to a specific ~~indicates that an aircraft meets the RNP type prescribed for the~~ route segment~~(s)~~, route~~(s) and/~~or area ~~concerned~~ is contained in the Performance-Based Navigation Manual *(Doc 9613).*

Surveillance equipment and capabilities

INSERT N if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable,

OR

INSERT one or ~~two~~more of the following ~~letters~~descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment ~~carried~~and/or capabilities on board:

~~*SSR equipment*~~*SSR Modes A and C*

~~N Nil~~
A Transponder — Mode A (4 digits — 4 096 codes)
C Transponder — Mode A (4 digits — 4 096 codes) and Mode C

SSR Mode S

~~X Transponder — Mode S without both aircraft identification and pressure-altitude transmission~~
E Transponder — Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
H Transponder — Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
I Transponder — Mode S, including aircraft identification, but no pressure-altitude capability
L Transponder — Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability
P Transponder — Mode S, including pressure-altitude, but no aircraft identification

~~transmission~~capability

~~I Transponder — Mode S, including aircraft identification transmission, but no pressure-altitude transmission~~

S Transponder — Mode S, including both pressure altitude and aircraft identification ~~transmission~~capability

X Transponder — Mode S with neither aircraft identification nor pressure-altitude capability

Note.— Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

ADS-B

B1 ADS-B with dedicated 1090 MHz ADS-B "out" capability
B2 ADB-B with dedicated 1090 MHz ADS-B "out" and "in" capability
U1 ADS-B "out" capability using UAT
U2 ADS-B "out" and "in" capability using UAT
V1 ADS-B "out" capability using VDL Mode 4
V2 ADS-B "out" and "in" capability using VDL Mode 4

ADS-C

D1 ADS-C with FANS 1/A capabilities
G1 ADS-C with ATN capabilities

~~*ADS equipment*~~

~~D ADS capability~~

Alphanumeric characters not indicated above are reserved.

Example: ADE3RV/HB2U2V2G1

Note.— Additional surveillance application should be listed in Item 18 following the indicator SUR/ .

ITEM 13: DEPARTURE AERODROME AND TIME (8 CHARACTERS)

INSERT the ICAO four-letter location indicator of the departure aerodrome as specified in Doc 7910, *Location Indicators*,

OR, if no location indicator has been assigned,

INSERT ZZZZ and *SPECIFY*, in Item 18, the name and location of the aerodrome preceded by DEP/ ,

OR, the first point of the route or the marker radio beacon preceded by DEP/…, if the aircraft has not taken off from the aerodrome,

OR, if the flight plan is received from an aircraft in flight,

INSERT AFIL, and *SPECIFY*, in Item 18, the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained, preceded by DEP/ .

THEN, WITHOUT A SPACE,

INSERT for a flight plan submitted before departure, the estimated off-block time (EOBT),

OR, for a flight plan received from an aircraft in flight, the actual or estimated time over the first point of the route to which the flight plan applies.

ITEM 15: ROUTE

INSERT the *first cruising speed* as in (a) and the *first cruising level* as in (b), without a space between them.

THEN, following the arrow, *INSERT* the route description as in (c).

(a) Cruising speed (maximum 5 characters)

INSERT the *True Air Speed* for the first or the whole cruising portion of the flight, in terms of:

Kilometres per hour, expressed as K followed by 4 figures (e.g. K0830), *or*

Knots, expressed as N followed by 4 figures (e.g. N0485), *or*

True Mach number, when so prescribed by the appropriate ATS authority, to the nearest hundredth of unit Mach, expressed as M followed by 3 figures (e.g. M082).

(b) Cruising level (maximum 5 characters)

INSERT the planned cruising level for the first or the whole portion of the route to be flown, in terms of:

Flight level, expressed as F followed by 3 figures (e.g. F085; F330), *or*

**Standard Metric Level in tens of metres,* expressed as S followed by 4 figures (e.g. S1130), *or*

Altitude in hundreds of feet, expressed as A followed by 3 figures (e.g. A045; A100), *or*

Altitude in tens of metres, expressed as M followed by 4 figures (e.g. M0840), *or*

for uncontrolled VFR flights, the letters VFR.

*When so prescribed by the appropriate ATS authorities.

(c) Route (including changes of speed, level and/or flight rules)

Flights along designated ATS routes

INSERT, if the departure aerodrome is located on or connected to the ATS route, the designator of the first ATS route,

OR, if the departure aerodrome is not on or connected to the ATS route, the letters DCT followed by the point of joining the first ATS route, followed by the designator of the ATS route.

THEN

INSERT each point at which either a change of speed and/or level is planned to commence, or a change of ATS route, and/or a change of flight rules is planned,

Note.— When a transition is planned between a lower and upper ATS route and the routes are oriented in the same direction, the point of transition need not be inserted.

FOLLOWED IN EACH CASE

by the designator of the next ATS route segment, even if the same as the previous one,

OR by DCT, if the flight to the next point will be outside a designated route, unless both points are defined by geographical coordinates.

Flights outside designated ATS routes

INSERT points normally not more than 30 minutes flying time or 370 km (200 NM) apart, including each point at which a change of speed or level, a change of track, or a change of flight rules is planned.

OR, when required by appropriate ATS authority(ies),

DEFINE the track of flights operating predominantly in an east-west direction between 70°N and 70°S by reference to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees of longitude. For flights operating in areas outside those latitudes the tracks shall be defined by significant points formed by the intersection of parallels of latitude with meridians normally spaced at 20 degrees of longitude. The distance between significant points shall, as far as possible, not exceed one hour's flight time. Additional significant points shall be established as deemed necessary.

For flights operating predominantly in a north-south direction, define tracks by reference to significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude which are spaced at 5 degrees.

INSERT DCT between successive points unless both points are defined by geographical coordinates or by bearing and distance.

USE ONLY the conventions in (1) to (5) below and *SEPARATE* each sub-item by a space.

(1) | ATS route (2 to 7 characters) |

The coded designator assigned to the route or route segment including, where appropriate, the coded designator assigned to the standard departure or arrival route (e.g. BCN1, Bl, R14, UB10, KODAP2A).

Note.— Provisions for the application of route designators are contained in Annex 11, Appendix 1, whilst guidance material on the application of an RNP type to a specific route segment(s), route(s) or area is contained in the Manual on Required Navigation Performance (RNP) *(Doc 9613).*

(2) Significant point (2 to 11 characters)

The coded designator (2 to 5 characters) assigned to the point (e.g. LN, MAY, HADDY), *or*, if no coded designator has been assigned, one of the following ways:

— *Degrees only* (7 characters):

2 figures describing latitude in degrees, followed by "N" (North) or "S" (South), followed by 3 figures describing longitude in degrees, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 46N078W.

— *Degrees and minutes* (11 characters):

4 figures describing latitude in degrees and tens and units of minutes followed by "N" (North) or "S" (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W.

— *Bearing and distance from a ~~navigation aid~~significant point:*

The identification of the ~~navigation aid (normally a VOR)~~significant point, ~~in the form of 2 or 3 characters, THEN~~followed by the bearing from the ~~aid~~point in the form of 3 figures giving degrees magnetic, ~~THEN~~followed by the distance from the ~~aid~~point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros — e.g. a point 180° magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040.

(3) Change of speed or level (maximum 21 characters)

The point at which a change of speed (5% TAS or 0.01 Mach or more) or a change of level is planned to commence, expressed exactly as in (2) above, followed by an *oblique stroke and both the cruising speed and the cruising level*, expressed exactly as in (a) and (b) above, without a space between them, *even when only one of these quantities will be changed*.

Examples: LN/N0284A045
MAY/N0305Fl80
HADDY/N0420F330
4602N07805W/N0500F350
46N078W/M082F330
DUB180040/N0350M0840

(4) Change of flight rules (maximum 3 characters)

The point at which the change of flight rules is planned, expressed exactly as in (2) or (3) above as appropriate, *followed by a space and one of the following*:

VFR if from IFR to VFR
IFR if from VFR to IFR

Examples: LN VFR
LN/N0284A050 IFR

(5) Cruise climb (maximum 28 characters)

The letter C followed by an *oblique stroke*; *THEN the point at which cruise climb is planned to start*, expressed exactly as in (2) above, *followed by an oblique stroke; THEN the speed to be maintained during cruise climb*, expressed exactly as in (a) above, followed by *the two levels defining the layer to be occupied during cruise climb*, each level expressed exactly as in (b) above, *or the level above which cruise climb is planned followed by the letters PLUS*, without a space between them.

Examples: C/48N050W/M082F290F350
C/48N050W/M082F290PLUS
C/52N050W/M220F580F620.

ITEM 16: DESTINATION AERODROME AND TOTAL ESTIMATED ELAPSED TIME, DESTINATION ALTERNATE AERODROME(S)

Destination aerodrome and total estimated elapsed time (8 characters)

INSERT the ICAO four-letter location indicator of the destination aerodrome ~~followed, without a space, by the total estimated elapsed time~~as specified in Doc 7910, *Location Indicators*,

OR , if no location indicator has been assigned,

INSERT ZZZZ ~~followed, without a space, by the total estimated elapsed time,~~ and *SPECIFY* in Item 18 the name and location of the aerodrome, preceded by DEST/ .

THEN WITHOUT A SPACE

INSERT the total estimated elapsed time.

Note.— For a flight plan received from an aircraft in flight, the total estimated elapsed time is the estimated time from the first point of the route to which the flight plan applies to the termination point of the flight plan.

Destination a~~A~~lternate aerodrome(s) ~~(4 characters)~~

INSERT the ICAO four-letter location indicator(s) of not more than two destination alternate aerodromes, as specified in Doc 7910, *Location Indicators*, separated by a space,

OR, if no location indicator has been assigned to the destination alternate aerodrome(s),

INSERT ZZZZ and *SPECIFY* in Item 18 the name and location of the destination alternate aerodrome(s), preceded by ALTN/ .

ITEM 18: OTHER INFORMATION

Note.— Use of indicators not included under this item may result in data being rejected, processed incorrectly or lost.

Hyphens or oblique strokes should only be used as prescribed below.

INSERT 0 (zero) if no other information,

OR, any other necessary information in the ~~preferred~~ sequence shown hereunder, in the form of the appropriate indicator selected from those defined hereunder followed by an oblique stroke and the information to be recorded:

STS/ Reason for special handling by ATS, e.g. a search and rescue mission, as follows:

ALTRV: for a flight operated in accordance with an altitude reservation;
ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority;
FFR: fire-fighting;
FLTCK: flight check for calibration of navaids;
HAZMAT: for a flight carrying hazardous material;
HEAD: a flight with Head of State status;
HOSP: for a medical flight declared by medical authorities;
HUM: for a flight operating on a humanitarian mission;
MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft;
MEDEVAC: for a life critical medical emergency evacuation;
NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;
SAR: for a flight engaged in a search and rescue mission; and
STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS shall be denoted under the designator RMK/.

PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters.

	RNAV SPECIFICATIONS
A1	RNAV 10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORANC
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS

C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
	RNP SPECIFICATIONS
L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BARO-VNAV
T1	RNP AR APCH with RF (special authorization required)
T2	RNP AR APCH without RF (special authorization required)

Combinations of alphanumeric characters not indicated above are reserved.

~~EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.~~

~~Examples: EET/CAP0745 XYZ0830~~
~~EET/EINN0204~~

~~RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.~~

~~Examples: RIF/DTA HEC KLAX~~
~~Examples: RIF/ESP G94 CLA YPPH~~
~~Examples: RIF/LEMD~~

~~REG/ The registration markings of the aircraft, if different from the aircraft identification in Item 7.~~

~~SEL/ SELCAL Code, if so prescribed by the appropriate ATS authority.~~

~~OPR/ Name of the operator, if not obvious from the aircraft identification in Item 7.~~

~~STS/ Reason for special handling by ATS, e.g. hospital aircraft, one engine inoperative, e.g. STS/HOSP, STS/ONE ENG INOP.~~

~~TYP/ Type(s) of aircraft, preceded if necessary by number(s) of aircraft, if ZZZZ is inserted in Item 9.~~

~~PER/ Aircraft performance data, if so prescribed by the appropriate ATS authority.~~

~~COM/ Significant data related to communication equipment as required by the appropriate ATS authority, e.g. COM/UHF only.~~

~~DAT/ Significant data related to data link capability, using one or more of the letters S, H, V and M, e.g. DAT/S for satellite data link, DAT/H for HF data link, DAT/V for VHF data link, DAT/M for SSR Mode S data link.~~

NAV/ Significant data related to navigation equipment, other than specified in PBN/, as required by the appropriate ATS authority. Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, e.g. NAV/GBAS SBAS.

COM/ Indicate communications applications or capabilities not specified in Item 10a.

DAT/ Indicate data applications or capabilities not specified in 10a.

SUR/ Include surveillance applications or capabilities not specified in Item 10b.

DEP/ Name and location of departure aerodrome, if ZZZZ is inserted in Item 13, or the ~~ICAO four-letter location indicator of the location of the~~ ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by "N" (North) or "S" (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W (11 characters).

OR, Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g. a point of 180° magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040.

OR, The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

DEST/ Name and location of destination aerodrome, if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described under DEP/ above.

DOF/ The date of flight departure in a six figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day).

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

Examples: EET/CAP0745 XYZ0830
EET/EINN0204

SEL/ SELCAL Code, for aircraft so equipped.

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9.

Example: TYP/2F15 5F5 3B2

~~ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16.~~

~~RALT/ Name of en-route alternate aerodrome(s).~~

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters) when required by the appropriate ATS authority. Example: "F00001" is the lowest aircraft address contained in the specific block administered by ICAO.

DLE/ Enroute delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four figure time in hours and minutes (hhmm).

Example: DLE/MDG0030

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/ The originator's 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified, as required by the appropriate ATS authority.

Note.— In some areas, flight plan reception centres may insert the ORGN/ identifier and originator's AFTN address automatically.

PER/ Aircraft performance data, indicated by a single letter as specified in the *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS, Doc 8168), *Volume I — Flight Procedures*, if so prescribed by the appropriate ATS authority.

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RALT/ ICAO four letter indicator(s) for en-route alternate(s), as specified in Doc 7910, *Location Indicators*, or name(s) of en-route alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, *Location Indicators*, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes

not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RIF/ The route details to the revised destination aerodrome, following by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.

Examples: RIF/DTA HEC KLAX
RIF/ESP G94 CLA YPPH

RMK/ Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

ITEM 19: SUPPLEMENTARY INFORMATION

. . .

4. Instructions for the transmission of a supplementary flight plan (SPL) message

Items to be transmitted

Transmit items as indicated hereunder, unless otherwise prescribed:

a) AFTN Priority Indicator, Addressee Indicators <<≡, Filing Time, Originator Indicator <<≡ and, if necessary, specific identification of addressees and/or originator;

b) commencing with <<≡ (SPL:

all symbols and data in the unshaded areas of boxes 7, 13, 16 and 18, except that the ')' at the end of box 18 is *not* to be transmitted, and then the symbols in the unshaded area of box 19 down to and including the)<<≡ of box 19,

additional alignment functions as necessary to prevent the inclusion of more than 69 characters in any line of Items 18 and 19. The alignment function is to be inserted only in lieu of a space, so as not to break up a group of data,

letter shifts and figure shifts (not pre-printed on the form) as necessary;

c) the AFTN Ending, as described below:

End-of-Text Signal

a) one LETTER SHIFT

b) two CARRIAGE RETURNS, one LINE FEED

Page-feed Sequence

Seven LINE FEEDS

End-of-Message Signal

Four of the letter N.

. . .

7. Instructions for the completion of the repetitive flight plan (RPL) listing form

. . .

7.4 Instructions for insertion of RPL data

. . .

ITEM G: SUPPLEMENTARY DATA AT

INSERT name and appropriate contact details of ~~contact~~entity where information normally provided under Item 19 of the FPL is kept readily available and can be supplied without delay.

. . .

APPENDIX 3. AIR TRAFFIC SERVICES MESSAGES

1. Message contents, formats and data conventions

. . .

1.2 The standard types of field

. . .

The standard fields of data permitted in ATS messages are as shown in the following table. The numbers in column 1 correspond with those in the reference table on page A3-30.

Field type	*Data*
3	Message type, number and reference data
5	Description of emergency
7	Aircraft identification and SSR Mode and Code
8	Flight rules and type of flight
9	Number and type of aircraft and wake turbulence category
10	Equipment and capabilities
13	Departure aerodrome and time
14	Estimate data
15	Route
16	Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)
17	Arrival aerodrome and time
18	Other information
19	Supplementary information
20	Alerting search and rescue information
21	Radio failure information
22	Amendment

. . .

1.6 Data conventions

. . .

1.6.3 *The expression of position or route*

The following alternative data conventions shall be used for the expression of position or route:

a) from 2 to 7 characters, being the coded designator assigned to an ATS route to be flown;

b) from 2 to 5 characters, being the coded designator assigned to an en-route point;

c) 4 numerics describing latitude in degrees and tens and units of minutes, followed by “N” (meaning “North”) or “S” (South), followed by 5 numerics describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). The correct number of numerics is to be made up, where necessary, by the insertion of zeros, e.g. “4620N07805W”;

d) 2 numerics describing latitude in degrees, followed by “N” (North) or “S” (South), followed by 3 numerics describing longitude in degrees, followed by “E” (East) or “W” (West). Again, the correct number of numerics is to be made up, where necessary, by the insertion of zeros, e.g. “46N078W”;

e) 2 ~~or 3~~to 5 characters being the coded identification of a ~~navigation aid (normally a VOR)~~ significant point, followed by 3 decimal numerics giving the bearing from the point in degrees magnetic followed by 3 decimal numerics giving the distance from the point in nautical miles. The correct number of numerics is to be made up, where necessary, by the insertion of zeros, e.g. a point at 180° magnetic at a distance of 40 nautical miles from VOR “FOJ” would be expressed as “FOJ180040”.

. . .

Field Type 8 — Flight rules and type of flight

Format:– a | b *

SINGLE HYPHEN

(a) *Flight Rules*
1 LETTER as follows:
I if ~~IFR~~it is intended that the entire flight will be operated under the IFR
V if ~~VFR~~ it is intended that the entire flight will be operated under the VFR
Y if ~~IFR first~~the flight initially will be operated under the IFR, followed by one or more subsequent changes of flight rules
Z if ~~VFR first~~the flight initially will be operated under the VFR, followed by one or more subsequent changes of flight rules
Note.— If the letter Y or Z is used, the point or points at which a change of flight rules is planned is to be shown as indicated in Field Type 15.

* This field shall be terminated here unless indication of the type of flight is required by the appropriate ATS authority.

. . .

Field Type 10 — Equipment and Capabilities

Format:– [a] / [b]

SINGLE HYPHEN

(a) *Radio Communication, Navigation and Approach Aid Equipment and Capabilities*

1 LETTER as follows:

N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable

OR

S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (*See Note 1*)

AND/OR

ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment ~~serviceable~~and capabilities

A	~~(Not allocated)~~GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	~~(Not allocated)~~LPV (APV with SBAS)	K	~~(~~MLS~~)~~
C	LORAN C	L	ILS
D	DME	M1	~~Omega~~ATC RTF SATCOM (INMARSAT)
E1	~~(Not allocated)~~FMC WPR ACARS	M2	ATC RTF (MTSAT)
E2	D-FIS ACARS	M3	ATC RTF (Iridium)
E3	PDC ACARS	O	VOR
F	ADF	P1–P9	~~(Not allocated)~~Reserved for RCP
G	~~(~~GNSS~~)~~ (*See Note 2*)	~~Q~~	
H	HF RTF	R	~~(Not allocated)~~ ~~RNP type certification~~PBN approved *(see Note ~~5~~4)*
I	Inertial Navigation	T	TACAN
J1	~~(Data link)~~CPDLC ATN VDL Mode 2 *(see Note 3)*	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
J4	CPDLC FANS 1/A VDL Mode 2	X	MNPS approved
J5	CPDLC FANS 1/A SATCOM (INMARSAT)	Y	~~when prescribed by ATS~~VHF with 8.33 kHz channel spacing capability
J6	CPDLC FANS 1/A SATCOM (MTSAT)	Z	Other equipment carried or other capabilities *(see Note ~~2~~5)*

*Note 1.— If the letter S is used, s~~S~~tandard equipment is considered to be VHF RTF, ~~*ADF*~~, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.*

Note 2.— If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.

Note ~~2~~5.— If the letter Z is used, specify in Item 18 the other ~~the~~ equipment carried or other capabilities~~is to be specified in Item 18~~, preceded by COM/ , ~~and/or~~ NAV/ and/or DAT, as appropriate.

Note 3.— ~~If the letter J is used, specify in Item 18 the equipment carried, preceded by DAT/ followed by one or more letters as appropriate.~~See RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note 46.— Information on navigation capability is provided to ATC for clearance and routing purposes.

Note 54.— Inclusion of If the letter R is used, the performance based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific indicates that an aircraft meets the RNP type prescribed for the route segment(s), route(s) and/or area concerned is contained in the Performance-Based Navigation Manual *(Doc 9613).*

OBLIQUE STROKE

(b) *Surveillance Equipment and capabilities*

ONE OR TWO LETTERSMORE of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment carriedand/or capabilities on board:

SSR equipmentModes A and C

~~N Nil~~
A Transponder — Mode A (4 digits — 4 096 codes)
C Transponder — Mode A (4 digits — 4 096 codes) and Mode C

SSR Mode S

~~X Transponder — Mode S without both aircraft identification and pressure-altitude transmission~~
E Transponder — Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
H Transponder — Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
I Transponder — Mode S, including aircraft identification, but no pressure-altitude capability
L Transponder — Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability
P Transponder — Mode S, including pressure-altitude, but no aircraft identification transmissioncapability
~~I Transponder — Mode S, including aircraft identification transmission, but no pressure-altitude transmission~~

S Transponder — Mode S, including both pressure altitude and aircraft identification transmissioncapability
X Transponder — Mode S with neither aircraft identification nor pressure-altitude capability

Note.– Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

ADS-B

B1 ADS-B with dedicated 1090 MHz ADS-B “out” capability
B2 ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability

U1 ADS-B “out” capability using UAT
U2 ADS-“out” and “in” capability using UAT
V1 ADS-B “out” capability using VDL Mode 4
V2 ADS-B “out” and “in” capability using VDL Mode 4

ADS-C

D1 ADS-C with FANS 1/A capabilities
G1 ADS-C with ATN capabilities

~~*ADS equipment*~~

~~D ADS capability~~

Alphanumeric characters not indicated above are reserved.

Note.– Additional surveillance application should be listed in Item 18 following the indicator SUR/ .

Examples: –S/A
–SC~~H~~HJI/C~~D~~DB1
–SAF~~J~~JR/S~~D~~DV1

. . .

Field Type 13 — Departure aerodrome and time

Format:– *
a b

SINGLE HYPHEN

(a) *Departure Aerodrome*

4 LETTERS, being

the ICAO four-letter location indicator allocated to the departure aerodrome as specified in Doc 7910, *Location Indicators*, or

ZZZZ if no ICAO location indicator has been allocated (*see Note 1*) or if the departure aerodrome is not known, or

AFIL if the flight plan has been filed in the air (*see Note 2*).

Note 1.— If ZZZZ is used, the name and location of the departure aerodrome is to be shown in the Other Information Field (see Field Type 18) if this Field Type is contained in the message.

Note 2.— If AFIL is used, the ATS unit from which supplementary flight data can be obtained is to be shown in the Other Information Field (Field Type 18).

* This field shall be terminated here in message types ~~CHG, CNL, ARR,~~ CPL, EST, CDN~~,~~ and ACP ~~and RQS~~. It shall be terminated here in message type RQP if the estimated off-block time is not known.

(b) *Time*

4 NUMERICS giving

the estimated off-block time (EOBT) at the aerodrome in (a) in FPL, ARR, CHG, CNL, ~~and~~ DLA and RQS messages transmitted before departure and in RQP message, if known, or

the actual time of departure from the aerodrome in (a) in ALR, DEP and SPL messages, or

the actual or estimated time of departure from the first point shown in the Route Field (see Field Type 15) in FPL messages derived from flight plans filed in the air, as shown by the letters AFIL in (a).

Examples: –EHAM0730
–AFIL1625

. . .

Field Type 14 — Estimate data

Format:– [a] / [b] [c]* [d] [e]

SINGLE HYPHEN

(a) *Boundary Point (see Note 1)*

The BOUNDARY POINT expressed either by a designator consisting of 2 to 5 characters, in Geographical Coordinates, in Abbreviated Geographical Coordinates, or by bearing and distance from a ~~designated~~significant point ~~(e.g. a VOR)~~.

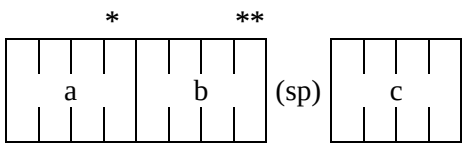
Note 1.— This point may be an agreed point located close to, rather than on, the FIR boundary.

Note 2.— See 1.6 for data conventions.

. . .

Field Type 16 — Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

Format:–



See Note in margin on page A3-2~~0~~1.

FIELD TYPE 16

Previous type of field or symbol	*This type of field is used in*	*Next type of field or symbol*
15	ALR	18
15	FPL	18
13	CHG	~~22~~18
13	CNL	~~)~~18
13	DLA	~~)~~18
13	DEP	~~)~~18
13	ARR***	17
15	CPL	18
14	EST	)
13	CDN	22
13	ACP	)
13	RQS	~~)~~18
13	SPL	18

*** Only in case of a diversionary landing.

SINGLE HYPHEN

(a) *Destination Aerodrome*

4 LETTERS, being

the ICAO four-letter location indicator allocated to the destination aerodrome as specified in Doc 7910, *Location Indicators*, or

ZZZZ if no ICAO location indicator has been allocated.

Note.— If ZZZZ is used, the name and location of the destination aerodrome is to be shown in the Other Information Field (see Field Type 18).

* This field is to be terminated here in all message types other than ALR, FPL and SPL.

. . .

SPACE

(c) *Destination Alternate Aerodrome(s)* 4 LETTERS, being the ICAO four-letter location indicator allocated to an alternate aerodrome, as specified in Doc 7910, *Location Indicators* or ZZZZ if no ICAO location indicator has been allocated. *Note.— If ZZZZ is used, the name and location of the destination alternate aerodrome is to be shown in the Other Information Field (see Field Type 18).*	. *Note.— One further element of (c) should be added, as necessary, preceded by a space*

Examples: –EINN0630
–EHAM0645 EBBR
–EHAM0645 EBBR EDDL

Field Type 17 — Arrival aerodrome and time

Format:– [a] [b]* (sp) [c]

SINGLE HYPHEN

(a) *Arrival Aerodrome* 4 LETTERS, being the ICAO four-letter location indicator allocated to the arrival aerodrome as specified in Doc 7910, *Location Indicators*, or ZZZZ if no ICAO location indicator has been allocated. *Note.— If ZZZZ is used, the name or location of the arrival aerodrome is to be shown in the Other Information Field (see Field Type 18).*
(b) *Time of Arrival* 4 NUMERICS, giving the actual time of arrival.

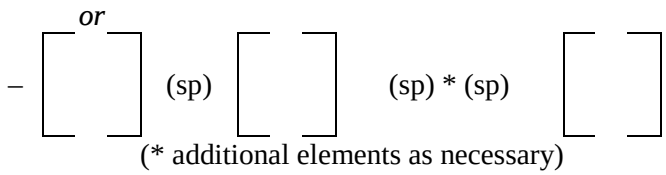
* This field is to be terminated here if an ICAO location indicator has been allocated to the arrival aerodrome.

Field Type 18 — Other information

Note.— Use of indicators not included under this item may result in data being rejected, processed incorrectly or lost.

Hyphens or oblique strokes should only be used as prescribed below.

Format:– a



SINGLE HYPHEN

(a) 0 (zero) if no other information,

OR,

Any other necessary information in the ~~preferred~~ sequence shown hereunder, in the form of the appropriate indicator selected from those defined hereunder followed by an oblique stroke and the information to be recorded:

STS/ Reason for special handling by ATS, e.g. a search and rescue mission, as follows:

ALTRV: for a flight operated in accordance with an altitude reservation;
ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority;
FFR: fire-fighting;
FLTCK: flight check for calibration of navaids;
HAZMAT: for a flight carrying hazardous material;
HEAD: a flight with Head of State status;
HOSP: for a medical flight declared by medical authorities;
HUM: for a flight operating on a humanitarian mission;
MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft;
MEDEVAC: for a life critical medical emergency evacuation;
NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;
SAR: for a flight engaged in a search and rescue mission; and
STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS shall be denoted under the designator RMK/.

PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters.

	RNAV SPECIFICATIONS
A1	RNAV10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORANC
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
	RNP SPECIFICATIONS
L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BAR-VNAV
T1	RNP AR APCH with RF (special authorization required)
T2	RNP AR APCH without RF (special authorization required)

Combinations of alphanumeric characters not indicated above are reserved.

~~EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.~~
~~Examples: EET/CAP0745 XYZ0830~~
~~EET/EINN0204~~

~~RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.~~

~~Examples: RIF/DTA HEC KLAX~~
~~Examples: RIF/ESP G94 CLA YPPH~~
~~Examples: RIF/LEMD~~

~~REG/ The registration markings of the aircraft, if different from the aircraft identification in Item 7.~~

~~SEL/ SELCAL Code, if so prescribed by the appropriate ATS authority.~~

~~OPR/ Name of the operator, if not obvious from the aircraft identification in Item 7.~~

~~STS/ Reason for special handling by ATS, e.g. hospital aircraft, one engine inoperative, e.g. STS/HOSP, STS/ONE ENG INOP.~~

~~TYP/ Type(s) of aircraft, preceded if necessary by number(s) of aircraft, if ZZZZ is inserted in Item 9.~~

~~PER/ Aircraft performance data, if so prescribed by the appropriate ATS authority.~~

~~COM/ Significant data related to communication equipment as required by the appropriate ATS authority, e.g. COM/UHF only.~~

~~DAT/ Significant data related to data link capability, using one or more of the letters S, H, V and M, e.g. DAT/S for satellite data link, DAT/H for HF data link, DAT/V for VHF data link, DAT/M for SSR Mode S data link.~~

NAV/ Significant data related to navigation equipment, other than specified in PBN/, as required by the appropriate ATS authority. Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, e.g. NAV/GBAS SBAS.

COM/ Indicate communications applications or capabilities not specified in Item 10a.

DAT/ Indicate data applications or capabilities not specified in Item 10a.

SUR/ Include surveillance applications or capabilities not specified in Item 10b.

DEP/ Name and location of departure aerodrome, if ZZZZ is inserted in Item 13, or the ~~ICAO four-letter location indicator of the location of the~~ ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by “N” (North) or “S” (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W (11 characters).

OR Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g. a point of 180° magnetic at a distance of 40 nautical miles from VOR “DUB” should be expressed as DUB180040.

OR The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

DEST/ Name and location of destination aerodrome, if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described under DEP/ above.

DOF/ The date of flight departure in a six figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day).

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

Examples: EET/CAP0745 XYZ0830
EET/EINN0204

SEL/ SELCAL Code, for aircraft so equipped.

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9.

Example: –TYP/2F15, 5F5, 3B2

~~ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16.~~

~~RALT/ Name of en-route alternate aerodrome(s).~~

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters) when required by the appropriate ATS authority. Example: “F00001” is the lowest aircraft address contained in the specific block administered by ICAO.

DLE/ Enroute delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four figure time in hours and minutes (hhmm).

Example: –DLE/MDG0030

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/ The originator’s 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified, as required by the appropriate ATS authority.

Note.— In some areas, flight plan reception centres may insert the ORGN/ identifier and originator’s AFTN address automatically.

PER/ Aircraft performance data, indicated by a single letter as specified in the ***Procedures for Air Navigation Services — Aircraft Operations*** (PANS-OPS, Doc 8168), ***Volume I — Flight Procedures***, if so prescribed by the appropriate ATS authority.

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RALT/ ICAO four letter indicator(s) for en-route alternate(s), as specified in Doc 7910, ***Location Indicators***, or name(s) of en-route alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, ***Location Indicators***, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RIF/ The route details to the revised destination aerodrome, following by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.

Examples:–RIF/DTA HEC KLAX
–RIF/ESP G94 CLA YPPH

RMK/ Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

Examples:–0
~~–~~STS/MEDEVAC
–EET/015W0315 020W0337 030W0420 040W0502
~~– STS/ONE ENG INOP~~
~~– DAT/S~~

. . .

Field Type 22 — Amendment

FIELD TYPE 22

Previous type of field or symbol	*This type of field is used in*	*Next type of field or symbol*
~~16~~18	CHG	**22 or)*
16	CDN	**22 or)*

* Indicates that further fields of this type may be added

. . .

RULES FOR THE COMPOSITION OF ATS MESSAGES
(See Sections 1.3 to 1.8 of this Appendix)

. . .

STANDARD ATS MESSAGES AND THEIR COMPOSITION

DESIGNATOR	. . .		. . .	Other information
MESSAGE TYPE				18
Alerting		ALR		
Radiocommunication failure		RCF		
Filed flight plan		FPL		
Delay		DLA		18
Modification		CHG		18
Flight plan cancellation		CNL		18
Departure		DEP		18
Arrival		ARR		
Current flight plan		CPL		
Estimate		EST		
Coordination		CDN		
Acceptance		ACP		
Logical acknowledgement message		LAM		
Request flight plan		RQP		18
Request supplementary flight plan		RQS		18
Supplementary flight plan		SPL		

. . .

The expression of position or route

The following alternative data conventions shall be used for the expression of position or route:

. . .

(e) 2 ~~or 3~~to 5 characters being the coded identification of a ~~navigation aid (normally a VOR)~~ significant point, followed by 3 decimal numerics giving the bearing from the point in degrees magnetic followed by 3 decimal numerics giving the distance from the point in nautical miles. The correct number of numerics is to be made up, where necessary, by insertion of zeros, e.g. a point at 180° magnetic at a distance of 40 nautical miles from VOR “FOJ” would be expressed as “FOJ180040”.

. . .

2. Examples of ATS messages

. . .

2.2 Emergency messages

2.2.1 *Alerting (ALR) message*

2.2.1.1 *Composition*

. . .

–	9 Type of aircraft and wake turbulence category	–	10 Equipment and capabilities

. . .

16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

. . .

2.2.1.2 *Example*

The following is an example of an alerting message relating to an uncertainty phase, sent by Athens Approach Control to Belgrade Centre and other ATS units, in respect of a flight from Athens to Munich.

(ALR-INCERFA/LGGGZAZX/OVERDUE
–FOX236/A3600024-IM
–C141/H-S/C~~D~~
–LGAT1020
–N0430F220 B9 3910N02230W/N0415F240 B9 IVA/N0415F180 B9
–EDDM0227 EDDF
–REG/A43213 EET/LYBE0020 EDMI0133 ~~REG/A43213~~ OPR/USAF RMK/NO POSITION REPORT SINCE DEP PLUS 2 MINUTES
–E/0720 P/12 R/UV J/LF D/02 014 C ORANGE A/SILVER C/SIGGAH
–USAF LGGGZAZX 1022 126.7 GN 1022 PILOT REPORT OVER NDB ATS UNITS ATHENS FIR ALERTED NIL)

2.2.1.2.1 *Meaning*

Alerting message — uncertainty phase declared by Athens due no position reports and no radio contact since two minutes after departure — aircraft identification FOX236 — IFR, military flight — Starlifter, heavy wake turbulence category, equipped with standard communications, navigation and approach aid equipment for the route, SSR transponder with Modes A (4 096 code capability) and C~~— ADS capability~~ — last assigned Code 3624 — departed Athens 1020 UTC — cruising speed for first portion of route 430 knots, first requested cruising level FL 220 — proceeding on airway Blue 9 to 3910N2230W where TAS would be changed to 415 knots and FL240 would be requested — proceeding on airway Blue 9 to Ivanic Grad VOR where FL 180 would be requested, maintaining TAS of 415 knots and FL240 would be requested — proceeding on airway Blue 9 to Munich, total estimated elapsed time 2 hours and 27 minutes — destination alternate is Frankfurt — aircraft registration A43213 — accumulated estimated elapsed

times at the Belgrade and Munich FIR boundaries 20 minutes and 1 hour and 33 minutes respectively — ~~aircraft registration A43213~~ — the aircraft is operated by the USAF — no position report has been received since 2 minutes after departure — endurance 7 hours and 20 minutes after take-off — 12 persons on board — portable radio equipment working on VHF 121.5 MHz and UHF 243 MHz is carried — life jackets fitted with lights and fluorescein are carried — 2 dinghies with orange covers are carried, have a total capacity for 14 persons — aircraft colour is silver — pilot's name is SIGGAH — operator is USAF — Athens approach control was the last unit to make contact at 1022 UTC on 126.7 MHz when pilot reported over GN runway locator beacon — Athens approach control have alerted all ATS units within Athens FIR — no other pertinent information.

. . .

2.3 Filed flight plan and associated update messages

2.3.1 *Filed flight plan (FPL) message*

2.3.1.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 8 Flight rules and type of flight

– 9 Type of aircraft and wake turbulence category – 10 Equipment and capabilities

– 13 Departure aerodrome and time

– 15 Route (using more than one line if necessary)

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

– 18 Other information (using more than one line if necessary)

)

2.3.1.2 *Example*

The following is an example of a filed flight plan message sent by London Airport to Shannon, Shanwick and Gander Centres. The message may also be sent to the London Centre or the data may be passed to that centre by voice.

(FPL~~-TPR~~ACA101-IS
~~-B707M~~B773/H-CHO~~P~~V/C~~D~~
–EGLL1400
–N0450F310 ~~G1 UG1~~L9 UL9 STU285036/M082F310 ~~UG1~~UL9 ~~52N015W~~LIMRI

52N020W 52N030W 50N040W 49N050W
–CYQX0455 CYYR
–EET/EISN~~N~~0026 EGGX0111 020W0136 CYQX0228 040W0330 050W0415 SEL/FJEL)

2.3.1.2.1 *Meaning*

Filed flight plan message — aircraft identification ~~TPR~~ACA101 — IFR, scheduled flight — a Boeing ~~707, medium~~777-300, heavy wake turbulence category equipped with Loran C, HF RTF, VOR, ~~Doppler,~~ VHF RTF and SSR transponder with Modes A (4 096 code capability) and C ~~— ADS capability —~~ departure aerodrome is London, estimated off-block time 1400 UTC — cruising speed and requested flight level for the first portion of the route are 450 knots and FL 310 — the flight will proceed on Airways ~~Green 1~~Lima 9 and Upper ~~Green 1~~Lima 9 to a point bearing 285 degrees magnetic and 36 NM from the Strumble VOR. From this point the flight will fly at a constant Mach number of .82, proceeding on Upper ~~Green 1~~Lima 9 to ~~52N15W~~LIMRI; then to 52N20W; to 52N30W; to 50N40W; to 49N50W; to destination Gander, total estimated elapsed time 4 hours and 55 minutes — destination alternate is Goose Bay — captain has notified accumulated estimated elapsed times at significant points along the route, they are at the Shannon FIR boundary 26 minutes, at the Shanwick Oceanic FIR boundary 1 hour and 11 minutes, at 20W 1 hour and 36 minutes, at the Gander Oceanic FIR boundary 2 hours and 28 minutes, at 40W 3 hours and 30 minutes and at 50W 4 hours and 15 minutes — SELCAL code is FJEL.

2.3.2 *Modification (CHG) message*

2.3.2.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time

–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)
–	18 Other information (using more than one line if necessary)

–	22 Amendment	- - - -	22 Amendment	etc. (using more than one) line if necessary)

2.3.2.2 *Example*

The following is an example of a modification message sent by Amsterdam Centre to Frankfurt Centre correcting information previously sent to Frankfurt in a filed flight plan message. It is assumed that both centres are computer-equipped.

(CHGA/F016A/F014-GABWE/A2173-EHAM0850-EDDF-DOF/080122-8/I-16/EDDN)

2.3.2.2.1 *Meaning*

Modification message – Amsterdam and Frankfurt computer unit identifiers A and F, followed by serial number (016) of this message sent by Amsterdam, repeat of computer unit identifiers followed by serial number (014) of the related filed flight plan message – aircraft identification GABWE, SSR Code 2173

operating in Mode A, en route from Amsterdam EOBT0850 to Frankfurt date of flight 22 Jan 2008 – Field Type 8 of the related filed flight plan message is corrected to IFR – Field Type 16 of the related filed flight plan is corrected, the new destination is Nürnberg.

2.3.3 *Flight plan cancellation (CNL) message*

2.3.3.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time	
–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)	)				
–	18 Other information (using more than one line if necessary)	)				

2.3.3.2 *Example 1*

The following is an example of a flight plan cancellation message sent by an ATS unit to all addressees of a filed flight plan message previously sent by that unit.

(CNL-DLH522-EDBB0900-LFPO-0)

2.3.3.2.1 *Meaning*

Flight plan cancellation message – cancel the flight plan of aircraft identification DLH522 – flight planned from Berlin EOBT0900 to Paris – no other information.

2.3.3.3 *Example 2*

The following is an example of a flight plan cancellation message sent by a centre to an adjacent centre. It is assumed that both centres are equipped with ATC computers.

(CNLF/B127F/B055-BAW580-EDDF1430-EDDW-0)

2.3.3.3.1 *Meaning*

Flight plan cancellation message – identifiers of sending and receiving ATC computer units F and B, followed by serial number (127) of this message, repeat of computer unit identifiers followed by serial number (055) of current flight plan message previously transmitted – cancel the flight plan of aircraft identification BAW580 – flight planned from Frankfurt EOBT1430 to Bremen – no other information.

2.3.4 *Delay (DLA) message*

2.3.4.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

– 18 Other information (using more than one line if necessary))

2.3.4.2 *Example*

The following is an example of a delay message from a departure aerodrome, or from a parent unit handling communications for a departure aerodrome, to each addressee of a filed flight plan message.

(DLA-KLM671-LIRF0900-LYDU-0)

2.3.4.2.1 *Meaning*

Delay message – aircraft identification KLM671 – revised estimated off-block time Fiumicino 0900 UTC destination Dubrovnik – no other information.

2.3.5 *Departure (DEP) message*

2.3.5.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

– 18 Other information (using more than one line if necessary))

2.3.5.2 *Example*

The following is an example of a departure message from a departure aerodrome, or from a parent unit handling communications for a departure aerodrome, to each addressee of a filed flight plan message.

(DEP-CSA4311-EGPD1923-ENZV-0)

2.3.5.2.1 *Meaning*

Departure message – aircraft identification CSA4311 – departed from Aberdeen at 1923 UTC – destination Stavanger – no other information.

2.3.6 *Arrival (ARR) message*

2.3.6.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time		
–	17 Arrival aerodrome and time	)					

2.3.6.2 *Example 1*

The following is an example of an arrival message sent from the arrival aerodrome (= destination) to the departure aerodrome.

(ARR-CSA406-LHBP-LKPR0913)

2.3.6.2.1 *Meaning*

Arrival message — aircraft identification CSA406 — departed from Budapest/Ferihegy — landed at Prague/Ruzyne Airport at 0913 UTC.

2.3.6.3 *Example 2*

The following is an example of an arrival message sent for an aircraft which has landed at an aerodrome for which no ICAO location indicator has been allocated. The SSR Code would not be meaningful.

(ARR-~~HELI13~~HHE13-EHAM-1030 DEN HELDER)

2.3.6.3.1 *Meaning*

Arrival message aircraft identification ~~HELI13~~HHE13 — departed from Amsterdam — landed at Den Helder heliport at 1030 UTC.

2.4 Coordination messages

2.4.1 *Current flight plan (CPL) message*

2.4.1.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	8 Flight rules and type of flight		
–	9 Type of aircraft and wake turbulence category	–	10 Equipment and capabilities				
–	13 Departure aerodrome and time	–	14 Estimate data				

– 15
Route (using more than one line if necessary)

– 16
Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

– 18
Other information (using more than one line if necessary)
)

2.4.1.2 *Example 1*

The following is an example of a current flight plan message sent from Boston Centre to New York Centre on a flight which is en route from Boston to La Guardia Airport.

(CPL-UAL621/A5120-IS
–~~DC9~~A320/M-S/C~~D~~
–KBOS-HFD/1341A220A200A
–N0420A220 V3 AGL V445
–KLGA
–0)

2.4.1.3 *Example 2*

The following is an example of the same current flight plan message, but in this case the message is exchanged between ATC computers.

(CPLBOS/LGA052-UAL621/A5120-IS
–~~DC9~~A320/M-S/C~~D~~
–KBOS-HFD/1341A220A200A
–N0420A220 V3 AGL V445
–KLGA
–0)

Note.— The messages in Examples 1 and 2 are identical except that the Message Number of Example 2 does not appear in Example 1.

2.4.1.4 *Meaning*

Current flight plan message [with sending unit identity (BOS) and receiving unit identity (LGA), followed by the serial number of this message (052)] — aircraft identification UAL621, last assigned SSR Code 5120 in Mode A — IFR, scheduled flight — one ~~DC9~~A320, medium wake turbulence category, equipped with standard communications, navigation and approach aid equipment for the route and SSR transponder with Modes A (4 096 code capability) and C ~~— ADS capability —~~ departed Boston — the flight is estimated to cross the Boston/New York "boundary" at point HFD at 1341 UTC, cleared by the Boston Centre at altitude 22 000 feet but to be at or above altitude 20 000 feet at HFD — TAS is 420 knots, requested cruising level is altitude 22 000 feet — the flight will proceed on airway V3 to

reporting point AGL thence on airway V445 — destination is La Guardia Airport — no other information.

2.4.2 *Estimate (EST) message*

2.4.2.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 14 Estimate data – 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

. . .

2.4.3 *Coordination (CDN) message*

2.4.3.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

– 22 Amendment - - - - 22 Amendment etc. (using more than one) line if necessary)

. . .

2.4.4 *Acceptance (ACP) message*

2.4.4.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

. . .

2.5 Supplementary messages

2.5.1 *Request flight plan (RQP) message*

2.5.1.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	
–	13 Departure aerodrome and time	–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)	)
–	18 Other information (using more than one line if necessary)			)

2.5.1.2 *Example*

The following is an example of a request flight plan message sent by a centre to an adjacent centre after receipt of an estimate message, for which no corresponding filed flight plan message had been received previously.

(RQP-PHOEN-EHRD-EDDL-0)

2.5.1.2.1 *Meaning*

Request flight plan message – aircraft identification PHOEN departed from Rotterdam – destination Düsseldorf – no other information.

2.5.2 *Request supplementary flight plan (RQS) message*

2.5.2.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time	
–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)					)
–	18 Other information (using more than one line if necessary)					)

2.5.2.2 *Example*

The following is an example of a request flight plan message sent by an ATS unit to the ATS unit serving the departure aerodrome requesting information contain in the flight plan form, but not transmitted in the filed or current filed flight plan messages.

(RQS-KLM405/A4046-EHAM-CYMX-0)

2.5.2.2.1 *Meaning*

Request supplementary flight plan message – aircraft identification KLM405/SSR Code 4046 operating in Mode A – departure aerodrome is Amsterdam – destination aerodrome is Mirabel – no other information.

2.5.3 *Supplementary flight plan (SPL) message*

2.5.3.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time

–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

. . .

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

ATM PERFORMANCE OBJECTIVES

IMPLEMENTATION OF THE NEW ICAO FPL FORM				
Benefits				
Environment	• reductions in fuel consumption			
Efficiency	• 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 • facilitate utilization of advanced technologies thereby increasing efficiency • optimized demand and capacity balancing through the efficient exchange of information			
Safety	• enhance safety by use of modern capabilities onboard aircraft			
Strategy ***Short term (2009 - 2012)***				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
SDM	• Planning and implementation of transition elements	2009-2012		
	• ensure that enabling regulatory (regulations procedures, AIP etc..) provisions are developed	2009		
	• ensure that the automation and software requirements of local systems are fully adaptable to the changes envisaged in the new FPL form	2009		
	• ensure that issues related to the ability of FDPS's to parse information correctly and to correctly identify the order in which messages are received, to ensure that misinterpretation of data does not occur	2009-2012		
	• 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		
	• ensure that there are no individual State peculiarities or deviations from the flight plan provisions	2009-2012		
	• 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	2012		

	• 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		
	• in order to reduce the change 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		
	• ensure the training of relevant stakeholders (air traffic controllers, etc)	2009-2012		
	• develop and make available, guidance material for users, including but not limited to ANSP personnel	2009		
	• establish a central depository in order to track the implementation status and inform the ICAO regional offices on an ongoing basis	2009		
linkage to GPIs	GPI/18 Aeronautical Information			

REPORT ON AGENDA ITEM 5: REVIEW OF OUTCOME OF ATM/SAR/AIS SG/10 AND CNS SG/2

5.1 The meeting noted that the Tenth Meeting of the MIDANPIRG ATM/SAR/AIS Sub-Group (ATM/SAR/AIS SG/10) was held at the ICAO MID Regional Office in Cairo, Egypt from 03 to 06 November 2008, and that it formulated 49 Draft Conclusions/Decisions which are reflected in **Appendix 5A** to the Report on Agenda Item 5. Amongst others, the ATM/SAR/AIS SG/10 addressed the following issues:

(a) Improvement of the MID ATS Route Network
(b) RVSM operations and Monitoring activities in the MID Region
(c) SSR Code Allocation Plan (CAP) for the MID Region
(d) ATS Safety Management Systems
(e) Contingency Plans
(f) Search and Rescue (SAR)
(g) Civil/Military Coordination
(h) Performance Based Navigation (PBN)
(i) AIS/MAP issues
(j) Air Navigation deficiencies in the ATM/SAR and AIS/MAP fields
(k) MID Region strategy for the implementation of GPIs

5.2 On the issue of Improvement of the MID ATS Route Network, the ATM/SAR/AIS SG/10 endorsed the revised TOR of the ATR Task Force of the ATS Route Network Task Force (ARN TF/1) that had been established in 2007, and reviewed the outcome of the first meeting of the ARN TF, held in Cairo 28-30 July 2008.

5.3 The meeting noted that the ATM/SAR/AIS SG/10 had also addressed the issues of amendment and editorial changes to the MID ANP Table ATS-1 (ATS routes). The meeting noted that, the changes to the Regional network, that are implemented without following established international (ICAO) procedures, not only compromised the usefulness of the Table ATS-1 as a Regional requirement, but the objectives of Regional planning, and furthermore complicated the procedural amendment of the ANP. Accordingly the ATM/SAR/AIS SG/10 had formulated Draft Conclusion 10/2: *Amendment and Editorial Changes to the Regional ATS Route Network,* urging States to adhere to established procedures for amendment of the ANP, and to inform ICAO about editorial changes.

5.4 The meeting noted also that the ATM/SAR/AIS SG/10 had considered interim amendments proposals from the users which were processed by the ARN TF/1 meeting and that, at its second meeting which is scheduled to be held in March 2009, the Task Force will be considering a comprehensive route network proposal from IATA, constituting a “user requirement” that when approved would, in due time replace the existing ATS route network requirement.

5.5 Furthermore, the ATM/SAR/AIS SG/10 had endorsed the *MID ATS Route Catalogue* proposed by the ARN Task Force as a planning tool that would serve as an ATS route depository, for action on the proposals prior to the stage of formal ANP amendment, development of the supporting charting tools, and follow up action on ATS discussed at the Special Baghdad FIR Coordination Meeting (SBFCM) in May 2008, and proposals for development of a parallel route to ATS route R784 within the Baghdad FIR to facilitate traffic to and from the EUR Region. The meeting noted that in part, the development of a route parallel to R784 was made urgent by the non-implementation, for a long time of the potentially high volume reciprocal routes, UL602 and UP975 in the Damascus FIR.

5.6 The meeting was apprised on the efforts to convene an *Air Traffic Flow Management (ATFM) Seminar* tentatively in July 2009, with the aim of facilitating strategic decision-making on the matter of implementation of ATFM in the MID Region.

5.7 The meeting noted that in discussing issues regarding RVSM implementation and the MID RMA, the ATM/SAR/AIS SG/10 noted with appreciation that UAE had joined the MID RMA. It was noted with concern however, that some members of the MID RMA were not meeting their obligations with regard to member payments, and to address this challenge the MID RMA Board/7 meeting had extended the deadline for payment of arrears to 31 March 2009 to make time for Kuwait and Syria to honour their commitments.

5.8 Another concern noted by the ATM/SAR/AIS SG/10 was the issue of States that did not provide the MID RMA with necessary data to facilitate safety assessments. The meeting that the ATM/SAR/AIS SG/10 had highlighted that unless States provided the required data to the MID RMA on a regular basis and in a timely manner, the MID RMA could not carry out its functions as specified in its duties and responsibilities and it would be impossible to demonstrate that the safety of RVSM operations in the whole MID RVSM airspace is maintained.

5.9 The meeting was apprised that ATM/SAR/AIS SG/10, recognizing the importance of RVSM in the Baghdad FIR, agreed on the establishment of a Working Group for the development of necessary planning materials related to RVSM implementation in the Baghdad FIR and for assisting the Iraqi Civil Aviation Authority in expediting the implementation of the RVSM implementation project.

5.10 The meeting noted the developments concerning the MID SSR Code Allocation Plan (CAP) as discussed under agenda item 4 to this report.

5.11 On the matter of safety management in ATS, the meeting noted the various Resolutions of the 36th Session of the ICAO Assembly relating to safety and safety information which was discussed by the ATM/SAR/AIS SG/10.

5.12 The meeting noted that there had been no success due to low responses, on the survey called for by MIDANPIRG/10, to determine the status of implementation contingency planning in accordance with Annex 11 provisions. However, that much progress had been achieved by States regarding the development of contingency plans. The gaps on the developed plans related primary to alignment with the agreed template referred to in the MIDANPIRG/10 Conclusion 10/45 and all of the provisions of Annex 11.

5.13 Regarding the fields of search and rescue (SAR) and civil/military coordination, the meeting noted that ATM/SAR/AIS SG/10 had been apprised on the outcome of the Search & Rescue (SAR) and Civil/Military Coordination Seminar, held by the ICAO MID Regional Office in Cairo, Egypt from 26-27 May 2008 as well as the 36th Session of the ICAO Assembly. In particular the meeting noted and acknowledged the benefits that can be realized from giving effect to particular Resolution 36-13: *Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation*—Appendix N: *Provision of Search and Rescue Services*, and Appendix O: *Coordination of Civil and Military Air Traffic.*

5.14 The meeting noted that the ATM/SAR/AIS SG/10 was of the view that the SAR and Civil/Military Seminars such the one held by the MID Regional Office in May 2008, should be held at regular intervals of up to two (2) years to sustain the stakeholders' awareness and keep them involved. The meeting noted furthermore the availability of ACAC programme of seminars/workshops that can include be coordinated with the efforts of ICAO in this regard.

5.15 The meeting was apprised in detail on developments in the implementation of performance based navigation (PBN) as discussed in detailed under agenda item 4.

5.16 The meeting noted that the ATM/SAR/AIS SG/10 had also addressed the issue of Search and Rescue in the MID Region where SAR Ad-hoc Working Group is established with Terms of Reference (TOR) at **Appendix 5B** to the Report on Agenda Item 5.

5.17 The meeting noted that second meeting of the MIDANPIRG CNS Sub-Group (CNS SG/2) was held at the ICAO MID Regional Office in Cairo, Egypt 28 to 30 October 2008 and formulated 15 Draft Conclusions/Decisions which are reflected in **Appendix 5C** to the Report on Agenda Item 5.

5.18 The meeting noted that the ANC issued directives for the implementation of ADS-B while reviewing APANPIRG/16 meeting report, the directives defines the required aircraft avionics equipments to be complaint with either:

i) Version OES 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 Mode S Services and Extended Squitter (ICAO Doc 9871) Equivalent to DO260A.

5.19 The meeting noted with appreciation that the CNS SG/2 had agreed to add the above compliance requirement to the MID Region Strategy for the implementation of the ADS-B and developed the revised Strategy is at **Appendix 5D** to the Report on Agenda Item 5 and agreed to the following CNS SG/2 Draft Conclusion which will replace and supersede MIDANPIRG/10 conclusion 10/15:

DRAFT CONCLUSION 4/10: MID REGION STRATEGY FOR THE IMPLEMENTATION OF ADS-B

*That the MID Region Strategy for the implementation of ADS-B to be amended as at **Appendix 5D** to the Report on Agenda Item 5.*

5.20 The meeting endorsed CNS SG/2 agreement that default network will be based on IPS and noted that an IPS WG is formed which will be meeting next month to complete the development of the MID Region ATN network plans and to also lead the AMHS testing since many MID States already implemented this technology.

5.21 The meeting received an overview of the eANP transition framework proposal which is at **Appendix 5E** to the Report on Agenda Item 5. The meeting was presented with a live demonstration of the proposed on-line and standalone applications to support the eANP framework. The demo can be accessed at: http://192.206.28.81/eganp, the meeting noted that, to support the above objectives, the following deliverables will be produced:

i) easy-to-use planning templates that would contain the relevant elements, specifically, homogeneous ATM areas and major international traffic flows, and the agreed Global Air Navigation Plan systems infrastructure necessary to support the implementation of the homogeneous ATM areas and major international traffic flows; and

ii) an integrated Air Navigation Planning environment containing details currently listed in Table ATS 1 and all FASID Tables (AOP, CNS, ATM, MET, SAR, AIS). This will be designed to easily support the coordination, agreement and recording process between States and international organizations, also through a user-friendly interface.

5.22 The secretariat informed the meeting that the air navigation plan amendment process would be managed using the eANP, will remain the same with regard to the processing of amendment approvals. What would change would be the time involved with approval coordination. The publication of approved amendments would be available on-line and would not be delayed in being incorporated into the air navigation plans as approved amendments would be published electronically.

5.23 The meeting was supportive of this effort, the Secretariat further advised the meeting that the current work program was to establish and deploy the proposed framework for the eANP and after review by both the ANC and Council may propose any required process changes relating to Air Navigation Plans to the ICAO Assembly for adoption.

5.24 The meeting noted that frequency assignment planning tools is under development for communication and navigation systems and is expected to become available by the second quarter of 2009.

5.25 The meeting also noted that the CNS SG/2 had done follow-up on the CNS projects and mainly on the following major ones:

- Establishment of Initial FPL Processing System (IFPS) in the MID Region
- Implementation of Aeronautical Telecommunication Network (ATN) in the MID Region
- Implementation of high speed links in the MID Region
- MID VSAT Project

5.26 The CNS SG/2 also addressed the TCB project for the implementation of the CNS infrastructure which is addressed in detail under Agenda Item 4.

5.27 The meeting also noted the CNS SG/2 addressed the outcome of WRC-07 most of which was satisfying ICAO position and was supportive of the conclusion that MID States provide the required support in ITU to the ICAO position.

CNS/ATM/IC SG/4
Appendix 5A to the Report on Agenda Item 5

LIST OF ATM/SAR/AIS SG/10 LIST OF CONCLUSIONS AND DECISIONS

DRAFT DECISION 10/1:	*TERMS OF REFERENCE OF THE MID ATS ROUTE NETWORK TASK FORCE (ARN TF)*
DRAFT CONCLUSION 10/2:	*AMENDMENT AND EDITORIAL CHANGES TO THE REGIONAL ATS ROUTE NETWORK*
DRAFT CONCLUSION 10/3:	*MID ATS ROUTE CATALOGUE*
DRAFT CONCLUSION 10/4:	*CHARTING TOOLS TO SUPPORT ATS ROUTE DEVELOPMENT*
DRAFT CONCLUSION 10/5:	*AIR TRAFFIC FLOW MANAGEMENT SEMINAR (ATFM) SEMINAR*
DRAFT CONCLUSION 10/6:	*MEMBERSHIP OF THE MID RMA*
DRAFT CONCLUSION 10/7:	*PAYMENT OF ARREARS TO THE MID RMA*
DRAFT CONCLUSION 10/8:	*RADAR DATA RECORDING AND ANALYSIS SOFTWARE*
DRAFT CONCLUSION 10/9:	*ICAO PROVISIONS RELATED TO THE MANDATORY REPORTING OF DATA TO THE RMAS*
DRAFT CONCLUSION 10/10:	*SUSTAINED RVSM SAFETY ASSESSMENT ACTIVITY IN THE MID REGION*
DRAFT CONCLUSION 10/11:	*MID RVSM SAFETY OBJECTIVES*
DRAFT DECISION 10/12:	*ESTABLISHMENT OF THE BAGHDAD FIR RVSM IMPLEMENTATION WORKING GROUP (BFRI WG)*
DRAFT DECISION 10/13:	*MID REGION SSR CODE ALLOCATION STUDY GROUP (SSRCASG)*
DRAFT CONCLUSION 10/14:	*MEASURES TO ADDRESS NON-SYSTEM SSR CODE ASSIGNMENT PROBLEMS*
DRAFT CONCLUSION 10/15:	*ADOPTON OF THE ORIGINATING REGION CODE ASSIGNMENT METHOD (ORCAM) IN THE MID REGION*
DRAFT CONCLUSION 10/16:	*SSR CODES SHARING IN THE MID REGION*
DRAFT CONCLUSION 10/17:	*REDUCTION OF SSR CODE OCCUPANCY TIME*
DRAFT CONCLUSION 10/18:	*ATS SAFETY MANAGEMENT*

DRAFT CONCLUSION 10/19:	*DEVELOPMENT AND PROMULGATION OF CONTINGENCY PLANS*
DRAFT CONCLUSION 10/20:	*SEARCH AND RESCUE (SAR) AGREEMENTS*
DRAFT CONCLUSION 10/21:	*406 MHZ BEACONS*
DRAFT DECISION 10/22:	*SAR AD-HOC WORKING GROUP (SAR AWG)*
DRAFT CONCLUSION 10/23:	*CIVIL/MILITARY COORDINATION*
DRAFT CONCLUSION 10/24:	*COORDINATION OF FLIGHTS OPERATING OVER HIGH SEAS*
DRAFT CONCLUSION 10/25:	*UNCOORDINATED FLIGHTS OVER THE RED SEA AREA*
DRAFT DECISION 10/26:	*DISSOLUTION OF THE RVSM/PBN AND GNSS TASK FORCES AND ESTABLISHMENT OF THE PBN/GNSS TASK FORCE*
DRAFT CONCLUSION 10/27 :	*PBN IMPLEMENTATION SUPPORT*
DRAFT CONCLUSION 10/28:	*MID REGION PBN IMPLEMENTATION STRATEGY AND PLAN*
DRAFT CONCLUSION 10/29:	*PBN STATE IMPLEMENTATION PLAN*
DRAFT CONCLUSION 10/30:	*MID REGION PBN IMPLEMENTATION PERFORMANCE OBJECTIVES*
DRAFT CONCLUSION 10/31:	*USE OF THE PUBLIC INTERNET FOR THE ADVANCE PUBLICATION OF AERONAUTICAL INFORMATION*
DRAFT CONCLUSION 10/32:	*IMPROVEMENT OF THE ADHERENCE TO THE AIRAC SYSTEM*
DRAFT CONCLUSION 10/33:	*ANNEX 15 PROVISIONS RELATED TO AIRAC*
DRAFT CONCLUSION 10/34:	*IMPLEMENTATION OF QMS WITHIN MID STATES' AISs*
DRAFT CONCLUSION 10/35:	*LICENSING OF THE AIS/MAP PERSONNEL*
DRAFT CONCLUSION 10/36:	*ELECTRONIC AIP (eAIP)*
DRAFT CONCLUSION 10/37:	*EXTENSION OF THE EAD TO THE EMAC STATES*
DRAFT DECISION 10/38:	*ESTABLISHMENT OF AN AIS AUTOMATION ACTION GROUP*
DRAFT CONCLUSION 10/39:	*SURVEY ON THE IMPLEMENTATION OF eTOD IN THE MID REGION*
DRAFT CONCLUSION 10/40:	*MID REGION eTOD IMPLEMENTATION STRATEGY*

DRAFT CONCLUSION 10/41:	*DRAFT FASID TABLE RELATED TO eTOD*
DRAFT DECISION 10/42:	*TERMS OF REFERENCE OF THE eTOD WORKING GROUP*
DRAFT CONCLUSION 10/43:	*PRE-REQUISITES FOR THE TRANSITION TO AIM*
DRAFT DECISION 10/44:	*PLANNING FOR THE TRANSITION FROM AIS TO AIM*
DRAFT CONCLUSION 10/45:	*HARMONIZATION OF THE PUBLICATION OF LATITUDE AND LONGITUDE COORDINATES*
DRAFT DECISION 10/46:	*TERMS OF REFERENCE OF THE AIS/MAP TASK FORCE*
DRAFT CONCLUSION 10/47:	*REGIONAL PERFORMANCE FRAMEWORK*
DRAFT CONCLUSION 10/48:	*NATIONAL PERFORMANCE FRAMEWORK*
DRAFT DECISION 10/49:	*REVISED TOR OF THE ATM/SAR/AIS SUB-GROUP*

CNS/ATM/IC SG/4
Appendix 5B to the Report on Agenda Item 5

SAR Ad-hoc Working Group (SAR AWG)

A) TERMS OF REFERENCE

In order to review and develop updates to the MID ANP with regard to SAR requirements, as well as develop recommendations to foster implementation of provisions in the SAR field, the SAR Ad-hoc Working Group (SAR AWG) shall undertake the following:

1) Considering:
   a. the provisions of ICAO giving effect to and including the Chicago Convention (Doc 7300), with regard to aircraft in distress and their occupants.

   b. available guidance material in the field of SAR, in particular the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual (Doc 9731)

   c. Regional Air Navigation Meetings reports, in particular the MID LIM (COM/MET/RAC) RAN, 1996 MIDANPIRG requirements, in the field of SAR

   d. concerns, challenges and views of MIDANPIRG and its subsidiary bodies with respect to implementation of SAR provisions

   e. the challenges experienced by States and the consequential long outstanding deficiency related the signing of SAR Agreements.

2) In view of the above, and in order to facilitate the elimination of outstanding deficiencies, in particular those related to SAR Agreements:

   a. develop recommended material to update Regional requirements (including MID ANP Basic and FASID requirements)

   b. Identify/develop model SAR legislation and regulations to assist States in developing enabling legislative provisions.

   c. Develop guidelines to assist States in ensuring effective coordination in the provision of SAR services, with parties with the State including maritime and military entities.

   d. Develop guidance for States to facilitate compliance with SAR requirements related to upgrade and registration of emergency beacons (from 121.5 MHz to 406 MHz), as well as optimally benefiting from Cospas-Sarsat services.

B) COMPOSITION

The **SAR AWG** will be composed of individuals identified from the following States and International Organizations:

- MID States
- International Organizations (IATA, IFALPA)

Other representatives, who could contribute to the activity of the Working Group, may be invited to participate as observers.

C) WORKING ARRANGEMENTS

1) The **SAR AWG** shall:

   - report to the ATM/SAR/AIS Sub-Group;

   - appoint a Rapporteur to facilitate its proceedings;

   - meet once in order to complete its work, provided that, based on the decision of the ATM/SAR/AIS SG, the work group may due to unforeseen circumstances inhibiting completion of its work, be extended to a second meeting in as short a time as possible.

2) Members of the **SAR AWG** shall review all available material circulated with guidance of its Rapporteur and Secretariat, in advance of the meeting in order reduce the process of familiarization with relevant material during the period of the meeting.

CNS/ATM/IC SG/4
Appendix 5C to the Report on Agenda Item 5

LIST OF CNS SG/2 DRAFT CONCLUSIONS AND DECISIONS

DRAFT CONCLUSION 2/1:	MID REGION STRATEGY FOR THE IMPLEMENTATION OF ADS-B
DRAFT DECISION 2/2:	IMPLEMENTATION OF THE RATIONALIZE AFTN PLAN
DRAFT DECISION 2/3:	ESTABLISHMENT OF AN INTERNET PROTOCOL SUITE (IPS) WORKING GROUP
DRAFT CONCLUSION 2/4:	IFPS PROJECT SUPPORT
DRAFT CONCLUSION 2/5:	DIGITAL HIGH SPEED LINKS
DRAFT CONCLUSION 2/6:	MID INFRASTRUCTURE PROJECTS OFFICE
DRAFT CONCLUSION 2/7:	UPDATE ADHOC ACTION GROUP MEMBER AND PARTICIPATE IN NATIONAL AND REGIONAL ACTIVITIES RELATED TO WRC-11
DRAFT CONCLUSION 2/8:	IMPLEMENTATION OF THE NEW ICAO MODEL FLIGHT PLAN FORM
DRAFT CONCLUSION 2/9:	SUPPORTING DOCUMENTS FOR ATN PLANNING
DRAFT CONCLUSION 2/10:	ESTABLISHMENT OF MID-FIT
DRAFT CONCLUSION 2/11:	INTRODUCTION OF FANS 1/A CAPABILITIES IN THE MID REGION
DRAFT CONCLUSION 2/12:	REGIONAL PERFORMANCE FRAMEWORK
DRAFT CONCLUSION 2/13:	NATIONAL PERFORMANCE FRAMEWORK
DRAFT DECISION 2/14:	REVISED TOR OF THE CNS SUB-GROUP
DRAFT CONCLUSION 2/15:	CNS/ATM IMPLEMENTATION PLANNING MATRIX

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

Considering:

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

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.

12) The implementation would be in conformity with the SARPs, ICAO guidelines and the MIDANPIRG conclusions.

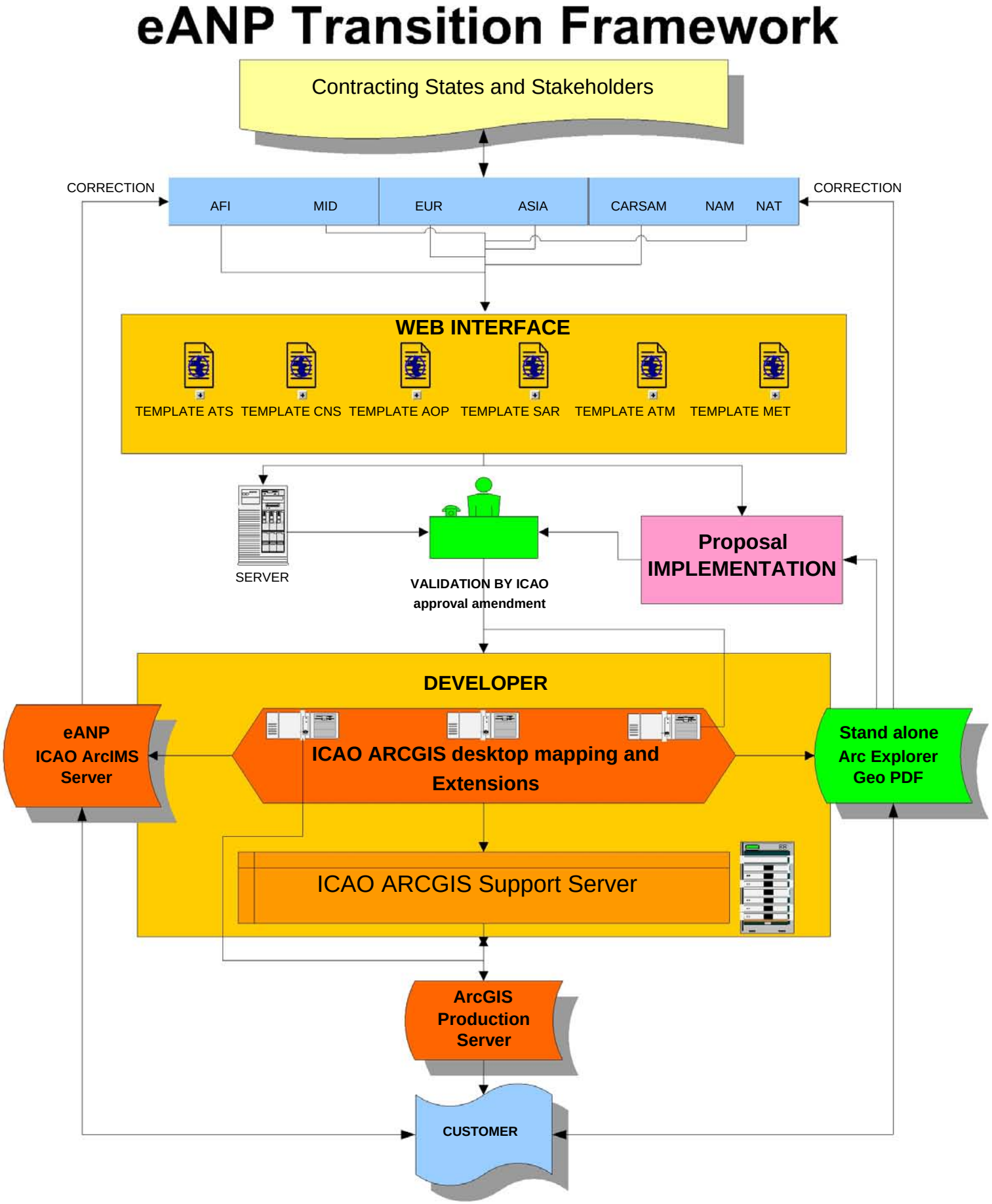
B) The implementation would require aircraft equipped with avionics compliant with either:
i) Version OES as specified in Annex 10, volume IV, Chapter 3, paragraph 3.1.2.8.6 (up to and including amendment 83 to annex 10) and chapter 2 of draft technical Provisions for Mode S services and extended Squitter (ICAO Doc 9871) to be used till atleast 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.

Proposed eANP Transition Framework


eANP Transition Framework
Contracting States and Stakeholders
CORRECTION
AFI
MID
EUR
ASIA
CARSAM
NAM
NAT
CORRECTION
WEB INTERFACE
TEMPLATE ATS
TEMPLATE CNS
TEMPLATE AOP
TEMPLATE SAR
TEMPLATE ATM
TEMPLATE MET
SERVER
VALIDATION BY ICAO
approval amendment
Proposal
IMPLEMENTATION
DEVELOPER
eANP
ICAO ArcIMS
Server
ICAO ARCGIS desktop mapping and
Extensions
Stand alone
Arc Explorer
Geo PDF
ICAO ARCGIS Support Server
ArcGIS
Production
Server
CUSTOMER

ICAO framework for transition to an electronic Air Navigation Plan (eANP)

TRANSITION WORK PROGRAMME

2. INTRODUCTION

WHY

The electronic Air Navigation Plan (eANP) will facilitate the coordination and implementation of regional air navigation plans as well as supporting the Global Air Navigation Plan. It will also contribute to the further development of air navigation planning by providing a framework for the efficient implementation of new air navigation systems and services at the national, regional, inter-regional and global levels. The framework will support, in particular, the work of regional planning and implementation groups that plan, monitor and analyse the implementation status of planned facilities and services for inclusion in the regional air navigation plans, and recommend ways to expedite these plans in accordance with ICAO priorities. The availability of this information online will greatly facilitate updating and access to the latest information for States, ICAO regional offices and various other users.

KPAs:

An updated status report of the core elements of the Air Navigation System will available in 2009.

Result Area D3 Outcome and Indicators

• Revised ANP structure and format		Electronic ANP rollout commenced (2008)[1]	1
		• New structure, including harmonized ANP tables, is available to States (2009) [1]	1
		• ANP/GIS database is online (2008) [1]	1
		• Online training for air navigation planning database/GIS use is available (2008) [1]	1

3. OBJECTIVES

WHAT

This effort has two primary objectives:

i) at the global level: reconcile the Regional Air Navigation Plan with the ATM operational concept, the new Global ANP provisions and the ICAO new business planning processes; and

ii) at the regional level: expedite regional planning and coordination through simplifying and freeing the core of planning from a long and cumbersome formal approval process,

(whilst maintaining the planning and coordination process requirements within the ICAO regional machinery).

To support the above objectives, the following deliverables will be produced:

i) Easy-to-use planning templates that would contain the relevant elements, specifically, homogeneous ATM areas and major international traffic flows, and the agreed Global Air Navigation Plan systems infrastructure necessary to support the implementation of the homogeneous ATM areas and major international traffic flows; and

ii) an integrated Air Navigation Planning environment containing details currently listed in Table ATS 1 and all FASID Tables (AOP, CNS, ATM, MET, SAR, AIS). This will be designed to easily support the coordination, agreement and recording process between States and international organisations, also through a user-friendly interface.

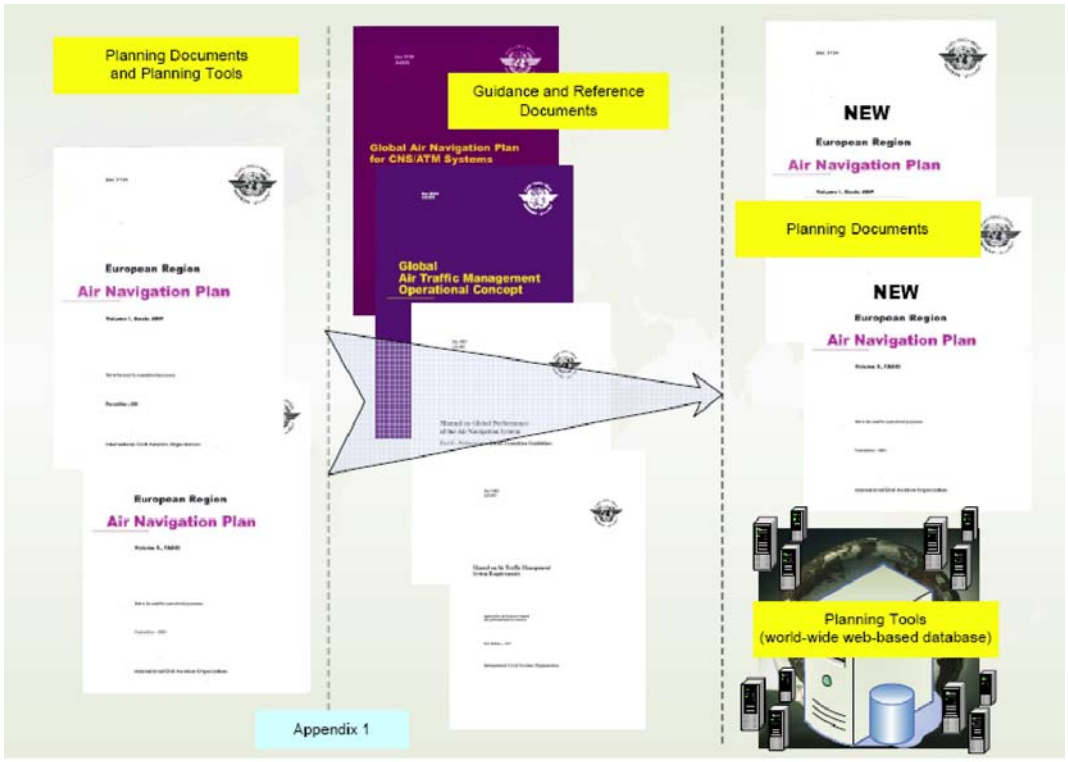
The *proposed* methodology that will be employed to achieve the above deliverables is as follows:

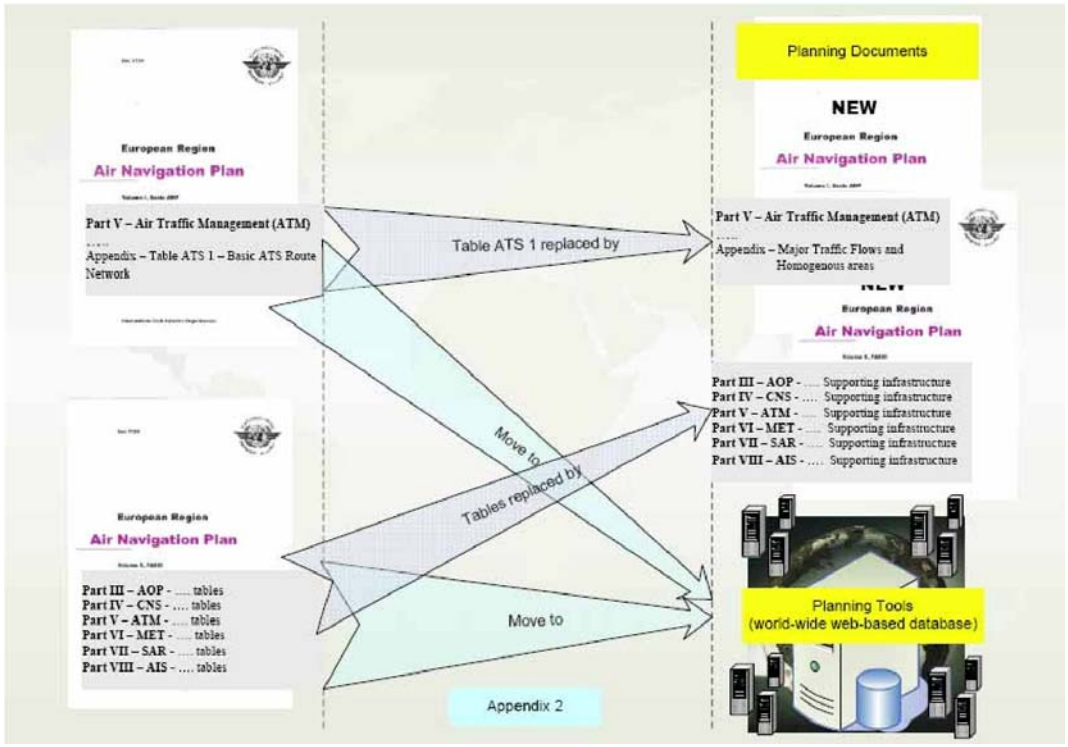
i) Replace the current provisions in the ANP Volume I, concerning establishment of ATS Routes and Table ATS 1, by the relevant elements of the Global ANP and the evolving ATM operational concept, specifically, homogeneous ATM areas and major international traffic flows;

ii) Replace the current provisions in the ANP Volume II, comprised of FASID tables (AOP, CNS, ATM, MET, SAR, AIS), by the agreed air navigation system elements necessary to support the implementation of a performance-based infrastructure to support homogeneous ATM areas and major international traffic flows;

iii) Move all details currently listed in Table ATS 1 and all FASID Tables to an integrated Air Navigation Planning environment which will be designed to support the coordination, agreement and recording process between States and international organisations; and

iv) Propose the necessary amendments to current ICAO SARPs, e.g. Annex 11 — Air Traffic Services, Appendix 1, be revised to remove the distinction between regional and non-regional networks of ATS routes.


Planning Documents and Planning Tools
Guidance and Reference Documents
Global Air Navigation Plan for CNS/ATM Systems
Global Air Traffic Management Operational Concept
European Region
Air Navigation Plan
NEW
European Region
Air Navigation Plan
Planning Documents
NEW
European Region
Air Navigation Plan
Planning Tools (world-wide web-based database)
Appendix 1


European Region
Air Navigation Plan
Part V – Air Traffic Management (ATM)
.....
Appendix – Table ATS 1 – Basic ATS Route Network
Table ATS 1 replaced by
Planning Documents
NEW
European Region
Air Navigation Plan
Part V – Air Traffic Management (ATM)
.....
Appendix – Major Traffic Flows and Homogenous areas
European Region
Air Navigation Plan
Part III – AOP - ..... tables
Part IV – CNS - ..... tables
Part V – ATM - ..... tables
Part VI – MET - ..... tables
Part VII – SAR - ..... tables
Part VIII – AIS - ..... tables
Move to
Tables replaced by
Move to
Part III – AOP - ..... Supporting infrastructure
Part IV – CNS - ..... Supporting infrastructure
Part V – ATM - ..... Supporting infrastructure
Part VI – MET - ..... Supporting infrastructure
Part VII – SAR - ..... Supporting infrastructure
Part VIII – AIS - ..... Supporting infrastructure
Planning Tools (world-wide web-based database)
Appendix 2

4. PROPOSED FRAMEWORK ELEMENTS

A) PLANNING DOCUMENTS

- homogeneous ATM areas and major international traffic flows, and
- agreed CNS/ATM systems infrastructure necessary to support this implementation

1. Proposed new Layout and Content (attached at **Appendix A**)

2. Introduction/BORPC/General Planning Aspects (Common to all Regions)

3. Coloured pages of specific requirements per Region per discipline

B) INTEGRATED AIR NAVIGATION PLANNING ENVIRONMENT

Tools that are proposed under the electronic Air Navigation Plan (eANP) environment effort:

a. 5LNC Management Tool
b. Navaid Management Tool
c. Communications planning
d. HF SELCAL allocations
e. AMHS assignments
f. SBAS Channel Allocation Utility
g. Route Designator Management Tool
h. Automated ANP update processing utility
i. eBORPC
j. eFASID
k. FIRs Amendment and Information Tool

2. Process model for ATS route planning tool (suggested model for all other FASID table-related tools) (attached at **Appendix B**)

5. ISSUES TO BE ADDRESSED [PLACEHOLDER]

1. **Aerodrome oriented database**
    a. Starting point – the AOP table in the Basic ANP; link to Doc7910
    b. FASID Tables related to the AOP Table in BANP
        i. AOP1 (needs major review and update)
        ii. AOP2 (likely to be proposed for deletion)
        iii. CNS 2 (?)
        iv. MET 1A
        v. MET 2A
    c. Common data fields (first guess)
        i. ICAO loc.ind. (CCCC)
        ii. Aerodrome name
        iii. State of aerodrome

iv. Aerodrome designation
v. Other Geographical data

2. FIR oriented database

a. Starting point – developing new simple Table for the FIRs and the associated ACCs
b. Related FASID Tables
   i. CNS 3
   ii. ATS 2 (VOLMET)
   iii. MET 1B (MWOs – SIGMET)
   iv. MET 3A (Tropical Cyclone Advisory Centres (TCAC) – the AoRs of the TCACs are related to the FIRs)
   v. MET 3B (Volcanic Ash Advisory Centres (VAAC) – the AoRs of the VAACs are related to the FIRs and the ACCs)
   vi. SAR 1 (link between the FIRs/ACCs and RCCs)
   vii. AIS 1 (link between the FIRs and NOTAM Offices)
c. Common data fields
   i. FIR/ACC loc. Indicator and name (link with Doc 7910)
   ii. FIR Geographical boundaries

3. Proposal for eANP supported approval process

CURRENT APPROVAL PROCESS	
ANP	**FASID**
TO BE COMPLETED	*TO BE COMPLETED*

NEW PROCESS APPROVAL PROCESS	
ANP	**eANP**
Manual paper-based process	e-ANP automatically processes:
homogeneous ATM areas and major international traffic flows	detailed ATS route planning process
agreed CNS/ATM systems infrastructure necessary to support this implementation	detailed eFASID tables updates
FIR boundary changes	

1. Process model for approval by all Stakeholders.

EXPECTED OUTCOMES 2008-2010

Date	Action	Description	Status
Jan 2008	www.icao.int/icard	Eurocontrol website operational EUR, MID regions	Complete
Mar 2008	SBAS channel allocation	Requirements Coordinated and Agreed	Complete – Awaiting FAA LoU action
Mar 2008	5LNC for NAM	5LNC and RD allocated by ICARD for NAM Region = last step of true global unique id allocation system.	On-track
Apr 2008	SBAS channel allocation	Operational on FAA hosted website	On-track Awaiting FAA LoU action
May 2008	www.icao.int/icard	Eurocontrol website operational APAC region	On-track
May 2008	www.icao.int/icard	Eurocontrol website operational SAM region	On-track
June 2008	Navaid and Route for EUR/NAT & MID	Pilot users of ATS route Specification Amendment process on eurocontrol.int	MID region GeoPDF tool initialized
Sept 2008	5LNC for CAR regions	5LNC and RD loaded in ICARD, read only on eurocontrol.int and write on icao.int	In Progress
Sept 2008	5LNC for ESAF	5LNC and RD loaded in ICARD. Read only on icao.int and write on eurocontrol.int	In Progress
Sept 2008	5LNC for WACAF	5LNC and RD loaded in ICARD. Read only on icao.int and write on eurocontrol.int	In Progress
Sept 2008	SBAS channel allocation	Operational on icao.int	Awaiting FAA LoU action
Sept 2008	Navaid and Route for CAR and SAM regions	Feedback from pilot phase implemented and CAR & SAM regions using it on icao.int	
Oct 2008	Regional Office briefings	Web briefings with relevant ICAO Regional office technical staff for training and feedback.	
Oct 2008	5LNC duplicates resolution	During the Web briefings, a plan for the resolution of the duplicate problem will be agreed by the regional offices with precise recommendations for resolution (code by code).	
Q1 2009	Navaid and Route for All	All ICAO regions using Internet in support of ATS route specification updates	
2009	User's information and feedback sessions	During 2009, PIRG meetings will be used for informing users and requesting feedback.	
Q1 2009	All on www.icao.int	After the User's meeting confirmation, the goal is to have the ICAO website the only write access for all ICAO regions. The EUROCONTROL website will be used in read only mode and it will be possible to act as a failover site in case the ICAO site experiences long periods of non availability.	
Q1 2009	New 5LNC function	If requirement confirmed by the user's meeting, implement the new 5LNC function and abandon the reserve list.	

KEY PERFORMANCE INDICATORS 2008-2010

Delivering the expected outcome at the planned dates for delivery as detailed above will be the primary measure of success of the implementation of the current work programme.

In addition of meeting the planned dates, a number of indicators for the performance of the system developed jointly are identified in the table below. Mechanisms will have to be installed immediately in order to measure these indicators.

Number of 5LNC duplicates	-50%	mid 2008
	-75%	mid 2009
Number of users	400	mid 2008
Number of write access	10000/year	mid 2008
Number of read access	100K/year	mid 2008
Route Change Approval Process	6 weeks	Q4 2008
Number of SBAS channel allocation	750/year	Q4 2008

WHO – need to establish key POC's

STAKEHOLDERS	Points of Contact
ICAO Headquarters (CNS/AIRS)	J. Nagle
Aeronautical GIS Manager	G. Lasnier
GIS Web Assistant	M. Morawski
Aeronautical Information Manager	J. Guevin
Aeronautical Information Manager	J-M Galais
Technical Clerk	S. Laskie
GIS Web Assistant	M. Morawski
ICAO Regional Offices	
APAC Bangkok	P. Li
ESAF Nairobi	M. Obeng
EUR/NAT Paris	P. Cuff
MID Cairo	M. Smaoui
NACC Mexico	TBD
SAM Lima	Jorge Fernandez
WACAF Dakar	TBD
States through PIRGS	
ALLPIRG	
APANPIRG	
APIRG	
EANPG	
GREPECAS	
MIDANPIRG	
NATSPG	

COMMUNICATIONS MATRIX (tbd)

WHEN

ID	WHAT	WHO	WHEN
	TRANSITION TO eANP		
	Develop ICAO Framework for Transition to eANP		
	Write core work programme		
	Write service increment elements (5LNC, Route Planner, FIRs, etc.)		
	Write simplified Framework for CNS/AIRS unit work program		
	Advance copy to partners		
	Letter from D/ANB to all		
	RDs POC per RO		
	Target dates for comments to Framework		
	Website (with RSS link/pwd protected) to give information on progress		
	Sub-site on ICARD to show deployment status of 5LNC		
	Pre-Phase 1		
	Existing / Common data review – data capture assessment		
	Common data matrix		
	Systems' analysts to decide way to go ahead		
	Work plan on who does what and how		
	Phase 1		
	Creation of clone reports		
	Phase 2		
	Work on transition formats – report generator format rather than static tables format		
	Phase 3		
	New eANP		

APPENDIX A

REGIONAL BASIC AIR NAVIGATION PLAN
PROPOSED NEW LAYOUT AND CONTENT

PART – SECTIONS COMMON TO ALL ANPS	**PART – SECTIONS REGION SPECIFIC**
INTRODUCTION * Regional Air Navigation Planning *(relationship Regional Air Navigation Plans - Global Air Navigation Plan)*	
* Concept and purpose of air navigation plans, CNS/ATM elements, procedures for amendments, etc.	
* Global Plan Initiatives, Regional Plan Initiatives	
* Alphabetical index of States and territories *(table to show: Regional ANP, Regional Planning Groups membership, accredited ICAO Regional Office)*	
* Basic operational requirements and planning criteria (BORPC)	
PART I –Region General Planning Aspects (GEN) * Geographical scope * Flight Information Regions (FIRs) *(link to database)* * Performance Based Requirements * Planning Process *(specific regional planning groups - mechanism)* * Global Planning Initiatives (GPIs) and Regional Planning Initiatives (RPIs) * Human Factors Considerations * Safety Consideration * Homogeneous Areas and Major Traffic Flows * Air Traffic Forecasts, System Capacity and Air Traffic Demand * Implementation Strategy	

PART II – Aerodromes / Aerodrome Operations (AOP) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *Note: The "Appendix on international aerodromes required in the region" will be deleted; information to be available from a data base.*	* Specific regional requirements and planning *(include definition of requirements for international aerodromes for the Region)*
PART III – Communications, Navigation and Surveillance (CNS) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *	* Specific regional requirements and planning
PART IV — Air Traffic Management (ATM) Airspace Management (ASM) Air Traffic Services (ATS) Air Traffic Flow Management (ATFM) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *Notes:* *1. VHF VOLMET broadcasts , Provision of information on hazardous weather conditions should be covered under Meteorology.* *2. Incident reporting and investigation should be covered in the "Safety" section* *3. Appendix — Table ATS 1 — Basic ATS Route Network in the Lower and Upper Airspace and Charts ATS 2A, B, C, D, E, F, G, H, I, J, K (ATS Routes and Associated Navigation Means) moved to a database* *4. Charts ATS 1A, 1B, 1C — Flight Information Regions to be moved to Part I – General Planning Aspects*	*Specific regional requirements and planning to cover: Airspace management (ASM) Air traffic services (ATS) Air traffic flow management (ATFM)
PART V — Meteorology (MET) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *	* Specific regional requirements and planning

PART VI — Search And Rescue Services (SAR) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *	* Specific regional requirements and planning
PART VII — Aeronautical Information Services/Management (AIS/M) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *	* Specific regional requirements and planning
PART VIII — Safety (SAF) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* *	* Specific regional requirements and planning
PART IX —Human Resources And Training (HR&TNG) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)*	* Specific regional requirements and planning
PART X — Contingency Planning (CPLN) * References to Standards, Recommended Practices and Procedures *(Annexes, PANS, SUPPs)* * Specific regional requirements and planning	

APPENDIX B

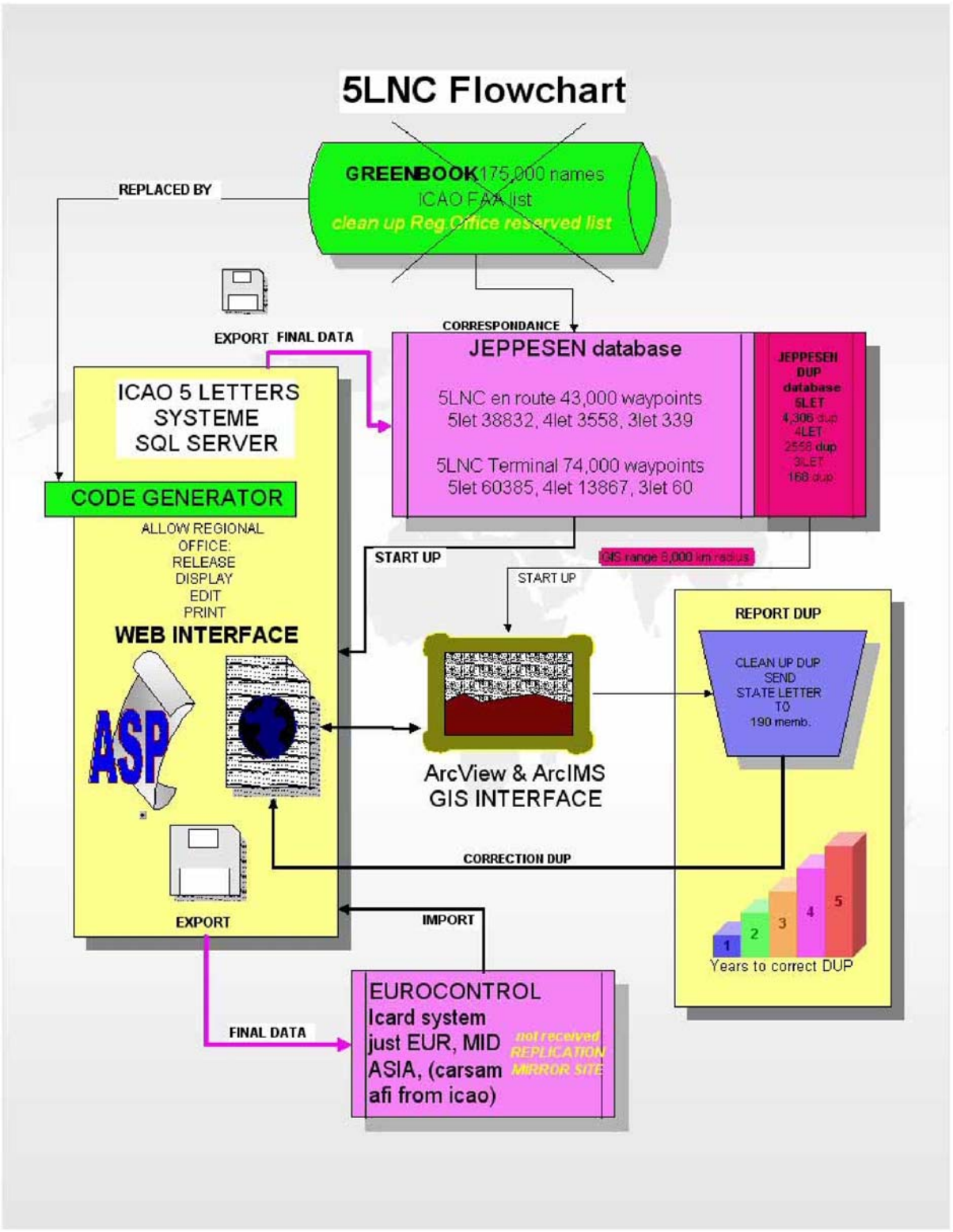
WEB-BASED ATS ROUTE PLANNING DATABASE PROPOSED COORDINATION AND APPROVAL PROCEDURE (draft of 08/10/07)

PHASE	ACTION	APPLI-CATION
1.	Route Planner (Originator) develops a package of proposals through drawing routes via the ATS route planning tool, for example: *- create new routes/waypoints, delete existing routes/waypoints, amend existing routes/waypoints, etc.*	Dbase
2.	Route Planner (Originator) has possibility to print list of changes by route descriptions and graphical illustration with proposal superimposed on actual situation.	Export document
3.	Route Planner (Originator) completes internal coordination/approval process to finalise proposal, including coordination within Route Planning Groups and forum.	Dbase Export document Email
4.	Route Planner (Originator) will submit package for regional coordination and approval to States and International Organisations and ICAO via database - deadline for replies set from date of submission (default/adjustable).	Dbase Email
5.	States/International Organisations/ICAO enter comments / agreement / objection through database.	Dbase
6.	**Comments** Commenter indicates "Comment" and "reason for comment" in order for comments to be retained by the system. Database sends email to Route Planner (Originator), Route Planning Group Secretariat and ICAO (for information), Commenter, Route Planning Group Secretariat and Route Planner (Originator) coordinate and update proposal on database, Commenter changes status from “Comments” to “Agreement”.	Email Dbase
7.	**Agreements** State or International Organization indicates "Agreement" if they have no comments or objections to the proposal.	Dbase
8.	**Objections** Objector indicates “Objection” and fills in “reason for objection” in order for objection to be retained by the system. ICAO to review “reason for objection” to decide its validity <u>If objection is valid</u>, iii) ICAO to facilitate negotiation between Route Planner (Originator) and Objector via email and other means. iv) When coordination is finalised, ICAO changes status from “Objection” to “Agreement”. <u>If objection is not valid</u>, iii) ICAO informs objector of invalidity of objection via email and other means. iv) When coordination is finalised, ICAO changes status from “Objection” to “Agreement”.	Email Dbase
9.	On the day after the deadline for replies (see Step 5) an automatic email will be sent to inform the status of the proposal, based on the replies received: if all replies are Agreement - the proposal is Approved and all will be informed (see Step 10). if there are Comments still pending - the Route Planner (Originator), Route Planning Group Secretariat and ICAO are informed. if there are any unresolved Objections - the Route Planner (Originator), Route Planning Group Secretariat and ICAO are informed.	Email Dbase

1	**Approval** When the proposal is Approved, all who received the original proposal (see Step 5) will be informed automatically via email of details of the approved changes. Agreement - if all replies are Agreement, the proposal is Approved on the day after the deadline for replies. Comments - when the issues are resolved between the Route Planner (Originator) and the Commenter and the Commenter changes the status to Agreement (see Step 7 iii), the proposal will be Approved the next day. Objections - when ICAO completes the necessary coordination and changes the status to Agreement (see Step 8), the proposal will be Approved the next day.	Email Dbase
1	Approved data is migrated from “Proposal” to “ICAO ANP”.	Dbase

APPENDIX C

ICARD – FIVE-LETTER NAME CODE SYSTEM



APPENDIX D

ROUTE DESIGNATOR MANAGEMENT SYSTEM

EUR PROPOSED PROCEDURE

STEP	ACTION	FUNCTION
1	Route segments/couples selected to form a route	
2	Route characteristics to be filled in: Fields: * Upper / Lower (either-or / both) * Conventional / RNAV * Conditional routes (CDR) / ARR / DEP / Enroute	
3	System runs query on RDs already in use at both extremities of route selected to find RD to be proposed * Vertical plane (upper and lower airspace) * Horizontal plane (continuation of existing route)	
4	List of all RDs in use at each extremity with possibility to extend indicated	Show MAP
5	If no options available, system proposes new RDs (random set of 10) Parameter/checks required: * conventional / RNAV * enroute / ARR+DEP – domestic or international route * if possible, no numerical duplicates in same FIR/State i.e. L619 exists, therefore N619 should not be proposed	
6	User select new RD as proposed or extendable RD as proposed	
7	User may force his own choice by clicking on Manual Selection	
8	List of Available RDs per letter (as is done today) appears and	
9	User selects preferred RD	
10	System makes numerical duplicate check and shows this on List and Map facility like in 5LCN module	
11	User to check box that numerical duplicate check has been made	

POSSIBLE ACTIONS BY USER:

i) Select existing RD to extend existing route
ii) Release existing RD
iii) Replace existing RD with new RD
iv) Replace existing RD with another existing RD
v) Select new RD for new route

SEARCH CRITERIA:

i) Full Designator
ii) Designator Prefix: Drop down list of:

Conventional	RNAV
A, B, G, R	L, M, N, P
H, J, V, W	Q, T, Y, Z

iii) Going through Regions: Drop down list of:

AFI
APAC
CAR
EUR
MID
NAM
NAT
SAM

iv) Going through States: Drop down list of All States
v) Vertical plane: Drop down list of : Upper only, Lower only, Upper and Lower
vi) Status: Drop down list of: ALLOCATED / RESERVED (Route not yet implemented) / AVAILABLE / RELEASED (6 months period before becoming Available)
vii) Implementation Status: Drop down list of: RESERVED BUT NOT PUBLISHED / PUBLISHED / IMPLEMENTED
viii) Routes containing points: 5LNC / IDENTs

Issues to consider:

1. *Annex 11 amendment – removable of idea of Regional and Non-Regional Route Designators? – applicability date in 2011 / 2012*
2. *Need for development as current ICARD Route Designator Module does not fulfil above requirements.*
3. *Need for sponsor.*

APPENDIX E

NAVAID (IDENT) MANAGEMENT SYSTEM

EUR PROPOSED PROCEDURE

POSSIBLE ACTIONS BY USER:

1. Create new "Location name" and new "IDENT"
2. Create new "IDENT" within existing "Location name"
3. Delete "Location name" and therefore deleting all "IDENT" linked to it

Note: this has impact on Routes that are linked to IDENTs and therefore consequential amendments.

4. Delete "IDENT" whilst maintaining others linked with existing "Location name"
5. Modify "Location name" or 'IDENT" or "Coordinates" or "Type"

Note: impact on Routes that are linked to IDENTs and coordinates and therefore consequential amendments.

SEARCH CRITERIA:

1. IDENT
2. Location name
3. Coordinates
4. State
5. Type: L, NDB, VOR, DME, etc.
6. Show on Map

Issues to consider:

1. *Need for development as currently not in ICARD. [SAFIRE OR ICARD (APAC TOOL)?]*
2. *Need for sponsor.*
3. *Data exists in SAFIRE – to be linked to avoid duplication.*
4. *Wider issues:*
    a. *Duplicates – how to reduce pilot error on FMS*
    b. *Max/Min parameters for database to accept duplicates on horizontal plane - Annex 11: minimum distance 600NM for duplicates*
    c. *Change from 3 letters to 5 would require global consultation process to be launched*
    d. *Types of duplicate problems:*
        i. *duplicated IDENTs used for different Navaids in the same location, in the same State; and*
        ii. *duplicated IDENTs used for different Navaids in different locations, in different States.*

Proposal to be discussed:

1- A three letter code will never uniquely identify a navaid worldwide. 2- For unique identification of a navaid, propose two attributes of the navaid:

- the three letter ident.
- the State in charge of the navaid.

3- If the code for a new navaid is decided by frequency planning people, the planning tool should ensure uniqueness following two independant criteria:

- three letter code unique within 600Nm.

- three letter code unique within the State.

4- Solving existing duplicates of IDENT within a State will be required. This will need to be coordinated by route planners and frequency managers, ICARD can be used for that by providing list and maps of duplicates like it is done for the 5LNC.

I think that if we can achieve that the three letter code ident of a navaid is unique within a State we will have all what is required for digital data exchange. This solution does not require any update of the ICAO Annexes and does not require any system changes in the many systems in the world that have been developed with navaids ident = three letters. The future systems will be capable of handling the attribute of the State in charge of the navaid independently of its code.

APPENDIX F

ATS ROUTE PLANNER SYSTEM

Insert proposed GeoPDF tool demo

APPENDIX G

PROPOSAL FOR AMENDMENT TRACKING SYSTEM

ICAO FRAMEWORK FOR TRANSITION TO eANP

SERVICE INCREMENT ELEMENTS

PROPOSAL FOR AMENDMENT TRACKING SYSTEM

EUR/NAT Proposal for Amendment Tracking Database Screen Used As A Visual Aid (Figure 1 refers).
Areas that could be used and those to be disabled until integrated into other eANP modules are explained.

POSSIBLE ACTIONS BY USER:

1. Find approved proposals for amendment
2. Find current proposals for amendment
3. Find closed/cancelled proposals for amendment
4. Create new proposal for amendment
5. Print reports after queries with "Search Criteria" below. (See example of Report after query on all FIR boundary proposals for amendment processed by EUR/NAT in Figure 4).

SEARCH CRITERIA:

1. Regional Office
2. Year
3. Serial Number
4. Part of ANP: AOP/MET/ATS1/FIR, etc.
5. Basic/FASID/SUPPs
6. Date received
7. [SUPPs] Date sent to HQ for review
8. Date circulated
9. Deadline for comments
10. [Revised] Date re-circulated
11. [Revised] Deadline for comments
12. Date submitted for approval
13. Date of approval
14. Notification to States
15. Date implemented
16. Amendment # : ANP / FASID / SUPPs
17. Originated by: States
18. Circulated to: States
19. Status: DRAFT/PREPARE PROPOSAL/CIRCULATED TO STATES/REVIEW OF COMMENTS > SEND FOR APPROVAL or REVISED >PROPOSAL APPROVED or RE-CIRCULATED TO STATES…/IMPLEMENTED (Figures 2 and 3 refer)

PROPOSAL FOR AMENDMENT TRACKING SCREEN – AREAS THAT COULD BE USED:

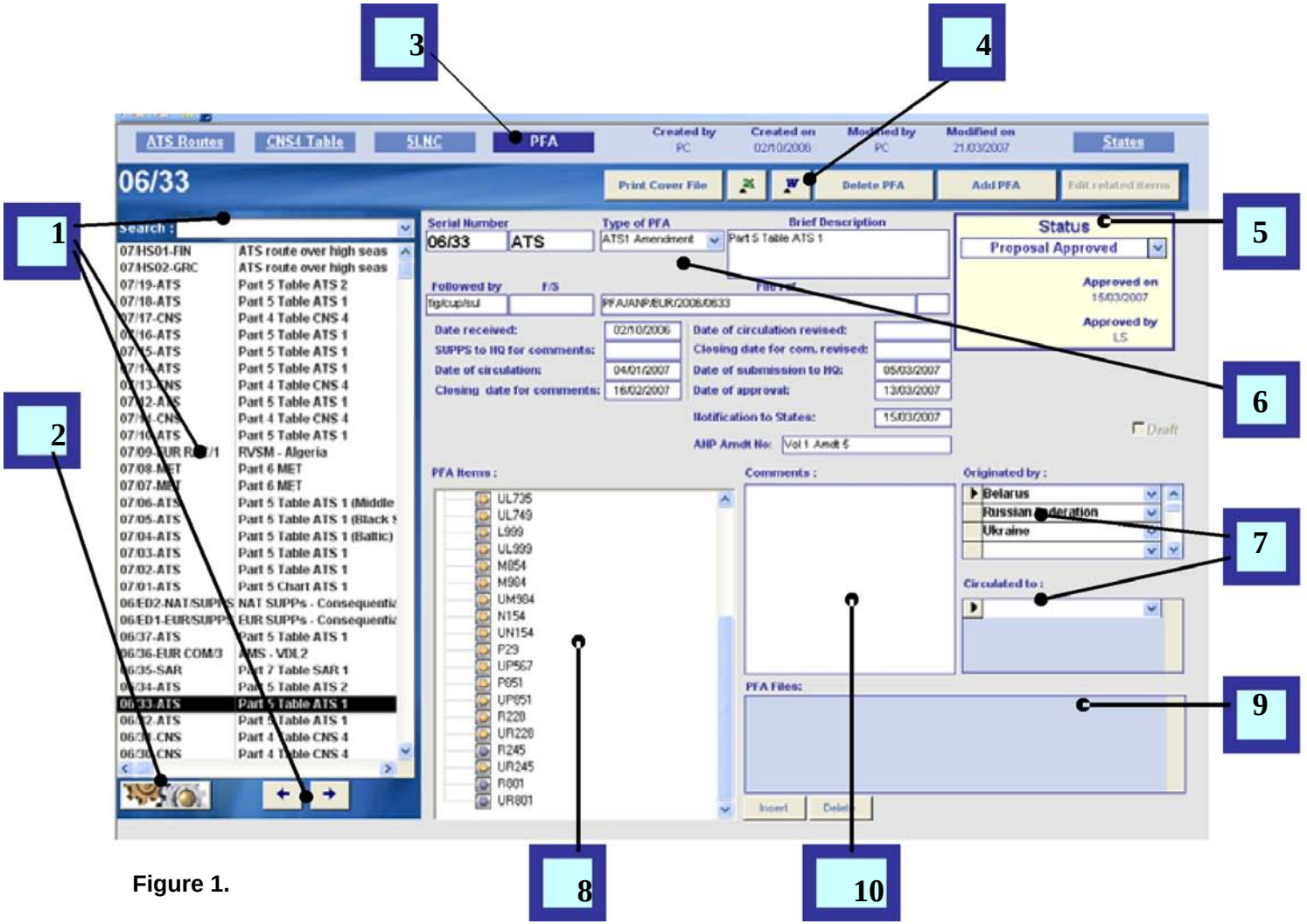


Figure 1.

1. Navigation Controls.
2. Toggle button: display PFA in progress only or all PFA.
3. *Navigation links between each component. (DISABLED UNTIL INTEGRATED WITH E-ANP MODULES)*
4. Command buttons.
   - *Print File Cover:* print the file cover sheet of the PFA displayed *(if paper filing still being done)*
   - *Print PFA List:* Print List of PFA in progress in Word or Excel. *(This could be placed in the "Search Criteria" menu.)*
   - : Print the PFA in Word. *(DISABLED UNTIL INTEGRATED WITH E-ANP MODULES)*
   - Delete PFA: Delete current PFA displayed on screen
   - Add PFA: Create a new PFA.
   - Edit related items: Open the window for editing ATS1/CNS4 amendments. *(DISABLED UNTIL INTEGRATED WITH E-ANP MODULES)*
5. Status: Shows the PFA Status.
6. PFA Information.
7. List of States: show originators of this amendment and State(s) which are to be consulted.
8. Lists ATS1 or CNS4 items that are amended in the PFA concerned. *(DISABLED UNTIL INTEGRATED WITH E-ANP MODULES)*
9. Links to Word files related to PFA.
10. Comments on process of development of PFA (e.g. resolving objection from BUL).

PFA Status The different stages of Status of PfA you can select depend on the previous stage.

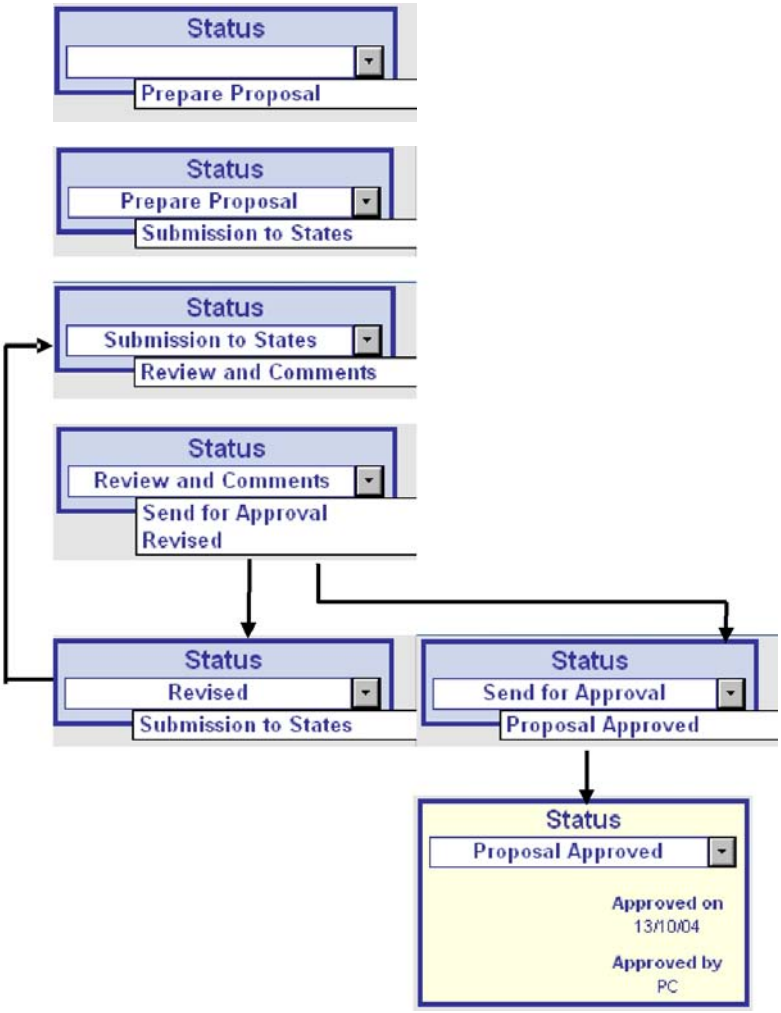


Figure 2 – Flow of Status of Processing of Amendment Proposal

If, or When, integrated with the other elements of the eANP umbrella, when selecting "Proposal Approved", the following message will be displayed:

If "No" is selected, the status remains "Send for approval". If "Yes" is selected, all PFA changes (ATS1, FIRs, etc.) will be migrated into the main e-ANP database.

The following window will appear.

Figure 3 – When integrated into other modules of e-ANP

S No.		Originator(s)	FIRs concerned	Rec'd	Circulated	Ddline	Sent for App	Approved	States informed	ANP Amdt
96/38	ATS	Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine	Tbilisi, Rostov, Simferopol, Ankara, Istanbul, Varna, Bucuresti, Odessa	04/12/1996	12/12/1996	20/01/1997	29/07/1997	17/02/1997	19/02/1997	24th
00/3	ATS/SAR	Bulgaria, Turkey	Varna, Istanbul	23/03/2000	06/04/2000	25/05/2000	07/06/2000	20/06/2000	23/06/2000	Vol 1 &2- 1st
95/40	ATS/SAR	Estonia, Lithuania, Russian Federation	Kaliningrad, Vilnius, Riga, Tallinn	20/07/1995	26/12/1995	06/02/1996	05/06/1998	19/06/1998	22/06/1998	24th Amdt 1
06/06	ATS	Finland	(All FIRs combined) Finland FIR	23/05/2005	20/02/2007	03/04/2007	04/04/2007	NOT APPROVED		
92/10	ATS/SAR /115	France	?					05/05/1993		24th
95/57	ATS	Georgia	?	21/09/1995	30/11/1995	11/01/1996	09/02/1996	28/02/1996	12/03/1996	24th
95/1	ATS	Germany	FIR Berlin, FIR Bremen, FIR Frankfurt, FIR Dusseldorf, FIR Munchen, UIR Berlin, UIR Hannover, UIR Rhein	19/12/1994	03/03/1995	24/04/1995	01/02/2000	25/02/2000	02/03/2000	Vol 1 &2- 1st
06/08	ATS	Germany	FIR Berlin, FIR Bremen, FIR Frankfurt, FIR Munchen	20/12/2005	10/02/2006	22/03/2006	13/04/2006	08/05/2006	15/05/2006	Vol 1 Amdt 5
07/01	ATS	Germany	FIR Bremen, (FIR Berlin combined in FIR Bremen), FIR Langen, (FIRs Frankfurt & Dusseldorf combined in FIR Langen), FIR Munich, UIR Rhein (UIR Berlin combined in Rhein)	06/10/2006	05/01/2007	16/02/2007	26/02/2007	02/03/2007	06/03/2007	Vol 1 Amdt 5
99/21	ATS/SAR	Lithuania	Vilnius FIR	08/04/1999	26/04/1999	16/06/1999	22/06/1999	10/12/1999		Vol 1 - 1st
99/35	ATS	Lithuania	Vilnius FIR	11/10/1999	26/01/2000	08/03/2000	13/03/2000	27/03/2000	29/03/2000	Vol 1 - 1st
98/1	ARN/ATS /MET	Sweden	FIR Sundsvall, FIR Stockholm, FIR Malmö	23/01/1998	13/05/1998	26/06/1998	11/08/1998	09/09/1998	16/09/1998	24th Amdt. 1
02/14	ATS/SAR	Sweden	(All FIR combined) Sweden FIR/UIR	17/10/2001	18/07/2002	06/09/2002	19/12/2002	29/04/2003	05/05/2003	Vol 1 Amdt 2
F02/15	ATS/MET /SAR	Sweden	(All FIR combined) Sweden FIR/UIR	17/10/2001		18/07/2002	06/09/2002		05/05/2003	Vol 2 Amdt 2
99/51	ATS/MET	Switzerland	(FIR Geneve, FIR Zurich combined) FIR Switzerland	20/09/1999	11/01/2000	11/02/2000	13/03/2000	27/04/2000	02/05/2000	Vol 1 - 1st
99/17	ATS/SAR	Ukraine	Odessa, Simferopol	12/02/1999	18/04/2000	30/05/2000	22/06/2000	07/07/2000	17/07/2000	Vol 1 - 1st

Figure 4 - Example of Report after query on all FIR boundary proposals for amendment processed by EUR/NAT

APPENDIX H

AERODROME ORIENTED DATABASE

a. Starting point – the AOP table in the Basic ANP; link to Doc7910
b. FASID Tables related to the AOP Table in BANP
    i. AOP1 (needs major review and update)
    ii. AOP2 (likely to be proposed for deletion)
    iii. CNS 2 (?)
    iv. MET 1A
    v. MET 2A
c. Common data fields (first guess)
    i. ICAO loc.ind. (CCCC)
    ii. Aerodrome name
    iii. State of aerodrome
    iv. Aerodrome designation
    v. Other Geographical data

Idea.: Consider an eAOP table with a GIS display.

APPENDIX G

FIR BOUNDARY AMENDMENT AND INFORMATION DATABASE

1. Starting point – developing new simple Table for the FIRs and the associated ACCs
2. Related FASID Tables

CNS 3
ATS 2 (VOLMET)
MET 1B (MWOs – SIGMET)
MET 3A (Tropical Cyclone Advisory Centres (TCAC) – the AoRs of the TCACs are related to the FIRs)
MET 3B (Volcanic Ash Advisory Centres (VAAC) – the AoRs of the VAACs are related to the FIRs and the ACCs)
SAR 1 (link between the FIRs/ACCs and RCCs) AIS 1 (link between the FIRs and NOTAM Offices)

3. Common data fields

FIR/ACC loc. Indicator and name (link with Doc 7910) FIR Geographical boundaries

FIR BOUNDARY AMENDMENT FACILITY

POSSIBLE ACTIONS BY USER:

1. Create new FIR
2. Modify existing FIR
3. Delete existing FIR and merge with an existing FIR
4. Rename existing FIR
5. Print
   a. Coordinates of each FIR polygon in Table format
   b. Map of selected FIRs

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

6.1 The meeting recalled that with a view to increase the efficiency of MIDANPIRG and considering the new regional planning methodologies precipitated by the Global Plan and ICAO Business Planning requirements, MIDANPIRG/10 endorsed a revised version of the MIDANPIRG Procedural Handbook, which includes, inter-alia, updated version of the MIDANPIRG Subsidiary Bodies Terms of Reference.

6.2 The meeting noted that in an effort to assist planners in weighing outcomes and making appropriate decisions, the ICAO *Manual on Global Performance of the Air Navigation System (Doc 9883)* was developed in February 2008.

6.3 The meeting noted that as the aviation industry has evolved into a less regulated and more corporatized environment with greater accountabilities, the advantages of implementing a performance-based air navigation system are becoming increasingly apparent. Consequently the meeting was of the view the CNS/ATM/IC SG should focus on desired/required results through adoption of performance objectives and assessment of achievements is periodically checked through performance review, which in turn requires adequate performance measurement and data collection capabilities.

6.4 Based on the above and in accordance with the MIDANPIRG Procedural Handbook, the meeting reviewed and update its Terms of Reference and Work Programme at **Appendix 6A** to the Report on Agenda Item 6 and agreed to the following Draft Decision:

DRAFT DECISION 4/11: REVISED TOR OF THE CNS/ATM/IC SUB-GROUP

That, the Terms of Reference and Work Programme of the CNS/ATM/IC Sub-Group are revised as at Appendix 6A to the Report on Agenda Item 6.

6.5 With regard to the date of the next meeting, it was agreed that, in accordance with the MIDANPIRG Procedural Handbook, and based on its revised Terms of Reference and Action Plan/Work Programme, the CNS/ATM IC SG/5 meeting will be held at ICAO MID Office in Cairo The exact dates will be determined by the ICAO MID Regional Office in coordination with the Chairperson of the Sub-Group in light of scheduled dates of MIDANPIRG/12. CNS/ATM/IC SG/5 will be held prior to MIDANPIRG/12 and most probably by first quarter 2010.

6.6 In accordance with the ICAO business plan and the requirements for performance monitoring, the meeting developed a draft follow-up action plan on the results of the CNS/ATM/IC SG/4 meeting as attached at **Appendix 6B** to the Report on Agenda Item 6.

COMMUNICATIONS, NAVIGATION, SURVEILLANCE/ AIR TRAFFIC MANAGEMENT/IMPLEMENTATION COORDINATION SUB-GROUP

(CNS/ATM/IC SG)

REVISED TERMS OF REFERENCE AND WORK PROGRAMME

TERMS OF REFERENCE

In accordance with the MID Region strategy for the implementation of performance objectives supported by the Global Plan Initiatives (GPIs) and, taking into consideration that the evolution from a systems-based approach to a performance-based approach should be evolutionary and consistent with the Global plan, the CNS/ATM/Implementation Coordination Sub-Group should:

Task No.	Strategic Objectives	Tasks
1	A/D/E	Ensure that the planning and implementation of air navigation systems in the region, is coherent and compatible with systems in adjacent regions, and that it is carried out within the framework of the ATM Operational Concept, the Global Air Navigation Plan and the associated Global Plan Initiatives (GPIs).
2	A/D/E	Develop and continuously update, the MID Region Implementation Plan in the light of new developments, taking into consideration the region priorities and MID States national plans.
3	D	Monitor the progress of updated studies, projects, trials and demonstrations carried out by MID States, and information available from other Regions.
4	A/D/E	Identify deficiencies and constraints that would impede implementation of the Mid regional objectives, and propose solutions that would facilitate the rectification of such deficiencies .
5	C/D	Identify the environmental effect and use the guidance provided by the Committee on Aviation Environmental Protection (CAEP) in the analysis of environmental benefits of implementing CNS/ATM systems.
6	A/D	Use the Manual on Global Performance of the Air Navigation System Doc 9883 for the Definition of the CNS/ATM performance Objective for MID Region

WORK PROGRAMME

a) review and identify intra and inter regional co-ordination issues and where appropriate recommend actions to address those issues;

b) identify the performance Objective and the supporting GPIs that most closely align with the MID Region implementation plan;

c) utilize or draw on business cases for the implementation of a global ATM system in the development of the MID regional plan;

d) provide assistance to MID States in the implementation of performance Objective , especially those related to the implementation of ATM and supporting CNS systems, that take into account the initiatives across regions, to align work programmes and to develop regional plans that facilitate achieving a Global ATM system and assist in development of National Plans;

e) suggest ways and means for rectifying the problems as they arise related to the implementation of performance Objectives ;

f) ensure that the link between planned activities, organizational cost and performance assessment is well established;

g) review the tables contained in the MID ANP and FASID, in order to facilitate the coordination of the planning process to maximize their usefulness;

h) monitor studies, demonstrations, trials and test beds carried out by MID States, related to technologies such as GNSS, ADS, CPDLC;

i) identify sub-regional areas, where there is a positive cost/benefit for implementation of ADS-B and other technologies; and

j) support the cost-effective early implementation of packages of ground and airborne ADS-B applications.

COMPOSITION

The Sub-Group will be composed of the:

a) MID Region Provider States; and

b) ACAC, IACA , IATA, IFALPA, IFATCA , and SITA, as observers.

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

CNS/ATM/IC SG/4
FOLLOW-UP TO CNS/ATM/IC SG/4 CONCLUSIONS/DECISIONS - ACTION PLAN

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Draft Conc. 4/1	Regional Performance Framework	That, a) a regional performance framework be adopted on the basis of and alignment with the Global air Navigation Plan, the Global ATM Operational Concept, and ICAO guidance material and planning tools. The performance framework should include the identification of regional performance objectives and completion of regional performance objectives and completion of regional performance framework forms; and b) ALLPIRG/5 Conclusion 5/2: Implementation of Global Plan Initiatives (GPIs, be incorporated into the terms of reference of the MIDANPIRG subsidiary bodies.	Approval of performance framework Implement performance objectives	MIDANPIRG/ 11 States	Approved Regional Performance objectives Performance Framework Forms Report of CNS/ATM/IC SG/5	Feb 2009 Jan 2010
Draft Conc. 4/2	National Performance Framework	That MID States be invited to adopt a national performance framework on the basis of ICAO guidance material and ensure their alignment with the regional performance objectives, the Regional Air Navigation Plan and the global ATM Operational Concept. The performance framework should include identification of national performance objectives and completion of national performance framework forms.	Notify States Implement	ICAO MID Office States	State Letter States National Performance Framework Forms	Mar 2009 Jan 2010

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Draft Conc. 4/3	Establishment of MID-FANS Implementation Team	That, MID-FIT is established with similar TOR to other FIT teams in order to foster the data link implementation in the MID region considering the BOB-FIT material in **Appendix 4E** to the Report on Agenda Item 4.	Notify States	ICAO MID Office	State Letter MID-FIT Report	Mar 2009 Jan 2010
Draft Conc. 4/4	Introduction of FANS 1/A Capabilities in the MID Region	That, MID States, in coordination with users, are encouraged to consider implementing FANS 1/A (ADS-C/CPDLC) as communication system satisfying RCP as appropriate to the desired operational outcome.	Follow-up on implementations activities	States Users Data link service providers	FANS 1/A implementation Feed Back from States and users	Nov 2009
Draft Conc. 4/5	MID-FIT Immediate Tasks	That, a) MID States, appoint the members to the MID-FIT and do all possible to participate in the Iridium trials in spring 2009; and b) MID-FIT, reschedule all the tasks that were not done under AFIG and use the material from other ICAO Regions to for the preparations of the MID Region documentation.	Join the trial Perform the task	ICAO States	State Letter To member States and concerned organizations Mid fit members MID-FIT Report	Mar 2009 Apr 2009 Jan 2010

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Draft Conc. 4/6	GNSS Studies in MID Region	That, a) ICAO MID Regional Office Communicate with GSA/ESA to provide more support and detailed studies on EGNOS Extension to the MID Region; b) MID States able to support the cost benefit analysis to provide same to PBN/GNSS TF for the whole region benefits; and c) MID States and organizations share experience on GNSS	Follow-up State Letter Support to CB Sharing Exp.	ICAO MID States Lead by Saudi Arabia MID States	State Letter CBA Report WP/IP , posting of experience on forum	Mar 2009 Dec 2009 Ongoing
Draft Conc. 4/7	Strategy for the Implementation of GNSS in the MID Region	That, the Revised Strategy for implementation of GNSS in the MID Region is adopted as at **Appendix 4F** to the Report on Agenda 4.	Implement Strategy	States and users	PBN/GNSS TF/2 Report	Dec 2009
Draft Conc. 4/8	Implementation of the New ICAO Model flight Plan form	That, MID States, in order to comply with Amendment No. to the 15th Edition on the PANS-ATM (Doc 4444), a) establish a study group to develop the technical audit guidance material and prepare a regional Strategy for the transition; b) implement the new ICAO Model Flight Plan form by applicability date; and c) the study group follow the performance framework in **Appendix 4H** to the Report on Agenda Item 4.	State Letter	ICAO MID Office States Study group	MDANPIRG/11 State Letter Members of the Group MID Guidance material	Feb 2009 Apr 2009 Dec 2009

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Draft Conc. 4/9	MID TC Project	That, a) TC project document be prepared by ICAO (jointly by the Technical Cooperation Bureau and the MID Regional Office, for the following deliverable: - Finalization and implementation cost for IFPS - Hardware and software requirements for implementing flight plan model - Requirement for implementation of MID ATN Network with cost model - Implementation of FPO b) MID States provide their commitment status towards the project after 1 month from receiving the document.	Proposal Document	MIDANPIRG/ 11 ICAO / States States	Office Established Project document Commitment to project	Feb 2009 Jun 2009 Jul 2009
Draft Conc. 4/10	MID Region Strategy for the implementation of ADS-B	That, the MID Region Strategy for the implementation of ADS-B to be amended as **Appendix 5D** to the Report on Agenda Item 5.	Implement Strategy	States, Users	CNS/ATM/IC SG/5 Report	Jan 2010
Draft Dec. 4/11	Revised TOR of the CNS/ATM/IC Sub-Group	That, the Terms of Reference and Work Programme of the CNS/ATM/IC Sub-Group are revised as at **Appendix 6A** to the Report on Agenda Item 6.	Follow up the work programme	CNS/ATM/IC SG	CNS/ATM/IC SG/5 Report	Jan 2010

CNS/ATM/IC SG/4
Report on Agenda Item 7

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

7.1 Under this Agenda Item, the meeting thank Mr. Mohammed Al-Alawi, Chairperson and Mr. Mohamed Thamer Al-Kaabi, Vice Chairperson of the CNS/ATM/IC SG for their valuable contribution towards the work of the Sub-Group.

7.2 The deputy regional director thanks the States and organizations present and encouraged States to contribute by submitting Working Papers and Information Papers.

7.3 The chairman thanked the participants for their valuable inputs and the meeting thank the chairperson for the orderly running of the meeting.

CNS/ATM/IC SG/4
Attachment A to the Report

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