INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF THE SECOND MEETING OF
THE COMMUNICATION NAVIGATION
AND SURVEILLANCE SUB-GROUP**

CNS SG/2

(Cairo, 28 – 30 October 2008)

The views expressed in this Report should be taken as those of the MIDANPIRG Communication Navigation and Surveillance Sub-Group and not of the Organization. This Report will, however, be submitted to the MIDANPIRG and any formal action taken will be included in the Report of the MIDANPIRG.

Approved by the Meeting

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PART I: HISTORY OF THE MEETING

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PART I - HISTORY OF THE MEETING

1.   PLACE AND DURATION

1.1   The Second Meeting of the MIDANPIRG Communication Navigation and Surveillance Sub-Group (CNS SG/2) was held at ICAO Middle East Regional Office, Cairo, 28 - 30 October 2008.

2.   OPENING

2.1   Mr. Jehad Faqir ICAO Deputy Regional Director, welcomed all the delegates to ICAO MID Regional Office and to Cairo, highlighting the important topics that the meeting will address especially the development of the MID Region performance objective for which all participants need to actively contribute with their thoughts. Mr. Faqir informed the meeting that for the realization of a performance based Global ATM system, the ICAO has made significant progress in the development of relevant guidance material. The intent of the guidance material is to promote a globally harmonized approach to transition planning and to ensure collaboration in developing air navigation systems and procedures.

2.2   In his opening remarks Mr. Faqir also indicated the other topic which the meeting will address in particular the new ICAO flight plan model and the developments in the SARPS and reminded the delegates about their role in the meeting, as experts. To this end, he urged the participants to work in the interest of the Region and wished the meeting every success in its deliberations.

2.3   Chief Communications Navigation and Surveillance/Aeronautical Information Resource Services (CNS/AIRS) also expressed his pleasure to attend and support the meeting for the first time indicating the importance of the MID Region being an Interface Region, he had highlighted the region focus on the data link services and the capitalization on the young fleet in the MID Region.

3.   ATTENDANCE

3.1   The meeting was attended by a total of twenty-four (24) participants, which included delegates from seven (7) States and three (3) organizations. The list of participants is as at **Attachment A** to the report.

4.   OFFICERS AND SECRETARIAT

4.1   The meeting was chaired by Mr. Ali Ahmed Mohamed Director Air Navigation, Civil Aviation Affairs, from Kingdom of Bahrain. Mr. Raza Ali Gulam, Regional Officer, Communications Navigation and Surveillance (CNS) from the ICAO Middle East Cairo Office, was Secretary of the meeting supported by Mr. Jim Nagle Chief CNS/AIRS ICAO Headquarters.

5.   LANGUAGE

5.1   The discussions were conducted in English. Documentation was issued in English.

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6. **AGENDA**

6.1   The following Agenda was adopted:

Agenda Item 1:   Adoption of the Provisional Agenda

Agenda Item 2:   Follow-up the MIDANPIRG, MSG/1 and CNS SG/1 Conclusions and Decisions relevant to CNS

Agenda Item 3:   Review and update of AFTN CIDIN Directory and CNS part of MID ANP and FASID

Agenda Item 4:   Review of the Global Air Navigation Plan matters relevant to CNS and follow- up Status of Implementation

Agenda Item 5:   Review of the CNS Deficiencies in the MID Region

Agenda Item 6:   Developments in CNS field and review of CNS activities in the MID Region

Agenda Item 7:   Develop CNS Performance Objective for MID Region

Agenda Item 8:   Future Work Programme

Agenda Item 9:   Any other business

7. **CONCLUSIONS AND DECISIONS – DEFINITION**

7.1   The Sub-Group records its actions in the form of Draft Conclusions and Draft Decisions for further action and adoption by the MIDANPIRG as its 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.

7.2   In the same context, the Sub-Group can record its actions in the form of Conclusions and Decisions where no further action is required by the MIDANPIRG or already authorized by MIDANPIRG.

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8. LIST OF 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 FLIGHT PLAN MODEL

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

PART II: REPORT ON AGENDA ITEMS

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REPORT ON AGENDA ITEM 1:   ADOPTION OF THE PROVISIONAL AGENDA

1.1   The meeting was presented with the Provisional Agenda and was informed that it was established in support of the ICAO Strategic Objectives 2005-2010. The Provisional Agenda focuses on the development of the MID performance Objectives outcomes with particular attention on the Infrastructure part the agenda also addresses harmonized implementation of the CNS services in the MID Region, identification and reporting of deficiencies and increasing the efficiency of the group in fulfilling its tasks determined by MIDANPIRG.

1.2   After review the meeting adopted the Agenda as shown in paragraph 6 of the History of the Meeting.

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Report on Agenda Item 2

REPORT ON AGENDA ITEM 2: **FOLLOW-UP ON MIDANPIRG/10, MSG/1 AND CNS SG/1 CONCLUSIONS AND DECISIONS RELEVANT TO CNS**

2.1   The meeting recalled MIDANPIRG/10 Conclusions/Decisions related to CNS and noted these were also reviewed and update by CNS SG/1 Cairo, Egypt 03-05 December 2007, furthermore the meeting recalled that CNS SG/1 developed 11 draft conclusions and decisions.

2.2   The meeting noted that the MIDANPIRG Steering Group (MSG/1) meeting 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).

2.3   The meeting noted that MSG/1 meeting 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.

2.4   The meeting recalled CNS SG/1 draft conclusion 1/10 and noted that CNS SG/1 had updated the MID Region Strategy for the implementation of the ADS-B, during the review of the APANPIRG 16 the ANC agreed that the implementation of the ADS-B would required 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 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.

2.5   Consequently the meeting agreed to add that above compliance requirement to the MID Region Strategy for the implementation of the ADS-B and the revised Strategy is at **Appendix 2A** to report on Agenda item 2 and agreed to the following Draft Conclusion which will replace and supersede MIDANPIRG/10 conclusion 10/15:

> ***DRAFT CONCLUSION 2/1***   ***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 2A** to the report on Agenda Item 2.*

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2.6   With regard to CNS SG/1 Draft Conclusions 1/4 and 1/5 the meeting was of the view that the National Plans and project management methodology would be captured using the process of the development of the region and States performance Objectives described within the new ICAO Template for Performance Framework.

2.7   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 related Conclusions and Decisions of MIDANPIRG/10, CNS SG/1 and MSG/1 as at **Appendix 2B** to the report on Agenda Item 2.

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.

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Appendix 2B to the Report on Agenda Item 2

FOLLOW-UP ON MIDANPIRG, CNS SG/1 AND MSG/1 CONCLUSIONS AND DECISIONS RELEVANT TO CNS

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Conc 10/7 D	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
Conc 10/13 A, C, D, E	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) is 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	Sept 2008
Conc 10/14 A, C, D, E	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	Follow up progress on each project	ICAO States MIDANPIRG Subsidiary bodies	- Feed back on each project	Sept 2008

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
		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; 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;				

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
		o) enhancement of Runway incursion prevention programme; and p) enhancement of surface movement guidance and control systems (SMGCS) at MID Aerodromes.				
Conc 10/15 A/D/E	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/1	Sept 2008 Sept 2008 Nov. 2008
Conc 10/16 A/D/E	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
	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/1 CNS/ATM/IC ATM/SAR/AI S	- State Letter - Survey Replied - Analysis of Result	Jun. 2007 Sept. 2007 Dec. 2007

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Conc 10/18 D	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/IC SG	- State Letter - Updated list of focal points - Regulatory framework definition - Study finalized	Jun. 2007 Sept 2007 Sept 2008 TBD
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 recommenda-tion	Aug. 2007 Sept. 2007 Nov. 2007
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

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
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
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
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
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

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Dec 10/69 D	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
Dec 10/70 D	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
Conc. 10/76 D	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
Conc. 10/77 A	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	Follow-up implementation of the conclusion	States ICAO Users IFFAS	- Concerned States eliminate their air navigation deficiencies	Nov. 2008

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
		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).				
Dec 10/84 A, D	Change of Air Navigation Safety Working Group to Air Navigation Safety Sub-Group	That, a) the Air Navigation Safety Working Group (ANS WG) is changed to Air Navigation Safety Sub-Group (ANS SG); and b) the Terms of Reference and Work Programme of the ANS Sub-Group are updated accordingly.	Update of MIDANPIRG Procedures Handbook & TOR	ICAO	- Changing Group name and approval of TOR	
Draft Conc. 1/1 A, D	Future Support for ICAO Position with Regard to WRC	That, a) MID States are to participate in the Ad-Hoc Action Group and to nominate their experts; b) 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 World Radiocommunication Conferences in order	State letter Follow-up Work Programme and Developments	ICAO MID Office States Adhoc group	Delegate Names Group Report	June 08 Oct 09

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
		to highlight areas of interest to the MID States; and c) 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.	Prepare Supporting documents	States	Supporting Document and meetings	Oct 09
Draft Conc. 1/2 A, D	Implementation of the Rationalize AFTN Plan	That MID States, a) are urged to complete the implementation of MID Rationalized AFTN Plan; and b) having difficulties in completing the implementation, to report to the ICAO MID Regional Office.	Follow up progress	ICAO MID Office States	State letter Replies	June 08 Oct 08
Draft Conc. l/3 D	MID Region reserve band for AMS data links	That, in view of the MID Region progress on the implementation of air-ground data links VHF frequency band 136MHz to 137MHz is to be reserved for AMS for data link communication usage only.	Implement Strategy	States ICAO MID Office	Update MID FASID	On going
Draft Conc. 1/4 A, D	National CNS Plan	MID States are urged to align their national CNS plans to be in harmony with Regional plan and submit to MID office.	Prepare Plans	States	CNS plans	Dec 08
Draft Conc. 1/5 D	Project Management Methodology	MID States are encouraged to use the project management methodologies for the implementation of the CNS projects which will help to define dates and deliverables.	Follow- methodology	States	Project Document	Dec 08
Draft Conc. 1/6 A, D	Implementation of AMHS	That, MID States implementing AMHS will have the AFTN/AMHS gateway where needed to ensure the interoperability of AFTN and CIDIN stations and networks with ATN.	AMHS Plans	IPS WG	AFTN/AMHS gateway Plan	Oct 08

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. 1/7 D	Default MID Region Network Protocol	That the MID Region ATN shall: a) be based and use the Internet Protocol Suite (IPS) as the default networking protocol; and b) provide communication in accordance with the prescribed required communication performance (RCP) (Manual on Required Communication Performance (RCP) Doc 9869).	Implement IPS Networks Follow-up RCP	States CNS SG	States Plan Region Plan States A/G Plan	On going Oct 08
Draft Conc. 1/8 D	Establishment of an Internet Protocol Suite (IPS) Working Group	That, for development of documents for the usage of public Internet activity and MID Region ATN development Plan an IPS Working Group is established with Terms of Reference as at Appendix 5D to the report on Agenda Item 5.	Follow-up work programme	IPS WG	MID region ATN Planning Doc Internet usage guide Rationalize AFTN plan	Oct 08
Draft Conc. 1/9 A, D	MID VSAT Project Finalization	That MID States, a) provide comment to the DoA document by 05 February 2008; b) define their clear near/long term status towards the project; c) advise whether to continue with the project or not; and d) States willing to implement VSAT under MID Vsat to advise ICAO MID Office if any support needed.	States reply	States	Reply to DoA	Feb 08
Draft Conc. 1/10 D	MID Region Strategy for the Implementation of ADS-B	That MID Region, Strategy to be modified as at Appendix 7A to the report on Agenda Item 7.	Implement Strategy	Users / States CNS SG CNS/ATM/IC	Feed Back	On Going
Draft Dec. 1/11 A, D	Revised TOR of the CNS Sub-Group	That, the Terms of Reference and Work Programme of the CNS Sub-Group be updated as at Appendix 9A to the report on Agenda Item 9.	Follow-up work programme	CNS SG		Oct 08

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. 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

Conc/Dec No. --- Strategic Objective	Title of Conclusion/Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date
Draft Dec. 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
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

REPORT ON AGENDA ITEM 3:   REVIEW AND UPDATE OF AFTN/CIDIN DIRECTORY AND CNS PART OF MID ANP AND FASID

3.1   The meeting reviewed the AFTN/CIDIN Directory and participants were reminded that the directory needs to be kept updated on regular basis. Bahrain, Egypt, and Saudi Arabia provided updates for inclusion in the directory during the meeting, the updated routing directory is at **Appendix 3A** to the report on Agenda Item 3.

3.2   The meeting encouraged States to continue using high speed circuits between MID States centers using the state of art digital technology and keep pace for implementing these high speed digital circuits links that will facilitate the transition to ATN-IPS.

3.3   The meeting recalled CNS SG/1 draft Conclusion 1/2 Implementation of Rationalized AFTN Plan and was of the view that the Rationalized AFTN Plan needs a thorough review which requires special expertise on regional level.

3.4   With the recent development and the transition of the Global ATM system from system based to performance based, the meeting agreed that the IPS WG conduct the review of Rationalized AFTN Plan by performing an assessment to transition to an IPS based system to replace AFTN capable of supporting existing AFTN function while developing a transitional plan incorporating operational procedures applicable to the operation and use of both the AFTN and AMHS.

3.5   Based on the above the meeting revised the list of the member of the IPS WG and considered the appointment of the Rapporteur for the WG Mr. Mohammed Ali Saleh from Bahrain the updated list of the IPS WG member is at **Appendix 3B** to the report on Agenda Item 3.

3.6   The meeting encouraged all States that have not nominated a member to expedite the nomination to the ISP WG with the objective of having a representative from each State of the region since the work of the IPS WG is of paramount importance for the MID region to move forward with the harmonized implementation of an IPS based ATN.

3.7   The meeting further agreed that effort of the IPS WG would continue with the current members and the TOR and work programme as agreed by the meeting which is at **Appendix 3C** to the report on Agenda Item 3.

3.8   The meeting agreed that the current ATN planning document will be posted on the forum so that all members contribute to the development of the needed plan and the members of the IPS WG to meet in the near future as feasible.

3.9   Based on the above the meeting agreed to the following Draft Decisions:

> *DRAFT DECISION 2/2:*   *IMPLEMENTATION OF THE RATIONALIZE AFTN PLAN*
>
> *That Internet Protocol Suite (IPS) WG review the Rationalized AFTN Plan by performing an assessment to transition to an IPS based system.*

DRAFT DECISION 2/3:   *ESTABLISHMENT OF AN INTERNET PROTOCOL SUITE (IPS) WORKING GROUP*

*That, an IPS Working Group is established with Terms of Reference as at **Appendix 3C** to the report on Agenda Item 3.*

3.10   The meeting noted with concern the request of Saudi Arabia for incorporating the Jeddah-Nicosia CIDIN circuit into the MID Region rationalized AFTN Plan and agreed that Saudi Arabia will provide the background for the establishment of the circuit and the agreement with the European Region along with the traffic data justifying the establishment of the circuit.

3.11   The meeting was further advised that ICAO guidance material on IPS has been completed and it is available at the ACP website URL.

3.12   The meeting noted that the Basic ANP and FASID are planning documents and may not necessarily reflect the existing facilities and services, therefore these documents are not to be used for operational purposes. The existing facilities and services should be shown in the AIPs published by States.

3.13   The meeting reviewed the current CNS part of the MID BASIC ANP and FASID and States agreed to provide updates to ICAO MID Regional Office within two weeks in order to incorporate the data with the next proposal for amendment that will be circulated by ICAO MID Office as per the established procedure.

INTERNATIONAL CIVIL AVIATION ORGANIZATION
MIDDLE EAST OFFICE

Routing Directory for

AFTN and CIDIN Centres

in the MID Region

Version 0.3 -October 2008

Table of COM Centres

(listed in alphabetical order by COM Centre location indicator)

Location Indicator	Located	State	Table name
HECA	Cairo	Egypt	HECA
OAKB	Kabul	Afganistan	OAKB
OBBI	Bahrain	Bahrain	OBBI
OEJD	Jeddah	Saudi Arabia	OEJD
OIII	Tehran	Iran	OIII
OJAM	Amman	Jordan	OJAM
OKBK	Kuwait	Kuwait	OKBK
OLBA	Beirut	Lebanon	OLBA
OMAE	Abu Dhabi	U.A.E.	OMAE
OOMS	Muscat	Oman	OOMS
OPKC	Karachi	Pakistan	OPKC
ORBI	Bagdad	Iraq	ORBI
OSDI	Damascus	Syria	OSDI
OTBD	Doha	Qatar	OTBD
OYSN	Sanaa	Yemen	OYSN

(listed in alphabetical order by State name)

State	Location Indicator	Located	Table name
Afganistan	OAKB	Kabul	OAKB
Bahrain	OBBI	Bahrain	OBBI
Egypt	HECA	Cairo	HECA
Iran	OIII	Tehran	OIII
Iraq	ORBI	Bagdad	ORBI
Jordan	OJAM	Amman	OJAM
Kuwait	OKBK	Kuwait	OKBK
Lebanon	OLBA	Beirut	OLBA
Oman	OOMS	Muscat	OOMS
Pakistan	OPKC	Karachi	OPKC
Qatar	OTBD	Doha	OTBD
Saudi Arabia	OEJD	Jeddah	OEJD
Syria	OSDI	Damascus	OSDI
U.A.E.	OMAE	Abu Dhabi	OMAE
Yemen	OYSN	Sanaa	OYSN

1. Explanation of the Tables
(Remark: All tables show examples and do not reflect the real situation)

1.1. Information (COM Centre Characteristic Table)
The COM Centre Characteristic Table gives an overview about operational, technical and administrative information of the COM Centre itself.

1.2. AFTN Routing table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	WS	OO		
B	LCNCA	(OE)		
C	LCNCA	(OE)		
D*	OE	OO		
DT	HE	(LCNCA)	HECAA	LCNCA

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	WS	OO		
OB	N	N		
OE*	OE	OO		
OED	OED	(OE)		
OI	OI	OM		

Desti-nation   First letters of an AFTN address (8 letter address) relevant for the Routeing
D*   All destination addresses starting with D except those indicated directly below (DT)
DT   Destination addresses starting with DT

Actual Main   Actual main outgoing AFTN circuit or CIDIN Ax for this Destination address used actual in the AFTN/CIDIN Centre
WS   Represents the outgoing AFTN circuit
LCNCA   Defined Exit address (Ax) for the Destination address (Ad) starting with these letters
N   Represents the national Routing responsibility

Actual Altn.   Alternate outgoing AFTN circuit or CIDIN Ax for this Destination address used if the Main is not available.
(OE)   Represents the outgoing AFTN circuit as Alternate
(LCNCA)   Defined the Exit address (Ax) as alternate for the Destination address (Ad)
N   Represents the national Routing responsibility

(Terms in brackets: For the use of the Exit Address or the AFTN circuit as alternate, co-ordination is required).

Planned Main   Planned to replace the Actual Main in the future on a defined date
Planned Altn.   Planned to replace the Actual Alternate in the future on a defined date

1.3. CIDIN Routing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA_	OLBA	LCNC	HECA	OLBA
LCNC_	LCNC	OLBA		

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG

CIDIN Exit Address   First four letters of the Exit addresses (Ax) relevant for the selection of connection to be used.

Actual Main VCG   Shows the first outgoing direction (main connection path to an adjacent COM Centre) used at first or reaching the Exit centre (Ax). This path is represented by a Virtual Circuit Group (VCG), see 5.4.
Actual Altn. VCG   Shows the alternate outgoing direction (main connection path to an other adjacent COM Centre) used in case of unavailability of the main VCG for reaching the Exit centre (Ax). This path is represented by a Virtual Circuit Group (VCG), see 5.4.

(Terms in brackets: For the use of the Actual Alternate VCG, co-ordination is required.)

Planned Main VCG   Planned to replace the Actual Main VCG in the future on a defined date.
Planned Altn. VCG   Planned to replace the Actual Alternate VCG in the future on a defined date.

1.4. Virtual Circuit Groups (VCG)

Actual VCG	Actual Prim.VC	Actual Secondary VC's		
LCNC	LCNC1			
OLBA	OLBA			

Planned VCG	Planned Prim.VC	Planned Secondary VC's		
HECA	HECA1			
		OLBA		

Actual VCG   A Virtual Circuit Group consists of a number of Virtual Circuits (VC) that connect two, and only two CIDIN Centres. A Primary-type VC is always present and a Secondary-type VC is optional. Within this group, the selection of the VC is local matter. VC groups form redundant connections between adjacent CIDIN Centres.

Actual Primary VC   Primary Virtual Circuit, established actual either as a PVC (Permanent Virtual Circuit) or SVC (Switched Virtual Circuit). In case of SVC no Secondary Virtual Circuits are recommended.

Actual Secondary VC's   Actual Secondary VC's: Secondary Virtual Circuits, established actual either as a set of PVC (Permanent Virtual Circuit) and/or a SVC (Switched Virtual Circuit). There is no maximum limit to the number of PVC's forming a VCG.

Planned Primary VC   The planned Primary Virtual Circuit will replace the Actual Primary VC in the future on a planned date.

Planned Secondary VC's   The planned Secondary Virtual Circuits will replace the Actual Alternate VC (see below).

1.5. Circuit Characteristics

Situation recorded in Nov 1998		
Link to	Protocol	Capacity (bps)
HECA	AFTN	2 x 2.4k
OLBA	CIDIN	1 x 9.6k
OKBK	AFTN	1 x 300
OOMS	AFTN	1 x 50
VTBB	AFTN	1 x 2.4k

Planned		
Protocol	Capacity(bps)	"O" date
CIDIN	1 x 9.6k	TBD

Link to   Connection to the COM Centre represented by the location indicator.

Protocol   Protocol used actual on this link (conventional AFTN, AFTN over X.25, CIDIN via PVC or CIDIN via SVC).

Capacity (bps)   Actual capacity available (bit per seconds). An asterisk (*) indicates a network connection.

Planned Protocol   Protocol planned to be used on the upgraded/new link.

Capacity (bps)   Planned capacity of the link (bit per seconds).

"O" date   Planned operational date of the upgraded/new link.

OAKB - Kabul - Afghanistan

Information

Operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OAKB - Kabul - Afghanistan

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	VI	OI			OA	N	N		
B	OI	VI			OB	OI	VI		
C	OI	VI			OE	OI	VI		
D	OI	VI			OI	OI	VI		
E	OI	VI			OJ	OI	VI		
F	OI	VI			OK	OI	VI		
G	OI	VI			OL	OI	VI		
H*	OI	VI			OM	OI	VI		
HA					OO	OI	VI		
HC	OI	VI			OP	OP	OI		
HD	OI	VI			OR	OI	VI		
HE	OI	VI			OS	OI	VI		
HH					OT	OI	VI		
HL	OI	VI			OY	OI	VI		
HS	OI	VI			P	VI	OI		
K	OI	VI			R	VI	OI		
L*	OI	VI			S	OI	VI		
LB	OI	VI			T	OI	VI		
LL					U	VT	VI		
LT	OI	VI			V*	VI	OI		
M	OI	VI			VA	VI	OI		
N	VI	OI			VE	VI	OI		
					VI	VI	OI		
					VN	VI	OI		
					VO	VI	OI		
					W	VI	OI		
					Y	VI	OI		
					Z	VI	OI		

OAKB - Kabul - Afghanistan

Circuit Characteristics

Situation recorded in March 2001			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date

OBBI - Bahrain - Bahrain

Information

Operator:	
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CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	---
SITA:	BAHAPYF

Technical operator:	
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- -	+973 17883621
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CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	---
SITA:	---

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CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	---
SITA:	BAHAPYF

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CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	---
SITA:	---

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Email:	aliahmed@bahrain.gov.bh
AFTN:	OBBIYTYX
CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	--
SITA:	BAHAPYF

Postal Address:
CIVIL AVIATION AFFAIRS
AIR NAVIGATION DIRECTORATE
P.O.BOX: 586
MUHARRAQ
BAHRAIN

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OBBIA
AFTN OPM/NM:	OBBIM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA	Yes	

OBBI - Bahrain - Bahrain

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	WS	OO			OA	OKBK	OO		
B	LCNCA	OE	LCNCA	OLBAA	OB	N	N		
C	LCNCA	OE	LCNCA	OLBAA	OE*	OE	OO		
D	OE	OO			OED	OED	OE		
E	LCNCA	OE	LCNCA	OLBAA	OI	OI	OMAEA		
F	OE	OO			OJ	OE	OLBAA		
G	OE	OO			OK	OK	OLBAA		
H*	OE	OO			OL	OLBAA	OK		
HA	OE	00			OM	OMAEA	OO		
HC	OE	OO			OO	OO	OE		
HD	OE	OO			OP	OK	OE		
HE	OE	OO			OR	OLBAA			
HH	OE	OO			OS	OLBAA	OK		
HL	OE	OO			OT	OT	OK		
HS	OE	OO			OY	OE	OO		
K	LCNCA	OE	LCNCA	OLBAA	P	LCNCA	OE	LCNCA	OLBAA
L*	LCNCA	OE	LCNCA	OLBAA	R	WS	OO		
LB	LT	LCNCA			S	LCNCA	OLBAA	LCNCA	OLBAA
LL					T	LCNCA	OLBAA	LCNCA	OLBAA
LT	LT	LCNCA			U	LC	OE		
M	LCNCA	OE	LCNCA	OLBAA	V*	WS	OO		
N	WS	OO			VA	OO	OE		
					VE	OO	OE		
					VI	OO	OE		
					VN	OO	OE		
					VO	OO	OE		
					W	WS	OO		
					Y	WS	OO		
					Z	OO	OE		

OBBI - Bahrain - Bahrain

CIDIN Routing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA	OLLL	LCNC							
LCNC	LCNC	OLLL							
OBBI	LCNC	OLBA							
OLBA	OLLL	LCNC							
OMAE	OMAE								
OEJN	OEJN	LCNC							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
LCNC	LCNC1								
OLLL	OLLL1								
OMAE	OMAE1								

OBBI - Bahrain - Bahrain

Circuit Characteristics

Situation recorded in October 2008			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
LCNC	CIDIN	1 x 9.6K			
LTAA	AFTN	1 x 50			
OEDF	AFTN	1 x 50	AFTN	1 x 9.6K	IV/2005
OEJD	CIDIN	1 x 64K			
OIII	AFTN	1 x 300			
OKBK	AFTN	1 x 9.6K			
OLBA	CIDIN	1 x 9.6K			
OMAE	CIDIN	1 x 9.6K			
OOMS	AFTN	1 x 9.6K	AFTN		
OTBD	AFTN	1 x 9.6K			
WSSS	AFTN	1 x 9.6K	AFTN		

HECA - Cairo - Egypt

Information

Operator:

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- -	202 2654006
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CIDIN/OPMET:	
SITA:	CAIXYYF

Technical operator:

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Telex:	
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AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:

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Fax:	202 2678546
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CIDIN/AFTN:	HECAM
CIDIN/OPMET:	
SITA:	CAIXYYF

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CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:

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CIDIN/AFTN:	HECAM
CIDIN/OPMET:	
SITA:	CAIXYYT

Postal Address:

National Air Navigation Services
Company
Cairo Air Navigation Centre
Cairo Airport Road
Cairo, Egypt

CIDIN Entry/Exit Addresses:

AFTN Ae/Ax:	HECAA
AFTN OPM/NM:	HECAM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:

Functions:

Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA	Yes	

HECA - Cairo - Egypt

AFTN Routing Table

Desti- nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti- nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OEJNA	LGGGA			L*	LGGGA	OLBAA		
B	LGGGA	OLBAA			LA	LGGGA	OLBAA		
C	LGGGA	OLBAA			LI	LGGGA	OLBAA		
D	DT	LGGGA			LL	LL	LGGGA		
EB	LGGGA	OLBAA			LM	LGGGA	OLBAA		
ED	LGGGA	OLBAA			M	LGGGA	OLBAA		
EE	LGGGA	OLBAA			N	OEJNA	OLBAA		
EF	LGGGA	OLBAA			OA	OLBAA	LGGGA	OBBIA	
EG	LGGGA	OLBAA			OB	OEJNA	OLBAA	OBBIA	
EH	LGGGA	OLBAA			OE	OEJNA	LGGGA		
EI	LGGGA	OLBAA			OJ	OJ	OE		
EK	LGGGA	OLBAA			OI	OLBAA	LGGGA	OBBIA	
EL	LGGGA	OLBAA			OK	OLBAA	LGGGA		
EN	LGGGA	OLBAA			OL	OLBAA	LGGGA		
EP	LGGGA	OLBAA			OM	OLBAA	LGGGA		
ES	LGGGA	OLBAA			OO	OEJNA	LGGGA		
ET	LGGGA	OLBAA			OP	OLBAA	LGGGA		
EV	LGGGA	OLBAA			OR				
EY	LGGGA	OLBAA			OS	OS	OJ		
F*	HK	OEJNA			OT	OLBAA	LGGGA	OBBIA	
FH	LGGGA	OLBAA			OY	OE	LGGGA		
FJ	LGGGA	OLBAA			P	OLBAA	LGGGA		
G	DT	LGGGA			R	OEJNA	LGGGA	OBBIA	
H*	HK	OEJNA			S	LGGGA	OLBAA		
HA	OEJNA	HK			T	LGGGA	OLBAA		
HC	HK	OEJNA			U	LGGGA	OLBAA		
HD	OEJNA	HK			V	OLBAA	LGGGA	OBBIA	
HE	N	N			W	OEJNA	LGGGA	OBBIA	
HH	HHAS	HK			Y	OEJNA	LGGGA	OBBIA	
HL	HL	DT			Z	OLBAA	LGGGA	OBBIA	
HS	HS	OEJNA							
K	LGGGA	OLBAA							

HECA - Cairo - Egypt

CIDIN Routing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA_									
LGGG_	LGGG	OLBA							
OLBA_	OLBA	LGGG							
OEJN	OEJN	LGGG							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
LGGG	LGGG1								
OLBA	OLBA1								
OEJN	OEJN1								

HECA - Cairo - Egypt

Circuit Characteristics

Situation recorded in October 2008			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
DTTC	AFTN	1 x 100	AFTN	1 x 1200	2005
HKNA	AFTN	1 x 9.6 K	AFTN	9.6K	2006
HLLT	AFTN	1 x 9.6 K			
HSSS	AFTN	1 x 9.6 K			
LGGG	CIDIN	1 x 9.6 K			
LLBG	AFTN	1 x 50			
OEJD	CIDIN	1 x 64 K			
OJAM	AFTN	1 x 9.6 K			
OLBA	CIDIN	1 x 9.6 K			
OSDI	AFTN	1 x 50			
HHAS	AFTN	1 x 9.6 K			

OIII - Tehran - Iran

Information

Operator:

Phone:	0098 21-91022325
- -	
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	
AFTN:	OIIIYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Technical operator:

Phone:	0098 21-91022330
- -	
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	
AFTN:	OIIIYTYC
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Supervisor:

Name:	Abutaleb Mosaie
Phone:	0098 21-9122330
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	alicom64@hotmail.com
AFTN:	OIIIYTYC
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Technical supervisor:

Name:	Gholamali Barzegari Naeini
Phone:	0098 21-6036645
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	AFTN@IRAFTN.COM
AFTN:	OIIIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Management:

Name:	Gholamali Barzegari Naeini
Phone:	0098 21-6036645
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	AFTN@ARAFTN.COM
AFTN:	OIIIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Postal Address:

Civil Aviation Organization
P.O. Box 1798, 13445
Mehrabad Intl Airport
Tehran
Islamic Republic of Iran

CIDIN Entry/Exit Addresses:

AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:

Functions:

Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET	Yes	
SITA	Yes	

OIII - Tehran - Iran

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OB	OP	OB	OP	OA	OK	OP	OP	OK
B	LT	OB	LT	OB	OB	OB	OM	OB	OM
C	LT	OB	LT	OB	OE	OB	OM	OB	OM
D	OK	OB	OB	OK	OI	N	N	N	N
E	LT	OB	LT	OB	OJ	OS	OB	OS	OB
F	OK	OB	OB	OK	OK	OK	OB	OK	OB
G	OK	OB	OB	OK	OL	OB	OK	OB	OK
H	OK	OB	OB	OK	OM	OM	OB	OM	OB
K	LT	OB	LT	OB	OO	OB	OP	OB	OK
L	LT	OB	LT	OB	OP	OP	OK	OP	OK
LC	OB	OM	OB	OK	OR	OK	OB	OK	OB
M	LT	OB	LT	OB	OS	OS	OB	OS	OK
N	OB	OP	OB	OP	OT	OB	OK	OB	OK
					OY	OB	OM	OB	OK
					P	OK	OB	OK	OB
					R	OB	OK	OB	OK
					S	LT	OB	LT	OB
					T	LT	OB	LT	OB
					U	LT	OB	OB	OK
					V	OK	OB	OP	OK
					VA	OK	OB	OP	OK
					VI	OK	OB	OP	OK
					VN	OK	OB	OP	OK
					VO	OK	OB	OP	OK
					W	OB	OP	OB	OP
					Y	OB	OP	OB	OP
					Z	OK	OB	OP	OK

OIII - Tehran - Iran

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
LTAA	AFTN	1 x 50	AFTN	9.6K	2004
OBBI	AFTN	1 x 300	AFTN	9.6K	2004
OKBK	AFTN	1 x 100	AFTN	9.6K	2004
OMAE	AFTN	1 x 100			
OPKC	AFTN	1 x 200			
OSDI	AFTN	1 x 50			

ORBI - Bagdad - Iraq

Information

Operator: Ali Hussain Naser	
Phone:	+ 964 7901380661
- -	
Fax:	
Telex:	
Email:	
AFTN:	ORBIYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator: Basema Jaleel	
Phone:	+ 9641 8132480
- -	
Fax:	
Telex:	
Email:	ibiap1@yahoo.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Khitam A . Hassen
Phone:	+ 964 7901 511049
Fax:	
Telex:	
Email:	kh_hassen61@yahoo.com
AFTN:	ORBIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Eman Zeedan(Director)
Phone:	+ 964 7901484525
Fax:	
Telex:	
Email:	imzen29@yahoo.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	Yes
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

ORBI - Bagdad - Iraq

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OK			OI	OA	OK			OI
B	OK			OI	OB	OK			OI
C	OK			OI	OE	OK			OI
D	OK			OI	OI	OK			OI
E	OK			OI	OJ	OK			OI
F	OK			OI	OK	OK			OI
G	OK			OI	OL	OK			OI
H	OK			OI	OM	OK			OI
K	OK			OI	OO	OK			OI
L*	OK			OI	OP	OK			OI
LL					OR	OK			OI
M	OK			OI	OS	OK			OI
N	OK			OI	OT	OK			OI
					OY	OK			OI
					P	OK			OI
					R	OK			OI
					S	OK			OI
					T	OK			OI
					U	OK			OI
					V	OK			OI
					W	OK			OI
					Y	OK			OI
					Z	OK			OI

ORBI - Bagdad - Iraq

Circuit Characteristics

Situation recorded in October 2006			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OKBK	AFTN	9.6K			

OJAM - Amman - Jordan

Information

Operator:	Mona al - Nadaf
Phone:	+9626 4891401/3261
- -	
Fax:	
Telex:	
Email: _	ALNADAF@YAHOO.COM
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	AMMXYYA

Technical operato	Targrred Ghazi
Phone:	+962 6 4891401/3263
- -	
Fax:	
Telex:	
Email:	
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisc	Marwan A. Qadome
Name:	Marwan A. Qadome
Phone:	+ 962 6 4892282
Fax:	+ 962 6 4891653
Telex:	
Email: _	mar-aftn@yahoo.com
AFTN:	OJAMYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	AMMXYYA

Technical supervi	Marwan Badawi
Name:	Marwan Badawi
Phone:	+ 962 6 4891401/3500
Fax:	+ 962 6 4875102
Telex:	
Email:	
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management: Nader A. Kaled	
Name:	Nader A.Kaled
Phone:	4891401133260
Fax:	
Telex:	
Email: _	aftn_am@yahoo.com
AFTN:	OJAMYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Civil Aviation Authority
P.O.Box 7547
Amman –Jordan

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	Yes
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OJAM - Amman - Jordan

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OE	HE			OA	OE	HE		
B	OS	HE			OB	OE	HE		
C	OS	HE			OE	OE	HE		
D	HE	OS			OI	OS	OE		
E	OS	HE			OJ	N	N		
F	HE	OS			OK	OE	HE		
G	HE	OS			OL	HE	OS		
H*	HE	OL			OM	OE	HE		
HE	HE	OS			OO	OE	HE		
HL	HE	OS			OP	OE	HE		
HS	HE	OE			OR	OR	OS		
K	OS	HE			OS	OS	HE		
L*	OS	HE			OT	OE	HE		
LC	OS	HE			OY	OE	HE		
LL	HE	HE			P	OS	HE		
LT	OS	HE			R	OE	HE		
M	OS	HE			S	OS	HE		
N	OE	HE			T	OS	HE		
					U	OS	HE		
					V*	OE	HE		
					VA	OE	HE		
					VE	OE	HE		
					VI	OE	HE		
					VN	OE	HE		
					VO	OE	HE		
					W	OE	HE		
					Y	OE	HE		
					Z	HE	OS		

OJAM - Amman - Jordan

Circuit Characteristics

Situation recorded in March 2005			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
HECA	AFTN	1 x 9.6 K			
OEJD	AFTN	1 x 19.2 K			
ORBI	AFTN	1 x 50			
OSDI	AFTN	1 x 50			
LLBG	AFTN	1.2 K			

OKBK - Kuwait - Kuwait

Information

Operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Mr. Al-Asqah, Mohammed
Phone:	+ (965) 473 2489
Fax:	+ (965) 472 1286
Telex:	
Email:	
AFTN:	OKBKYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Mr. Al-Jarrah, Dawood
Phone:	+ (965) 476 0421
Fax:	+ (965) 431 9232
Telex:	
Email:	
AFTN:	OKBKYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Mr. Al-Fozan, Fozan
Phone:	+ (965) 476 0421
Fax:	+ (965) 431 9232
Telex:	
Email:	cvnedd@quality.net
AFTN:	OKBKYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:	

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OKBK - Kuwait - Kuwait

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OP	OB			OA	OP	OB		
B	LI	OL			OB	OB	OL		
C	LI	OL			OE	OB	OL		
D	OL	OB			OI	OI	OB		
E	LI	OL			OJ	OL	OB		
F	OB	OL			OK	N	N		
G	OL	OB			OL	OL	OB		
H*	OL	OB			OM	OB	OL		
HE	OL	OB			OO	OB	OL		
HL	OL	OB			OP	OP	OB		
HS	OL	OB			OR	OR	TBD		
K	LI	OL			OS	OS	OL		
L*	LI	OL			OT	OT	OB		
LC	OL	LI			OY	OB	OL		
LL					P	LI	OL		
LT	LI	OL			R	OP	OB		
M	LI	OL			S	LI	OL		
N	OP	OB			T	LI	OL		
					U	LI	OL		
					V*	OP	OB		
					VA	OP	OB		
					VE	OP	OB		
					VI	OP	OB		
					VN	OP	OB		
					VO	OP	OB		
					W	OP	OB		
					Y	OP	OB		
					Z	OP	OB		

OKBK - Kuwait - Kuwait

Circuit Characteristics

Situation recorded in March 2005			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
LIII	AFTN	1 x 100	X.25	1 X 64k	4th Q-2005
OBBI	AFTN	1 X 9.6 K			
OIII	AFTN	1 x 100	AFTN	1 X 9.6K	4th Q-2005
OLBA	AFTN	1 x 100	AFTN	1 X 9.6K	TBD
OPKC	AFTN	1 x 2.4k	AFTN	1 X 9.6K	TBD
OSDI	AFTN	1 x 50			
OTBD	AFTN	1 x 100	AFTN	1 X 9.6K	TBD
ORBI	AFTN	1 X 9.6K			

OLBA - Beirut - Lebanon

Information

Operator:	
Phone:	+ 961 1 628161
- -	
Fax:	+961 1 629035
Telex:	
Email:	hatemh@beirutairport.gov.lb
AFTN:	OLBAYFYX
CIDIN/AFTN:	OLBAM
CIDIN/OPMET:	OLBAYMYX
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Chawki Hatem
Phone:	+961 1 628161
Fax:	+961 1 629035
Telex:	
Email:	
AFTN:	OLBAYFYX
CIDIN/AFTN:	OLBAM
CIDIN/OPMET:	OLBAYMYX
SITA:	

Technical supervisor:	
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Phone:	+961 3 280299-961 628000/3049
Fax:	+961 1 628198
Telex:	
Email:	msaad@beirutairport.gov.lb
AFTN: OLBAYTYX	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Chawki Hatem
Phone:	+961 1 628150
Fax:	+961 1 629035
Telex:	
Email:	
AFTN:	OLBAYTYX
CIDIN/AFTN:	OLBAM
CIDIN/OPMET:	OLBAYMYX
SITA:	

Postal Address:
Beirut International Airport
Telecom Department
Beirut-Lebanon

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OLBAA
AFTN OPM/NM:	OLBAM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS	Yes	
MOTNE		
OPMET	Yes	
SITA	Yes	

OLBA - Beirut - Lebanon

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OBBIA	OE			OA	OK	OE		
B	LCNCA	HECAA			OB	OBBIA	OE		
C	LCNCA	HECAA			OE	OE	OBBIA		
D	HECAA	LCNCA			OI	OBBIA	OK		
E	LCNCA	HECAA			OJ	HECAA	OE		
F	OE	HECAA			OK	OK	OBBIA		
G	HECAA	OE			OL	N	N		
H	HECAA	OE			OM	OBBIA	OE		
K	LCNCA	HECAA			OO	OBBIA	OE		
L*	LCNCA	HECAA			OP	OK	OBBIA		
LL					OR	OR	OS		
LT	LCNCA	HECAA			OS	OS	HECAA		
M	LCNCA	HECAA			OT	OBBIA	OK		
N	OK	OE			OY	OE	OBBIA		
					P	LCNCA	HECAA		
					R	OBBIA	OE		
					S	LCNCA	HECAA		
					T	LCNCA	HECAA		
					U	LCNCA	HECAA		
					V*	OK	OBBIA		
					VA	OK	OBBIA		
					VE	OK	OBBIA		
					VI	OK	OBBIA		
					VN	OK	OBBIA		
					VO	OK	OBBIA		
					W	OBBIA	OK		
					Y	OBBIA	OE		
					Z	OK	OE		

OLBA - Beirut - Lebanon

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
HECA	CIDIN	1 x 9.6K			
LCNC	CIDIN	1 x 9.6K			
OBBI	CIDIN	1 x 9.6K			
OEJD	AFTN	1 x 100	AFTN	1 x 9.6K	2005
OKBK	AFTN	1 x 100	AFTN	1 x 9.6K	2005
OSDI	AFTN	2 x 50			
ORBI	AFTN	1 x 50			

OLBA - Beirut - Lebanon

CIDIN Routing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
OLBA_	OLBA	(LCNC)							
LCNC_	OLBA	(OBBI)							
OBBI_	OLBA	HECA							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
HECA	HECA1								
LCNC	LCNC1								
OBBI	OBBI1								

OOMS - Muscat - Oman

Information

Operator:	Mushal Abdul Aziz
Phone:	968 519209/332
- -	
Fax:	968 510617
Telex:	5418 DGCAOMAN ON
Email:	aircomms@dgcam.gov.om
AFTN:	OOMSYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	Ahmed Issa
Phone:	968 519492
- -	
Fax:	968 510617
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Email:	ahmedissa@dgcam.gov.om
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Akhtar Kareem Al-Balu
Phone:	968 519260
Fax:	968 510617
Telex:	5418 DGCAOMAN ON
Email:	aircomms@dgcam.gov.om
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Mohd Hamed Al-Mauly
Phone:	968 519492
Fax:	968 510617
Telex:	5418 DGCAOMAN ON
Email:	mody07@hotmail.com
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Ali Humaid Al-Adawi
Phone:	968 519207/699
Fax:	968 519930
Telex:	5418 DGCAOMAN ON
Email:	alialadawi@dgcam.gov.com
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:	
P.O. BOX 1	
Postal Code 111	
Seeb Int. Airport	
Sultanate of Oman	

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS	Yes	
MOTNE		
OPMET		
SITA		

OOMS - Muscat - Oman

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OB	VA							
B	OB	OE							
C	OB	OE							
D	OE	OB							
E	OB	OE							
F	OE	VA							
G	OE	OB							
H	OE	VA							
K	OB	OE							
L* EX. LL	OB	OE							
M	OB	OE							
N	OB	VA							
OA	OB	OMA							
OB	OB	OMA							
OE	OE	OB							
0I	OB	OMA							
OJ	OE	OB							
OK	OB	OE							
OL	OB	OE							
OM	OMA	OB							
OO	N	N							
OP	VA	OB							
OR	OB	OE							
OS	OE	OB							
OT	OB	OMA							
OY	OY	OE							
P	OB	VA							
R	OB	VA							
S	OB	OE							
T	OB	OE							
U	VA	OE							
V*	OB	VA							
VA	VA	OB							
VE	VA	OB							
VI	VA	OB							
VN	VA	OB							
VO	VA	OB							
W	OB	VA							
Y	OB	VA							
Z	VA	OB							

OOMS - Muscat - Oman

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OBBI	AFTN	1 x 300		9.6k	04/05
OEJD	AFTN	1 x 300		9.6k	04/05
OMAE	AFTN	1 x 50	AFTN	9.6k	04/05
OYSN	AFTN	1 x 100		9.6k	04/05
VABB	AFTN	1 x 300	AFTN (X.25)	9.6k	04/05

OPKC - Karachi - Pakistan

Information

Operator:	
Phone:	92-21-45791943
– –	45797232
Fax:	92-21-9218216
Telex:	29336 CAA PK
Email:	
AFTN:	OPKCYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	OPKCYZYX
SITA:	

Technical operator:	
Phone:	92-21-45791944
– –	45797519
Fax:	
Telex:	29336 CAA PK
Email:	
AFTN:	OPKCYFYT
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Mr. Fasihuzzaman
Phone:	92-21-9218242
Fax:	92-21-9218216
Telex:	29336 CAA PK
Email:	
AFTN:	OPKCYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Mr. Nadeem Sharif Pasha
Phone:	92-21-9218174
Fax:	
Telex:	29336 CAA PK
Email:	Ctoqiap@sat.net.pk
AFTN:	OPKCYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Air Cdre Qamaruddin
Phone:	92-21-9218732
Fax:	92-21-9218733
Telex:	29534 DG CAA PK
Email:	q-uddin@yahoo.Com
AFTN:	OPHQZXCM
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Comm-Ops branch, HQ.CAA
Technical Devision
Terminal-1
QIAP, Karachi-75200
Pakistan

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS	Yes	
MOTNE		
OPMET	Yes	
SITA		

OPKC - Karachi - Pakistan

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	VA	–			OA	OA	–		
B	OK	–			OB	OK	OI		
C	OK	OI			OE	OK	–		
D	OK	–			OI	OI	–		
E	OK	OI			OJ	OK	OI		
F	OK	–			OK	OK	–		
G	OK	–			OL	OK	–		
H	OK	–			OM	OK	OI		
K	OK	OI			OO	OK	OI		
L*	OK	0I			OP	N	N		
LL					OR	OK	–		
LT	OI	OK			OS	OI	–		
M	OK	OI			OT	OK	OI		
N	VA	OI			OY	OK	OI		
					P	VA	–		
					R	VA	–		
					S	OK	OI		
					T	OK	OI		
					U	OI	OK		
					V*	VA	–		
					VN	ZB	VA		
					W	VA	–		
					Y	VA	–		
					Z	ZB	VA		

OPKC - Karachi - Pakistan

Circuit Characteristics

Situation recorded in October 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OIII	AFTN	1 x 200	AFTN	2.4K	End 2004
OKBK	AFTN	2.4K			
ZBBB	AFTN	1 x 50	AFTN	2.4K	End 2004
VABB	AFTN	1 x 200			
OAKB	AFTN (VSAT)	1 x 2400			

OTBD - Doha - Qatar

Information

Operator:	
Phone:	00974 4656220/268
- -	00974 4622510
Fax:	00974 4621052
Telex:	
Email:	
AFTN:	OTBDYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	DOHXYYF

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
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AFTN:	
CIDIN/AFTN:	OTBDYTYX
CIDIN/OPMET:	
SITA:	DOHXYYF

Technical supervisor:	
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Email:	saeed@caa.gov.qa
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Civil Aviation Authority
P.O.Box 3000
Doha Qatar

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OTBD - Doha - Qatar

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OB	OK			OA	OB	OK		
B	OB	OK			OB	OB	OK		
C	OB	OK			OE	OB	OK		
D	OB	OK			OI	OK	OB		
E	OB	OK			OJ	OB	OK		
F	OB	OK			OK	OB	OK		
G	OB	OK			OL	OB	OK		
H	OB	OK			OM	OB	OK		
K	OB	OK			OO	OB	OK		
L*	OB	OK			OP	OK	OB		
LL					OR	OK	OB		
M	OB	OK			OS	OB	OK		
N	OB	OK			OT	N	N		
					OY	OB	OK		
					P	OB	OK		
					R	OB	OK		
					S	OB	OK		
					T	OB	OK		
					U	OB	OK		
					V	OB	OK		
					W	OB	OK		
					Y	OB	OK		
					Z	OB	OK		

OTBD - Doha - Qatar

Circuit Characteristics

Situation recorded in March 2005			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OBBI	AFTN	1 x 300			
OKBK	AFTN	1 x 100			

OEJD - Jeddah - Saudi Arabia

Information

Operator:	
Phone:	+966 2 685 0532
- -	+966 2 685 4576
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AFTN:	OEJNYFYX
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CIDIN/OPMET:	
SITA:	

Technical operator:	
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- -	+966 2 685 5039
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Telex:	
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AFTN:	OEJNYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
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CIDIN/OPMET:	
SITA:	

Technical supervisor:	
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CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
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Phone:	+966 2 640 5000 ext: 5564
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Telex:	601093 CIVAIR SJ
Email:	albishi_h@yahoo.com
AFTN:	OEJDYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Manager
ATS Comm. Ops and Procedures
General Authority of Civil Aviation (GACA)
P.O. Box 929
JEDDAH 21421
SAUDI ARABIA

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OEJNA
AFTN OPM/NM:	OEJNM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET	No	
AIS	No	
MOTNE	No	
OPMET	No	
SITA	No	

OEJD - Jeddah - Saudi Arabia

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OBBIA	OO			OA	OBBIA	OO		
B	LCNCA	OBBIA			OBBIA	OBBIA	OO		
C	LCNCA	OBBIA			OE	N	N		
D	HECAA	LCNCA			OI	OBBIA	OO		
E	LCNCA	OBBIA			OJ	OJ	HECAA		
F	HA	HECAA			OK	OBBIA	OO		
G	HECAA	LCNCA			OL	OL	HECAA		
H*	HA	HECAA			OM	OBBIA	OO		
HECAA	HECAA	LCNCA			OO	OO	OBBIA		
HL	HECAA	LCNCA			OP	OO	OBBIA		
HS	HS	HECAA			OR	OL	HECAA		
K	LCNCA	OBBIA			OS	OL	HECAA		
L*	HECAA	LCNCA			OT	OBBIA	OO		
LCNCA	LCNCA	OBBIA			OY	OYS	OO		
LK	LCNCA	OBBIA			P	OBBIA	OO		
LL					R	OBBIA	00		
LT	OBBIA	OO			S	HECAA	LCNCA		
M	HECAA	LCNCA			T	HECAA	LCNCA		
N	OBBIA	OO			U	LCNCA	OBBIA		
					V*	OBBIA	OO		
					VA	OO	OBBIA		
					VE	OO	OBBIA		
					VI	OO	OBBIA		
					VN	OO	OBBIA		
					VO	OO	OBBIA		
					W	OBBIA	OO		
					Y	OBBIA	OO		
					Z	OO	OBBIA		

OEJD - Jeddah - Saudi Arabia

Circuit Characteristics

Situation recorded in October 2008			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
HAAB	AFTN	1 x 9.6 K			
OJAM	AFTN	1 x 19.2 K			
OBBI	CIDIN	1 x 64 K			
OLBA	AFTN	1 x 100	AFTN	1 x 300	2005
HECA	CIDIN	1 x 64 K			
HSSS	AFTN	1 x 9.6 K			
OOMS	AFTN	1 x 300			
LCNC	CIDIN	9.6 K			
OYSN	AFTN	1 x 9.6 K			

OEJD - Jeddah - Saudi Arabia

CIDIN Routing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA_	HECA								
LCNC_	LCNC	OBBI							
OBBI_	OBBI	LCNC							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
HECA	HECA1								
LCNC	LCNC1								
OBBI	OBBI1								

OSDI - Damascus - Syria

Information

Operator:	
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- -	
Fax:	
Telex:	
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AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
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CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

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CIDIN/OPMET:	
SITA:	

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CIDIN/AFTN:	
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SITA:	

Management:	
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AFTN:	OSDIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:	

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OSDI - Damascus - Syria

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OI	HE			OA	OI	HE	OI	OH
B	LG	HE			OB	OI	OK		
C	LG	HE			OE	OJ	OK	OJ	HE
D	HE	LG			OI	OI	OK	OI	OK
E	LG	HE			OJ	OJ	HE		
F	HE	LG			OK	OK	OI		
G	HE	LG			OL	OL	HE		
H	HE	LG			OM	OI	OK		
K	LG	HE			OO	OI	OK		
L*	LG	HE			OP	OI	OK		
LL					OR	OR	OJ	OR	OJ
M	LG	HE			OS	N	N	N	N
N	HE	LG			OT	OI	OK	OI	OK
					OY	OJ	HE		
					P	LG	HE		
					R	HE	LG	OK	OL
					S	LG	HE		
					T	LG	HE		
					U	LG	HE		
					V	OI	OK		
					W	HE	OI	OK	OI
					Y	OI	OK		
					Z	HE	LG	OK	OI

OSDI - Damascus - Syria

Circuit Characteristics

Situation recorded in October 2006			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
HECA	AFTN	1 x 50	AFTN	300	2004
LGGG	AFTN	2 x 50	AFTN	300	2004
OIII	AFTN	1 x 50	AFTN	300	2005
OJAM	AFTN	1 x 50	AFTN	300	2004
OKBK	AFTN	1 x 50	AFTN	300	2005
OLBA	AFTN	2 x 50	AFTN	1.2K	2004
ORBI	AFTN	1 x 50	AFTN	300	2004
SITA	AFTN	1 X 50	AFTN	300	

OMAE - Abu Dhabi - U.A.E.

Information

Operator:	
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- -	
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Telex:	
Email:	aftncomms@gcaa-uae.gov.ae
AFTN:	OMAEYFYX
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Technical operator:	
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- -	
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Telex:	
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AFTN:	OMAECENG
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Supervisor:	
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CIDIN/OPMET:	
SITA:	

Technical supervisor:	
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CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Management:	
Name:	P. Comber
Phone:	00971 2 4054246
Fax:	00971 2 4054334
Telex:	
Email:	Peter.comber@gcaa-uae.gov.ae
AFTN:	OMAEYTSC
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Postal Address:	
GCAA	
P.O. Box 6558	
Abu Dhabi	
United Arab Emirates	

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OMAEA
AFTN OPM/NM:	OMAEYPYX
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OMAE - Abu Dhabi - U.A.E.

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OBBIA	OO			OA	OBBIA	OO		
B	OBBIA	OO			OB	OBBIA	OO		
C	OBBIA	OO			OE	OBBIA	OO		
D	OBBIA	OO			OI	OI	OBBIA		
E	OBBIA	OO			OJ	OBBIA	OO		
F	OBBIA	OO			OK	OBBIA	OI		
G	OBBIA	OO			OL	OBBIA	OO		
H	OBBIA	OO			OM	N	N		
K	OBBIA	OO			OO	OO	OBBIA		
L*	OBBIA	OO			OP	OO	OBBIA		
LL					OR	OBBIA	OI		
LT	OBBIA	OO			OS	OBBIA	OI		
M	OBBIA	OO			OT	OBBIA	OI		
N	OBBIA	OO			OY	OO	OBBIA		
					P	OBBIA	OO		
					R	OBBIA	OO		
					S	OBBIA	OO		
					T	OBBIA	OO		
					U	OBBIA	OO		
					V*	OBBIA	OO		
					VA	OO	OBBIA		
					VE	OO	OBBIA		
					VI	OO	OBBIA		
					VN	OO	OBBIA		
					VO	OO	OBBIA		
					W	OBBIA	OO		
					Y	OBBIA	OO		
					Z	OO	OBBIA		

OMAE - Abu Dhabi - U.A.E.

Circuit Characteristics

Situation recorded in September 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OBBI	CIDIN	1 x 9.6K			
OIII	AFTN	1 x 100			
OOMS	AFTN	1 x 50	AFTN	9.6K	04/05

OYSN - Sanaa - Yemen

Information

Operator:	
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- -	
Fax:	00967-1-345527
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AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
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SITA:	

Supervisor:	
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CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Mr. S. Nizamuddin
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AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:	
AIR TRAFFIC SERVICES	
P.O.BOX 3437	
SANA'A	
REPUBLIC OF YEMEN	

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OYSN - Sanaa - Yemen

AFTN Routing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OO	OE			OA	OO	OE	same	same
B	OO	OE			OB	OO	OE		
C	OO	OE			OE	OE	OO		
D	OO	OE			OI	OO	OE		
E	OO	OE			OJ	OO	OE		
F	OE	OO			OK	OO	OE		
G	OE	OO			OL	OE	OO		
H	OE	OO			OM	OO	OE		
K	OO	OE			OO	OO	OE		
L*	OO	OE			OP	OO	OE		
LL					OR	OO	OE		
M	OO	OE			OS	OO	OE		
N	OO	OE			OT	OO	OE		
					OY	N	N		
					P	OO	OE		
					R	OO	OE		
					S	OO	OE		
					T	OO	OE		
					U	OO	OE		
					V	OO	OE		
					W	OO	OE		
					Y	OO	OE		
					Z	OO	OE		

OYSN - Sanaa - Yemen

Circuit Characteristics

Situation recorded in October 2008			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OEJD	AFTN	1 x 9.6 K			
OOMS	AFTN	1 x 100	AFTN	300/2400	01-01-2005

End of Table

IPS Members Working Group

29 October 2008

No.	Name	Full Address	Email Address	Office Number	Mobile Number	Fax Number	Role
1	Mr. Mohamed Ali Saleh	Head Aeronautical Communication Civil Aviation Affair P.O.Box 586 BAHRAIN	masaleh@caa.gov.bh	(973) 17 321 187	(973) 3962 2202	(973) 17 321 992	Rapporteur
2	Mr. Hussain Hassan Ebrahim	Communication Department Civil Aviation Affair P.O.Box 586 BAHRAIN	hebrahim@caa.gov.bh	(973) 17 321 183	(973) 396 53 659	(973) 17 321 992	Member
3	Mr. Mahmoud Aly Mohamed Ramadan	National Air Navigation Services Company (NANSC) Cairo Air Navigation Center (CANC) Cairo Airport Road Cairo - EGYPT	mahmoud.ramadan53@gmail.com	(202) 2265 7959	(2010) 654 1506	(202) 22685293	Member
4	Mr. Bahman Bagheri	Communication Department Mehrabad Int'l Airport Iranian Airport Company (IAC) Tehran, IRAN	bagheri_com@yahoo.com	(98-21) 6602 5408	(98-91) 2243 9459	(98-21) 4466 5408	Member
5	Mr. Gholam Ali Barzegari Naini	Aernautical Messages Network Management Mehrabad Int'l Airport Iranian Airport Company (IAC) Tehran, IRAN	barzegari@airport.ir	(98-21) 6603 6645	(98-91) 2390 6063	(98-21) 6602 5101	Member
6	Mr. Rashed bani Ata	Head of Networking/ANS Civil Aviation Regulatory Commision P.O.Box 7547 Amman, JORDAN	itcom@carc.gov.jo	(962-6) 795257734		(962-6) 4891708 (962-6) 4891653	Member
7	Mr. Muhannad Falah Al Khurafi	Khaldiya St. Block , House #27, P.O.Box 17767 Zip Code 72458 KUWAIT	muhannad@alkhurafi.com	(965) 2472 1279	(965) 99610401	(965) 431 9232	Member
8	Mr. Abdallah A. Bin Saleh	General Authority of Civil Aviation Air Navigation Service SAUDI ARABIA	abs2000@maktoob.com	(966-2) 671 9041		(966-2) 6719 041	Member

No.	Name	Full Address	Email Address	Office Number	Mobile Number	Fax Number	Role
9	Mr. Hani Abdallah Gari	General Authority of Civil Aviation Air Navigation Service SAUDI ARABIA	grihani@hotmail.com	(966-2) 671 9041		(966-2) 6719 041	Member
10	Mr. Abdul Hadi Kabalan	Electronic Engineer Al Najma Square Damascus - SYRIA	comm-dir@scaasy.com	(963-11) 540 0571	(963) 966 851162	(963-11) 540 0571	Member

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TERMS OF REFERENCE

IPS WORKING GROUP

Terms of Reference (TOR)

To promote a globally harmonized and agreed approach to transition planning in order for MID States to work collaboratively in developing their future transition arrangements towards the ATM system envisioned in the Global ATM Operational Concept.

In accordance with the MID Region Performance, 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, and the MID Region activity for the usage of the public Internet and the implementation of the ATN the IPS Working Group should:

No.	Strategic Objectives	Tasks
1	D/E	Develop MID Region public Internet usage guidance and document all Internet usage with particular attention to the safety/security of the data exchanged over the public internet.
2	A/D	Complete the development of the ATN planning document.
3	D/E	Review and analyze the MID Region rationalized AFTN plan and make suggestion for the improvement in accordance with the new development in the MID Region.
4	D	Provide the necessary support for the implementation of the IPS in the MID Region (MID IPNET)

WORK PROGRAMME

1) Develop the MID region Strategy for the usage of the public internet as per ICAO guidance and start the implementations where needed.
2) Document all public internet usage in the MID Region.
3) Analyze the public internet usage for safety and security of the data exchanged
4) Suggest the public internet uses in the MID Region.
5) Review and complete the ATN planning document for the MID Region, including AMHS plan.
6) Assist States for the implementation of the IPS network (MID IPNET)
7) Develop the criteria for the MID Region centers.
8) Review and develop if necessary the rationalized AFTN plan to be in line with the MID Region. move towards the implementations of IPS based ATN network.

Composition

The Group will be composed of experts nominated by MID Region provider States.

Working Arrangements

The representatives shall maintain continuity in the work of the Group, by using communication facilities particularly e-mails to keep the Members and the Secretary in permanent contact with each other, the Group shall meet when necessary.

CNS SG/2
Report on Agenda Item 4

REPORT ON AGENDA ITEM 4:   **REVIEW OF THE GLOBAL AIR NAVIGATION PLAN MATTERS RELEVANT TO CNS AND FOLLOW-UP STATUS OF IMPLEMENTATION**

4.1   The meeting was presented with an overview of the proposed electronic Air Navigation Plan (eANP). Air navigation plans set forth in detail the facilities, services and procedures required for international air navigation within a specified area. Such plans contain recommendations, which governments can follow in programming the provision of their air navigation facilities and services, with the assurance that facilities and services furnished in accordance with the plan will form with those of other States an integrated system.

4.2   The eANP is intended to 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.

4.3   The eANP 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).

4.4   The draft review the eANP transition framework proposal provided in **Appendix 4A** to the report on Agenda Item 4.

4.5   The meeting was also provided with an overview and demonstration of the ICAO (CNS/AIRS) frequency assignment planning tools under development for communication and navigation systems. Currently the tool for assessing and assigning frequencies for VHF air-ground communication systems (CNSAIRSVHFCOM) is nearing completion. It is the intention that this program will be accessible through the ICAO website as well as a stand alone version (runtime version) of this program for off-line use on a single computer.

4.6   For this program, a global frequency assignment plan for VHF air-ground communications has been established. This global frequency assignment plan will consolidate the information contained in the Regional COM Lists 3 (for EUR COM List 2) into one single frequency plan. The program provides functions for manipulating the data base (querying, adding or removing assignments). In addition, the program generates files (reports) which enable the presentation of the designated operational coverage of a frequency assignment as well as the interference contour (radio horizon) of the designated operational coverage on a map.

4.7   The program allows plotting on a map boundaries of States, FIR and (ACC) sectors. At a later stage the facility to show on the map other information, such as air routes, will become available. These facilities are expected to assist in future airspace planning and form part of the electronic Air Navigation Plan (eANP).

4.8   The final version of this program for use in the frequency coordination and planning process is expected to become available by the second quarter of 2009.

4.9   The meeting noted during the review of the tool that the current data associated with the MID Region VHF COM planning was drawn from AFI, APAC and EUR COM list.

4.10   The meeting proposed that MID region consider the establishment of MID region Com list, in this regard the efforts of the States will be needed to update the list of frequencies that will be provided to them by the ICAO MID regional Office in order to establish the MID Region list

4.11   The meeting noted that in order to facilitate the process of implementation of the Global Plan (GPIs) based on Regional priorities, MIDANPIRG/10 held in Doha , April 2007 under Conclusion 10/13, adopted the MID Region Strategy for the Implementation of the Global Plan Initiatives further more in support of the evolution from a systems-based approach to a performance-based approach to planning and implementation of air navigation, MIDANPIRG/10 reviewed the projects proposed by its subsidiary bodies related to the AGA, AIS, ATM, and CNS fields and approved the list of projects *under Conclusion 10/14: Implementation of work programme in support of strategic Performance* in this regard the meeting noted the new outcome based planning , using the standardized template for the region and the State which are considered under Agenda Item 7 and available at **Appendix 7A** to the report on Agenda item 7.

4.12   The meeting received an update on the status of the current projects that were approved by MIDANPIRG as follows:

4.12.1   **Establishment of Initial FPL Processing System (IFPS) in the MID Region**

4.12.1.1   Bahrain has finished the initial study which was based on Bahrain data and FDPS, the initial study indicated that it is necessary that all MID States to participate for the finalization of the final study in this context the meeting recalled MIDANPIRG/10 Conclusion 10/18: *ESTABLISHMENT OF AN INTEGRATED INITIAL FPL PROCESSING SYSTEM (IFPS) IN THE MID REGION* and noted the list of focal points which is at **Appendix 4B** to the report on Agenda Item 4.

4.12.1.2   The meeting also received an update from Bahrain stating that a meeting was held under the umbrella of ACAC in which Eurocontrol provided presentations that Bahrain will share on the ICAO MID forum, further more Bahrain request the ICAO MID Regional Office to send a letter to Eurocontrol to provide additional support to the MID Regions IFPS project.

4.12.1.3   Based on the above the meeting agreed to the following Draft Conclusion:

>   *DRAFT CONCLUSION 2/4:   IFPS PROJECT SUPPORT*

>   *That, MID States:*

>   *a) provide Bahrain the necessary support to finalize the study; and*

>   *b) develop and agree on a funding mechanism to pursue the project.*

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4.12.2 **Implementation of Aeronautical Telecommunication Network (ATN) in the MID Region**

4.12.2.1 The meeting noted that MIDANPIRG/10 adopted conclusion 10/64 *Implementation of IPS Based ATN* to foster the implementation and draw the road map for the MID Region knowing the benefits of the Internet Protocol Suite (IPS), the CNS SG/1 established IPS working group The meeting reviewed the list of the member of the IPS WG which is updated at Appendix 3B and TOR which is at Appendix 3C to the report on Agenda Item 3.

4.12.3 **Implementation of high speed links in the MID Region**

4.12.3.1 The meeting noted that significant progress is achieved for the implementation of high speed digital circuits between main centres, in this regards the meeting encouraged the MID State to continue in the trend for the implementation of the Digital high speed circuits as these will facilitate the ATN implementation and agreed to the following Draft Conclusion:

DRAFT CONCLUSION 2/5: *DIGITAL HIGH SPEED LINKS*

That, in support of ATN implementation, MID States are urged to continue with the implementation of digital high speed links.

4.12.4 **MID VSAT Project**

4.12.4.1 The meeting recalled the history of the project and was of the same view of the MSG/1 that this project has been successfully completed as per the Draft Conclusion from MSG/1:

DRAFT CONCLUSION 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.

4.12.4.2 The meeting noted that States and planning and implementation regional groups (PIRGs) recognize that 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 air traffic management (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.

4.12.4.3 The meeting noted that there new project activities within the MID region specific to infrastructure deployment that could benefit from being managed from a centralized project office.

4.12.4.4 The purpose of this project office at would be to provide assistance to the civil aviation authorities of participating States and organizations in the development of global air navigation plan initiatives that will contribute to the implementation of a regional air traffic management system, taking into account the global ATM operational concept and the corresponding CNS technology support.

4.12.4.5   This proposal was enormously supported by the meeting. ICAO HQ Chief CNS/AIRS provided the meeting with recommendation to follow the model which has been successfully used in the SAM Region which is at **Appendix 4C** to the report on Agenda Item 4 and consequently the meeting agreed for the establishment of the MID Infrastructure Office and drafted the following Draft Conclusion:

> *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.*

Proposed eANP Transition Framework

eANP Transition Framework

Contracting States and Stakeholders

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 <u>planning templates</u> 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 <u>integrated Air Navigation Planning environment</u> 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.

Appendix 1

Appendix 2
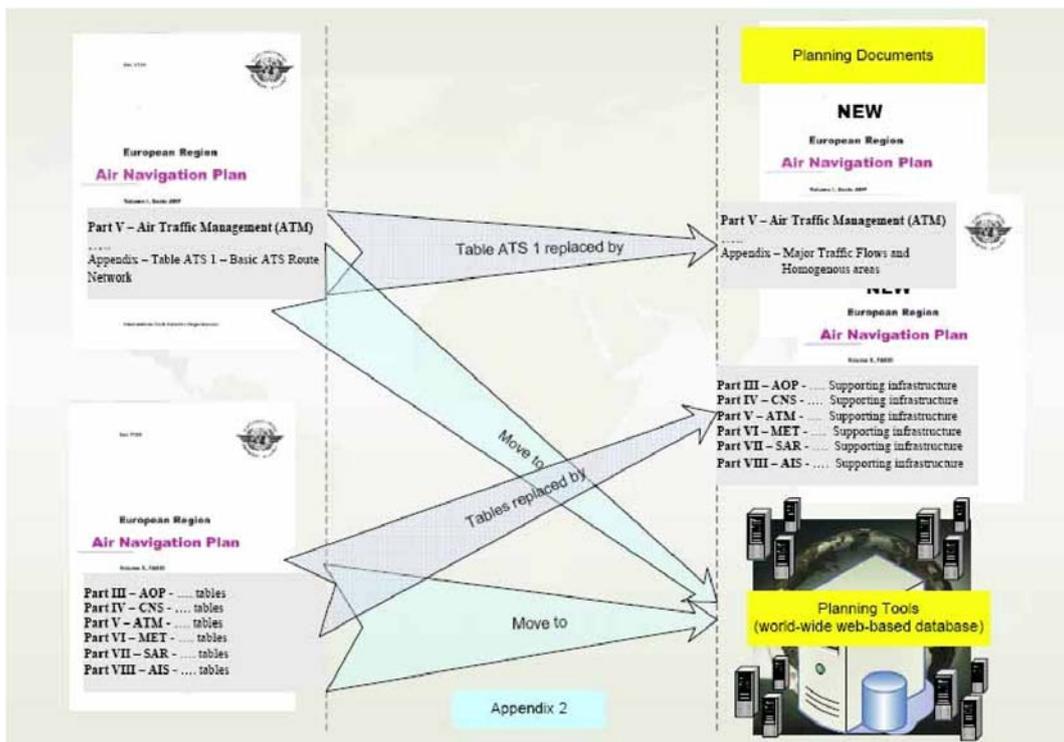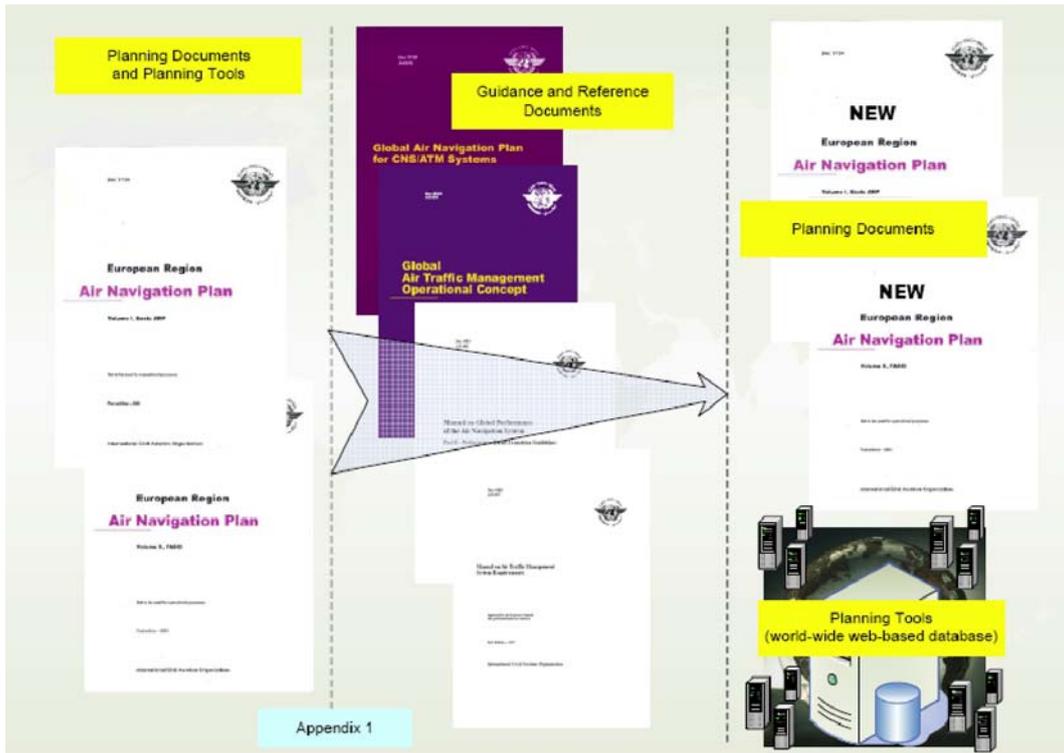
4.   **PROPOSED FRAMEWORK ELEMENTS**

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)

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		

**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	

**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
	If objection is valid,
	    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".
	If objection is not valid,
	    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

ICARD – FIVE-LETTER NAME CODE SYSTEM

5LNC Flowchart

GREENBOOK 175,000 names
ICAO FAA list
clean up Reg.Office reserved list

REPLACED BY

EXPORT FINAL DATA

CORRESPONDANCE

JEPPESEN database

5LNC en route 43,000 waypoints
5let 38832, 4let 3558, 3let 339

5LNC Terminal 74,000 waypoints
5let 60385, 4let 13867, 3let 60

JEPPESEN DUP database
5LET 4,306 dup
4LET 2558 dup
3LET 168 dup

ICAO 5 LETTERS SYSTEME SQL SERVER

CODE GENERATOR

ALLOW REGIONAL OFFICE:
RELEASE
DISPLAY
EDIT
PRINT

WEB INTERFACE

ASP

START UP

START UP

GIS range 8,000 km radius

REPORT DUP

CLEAN UP DUP
SEND
STATE LETTER
TO
190 memb.

ArcView & ArcIMS
GIS INTERFACE

CORRECTION DUP

EXPORT

IMPORT

Years to correct DUP

EUROCONTROL
Icard system
just EUR, MID
ASIA, (carsam
afi from icao)

not received
REPLICATION
MIRROR SITE

FINAL DATA

APPENDIX D

ROUTE DESIGNATOR MANAGEMENT SYSTEM

<mark>EUR PROPOSED PROCEDURE</mark>

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.*

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

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)

25 025

PROPOSAL FOR AMENDMENT TRACKING SCREEN – AREAS THAT COULD BE USED:
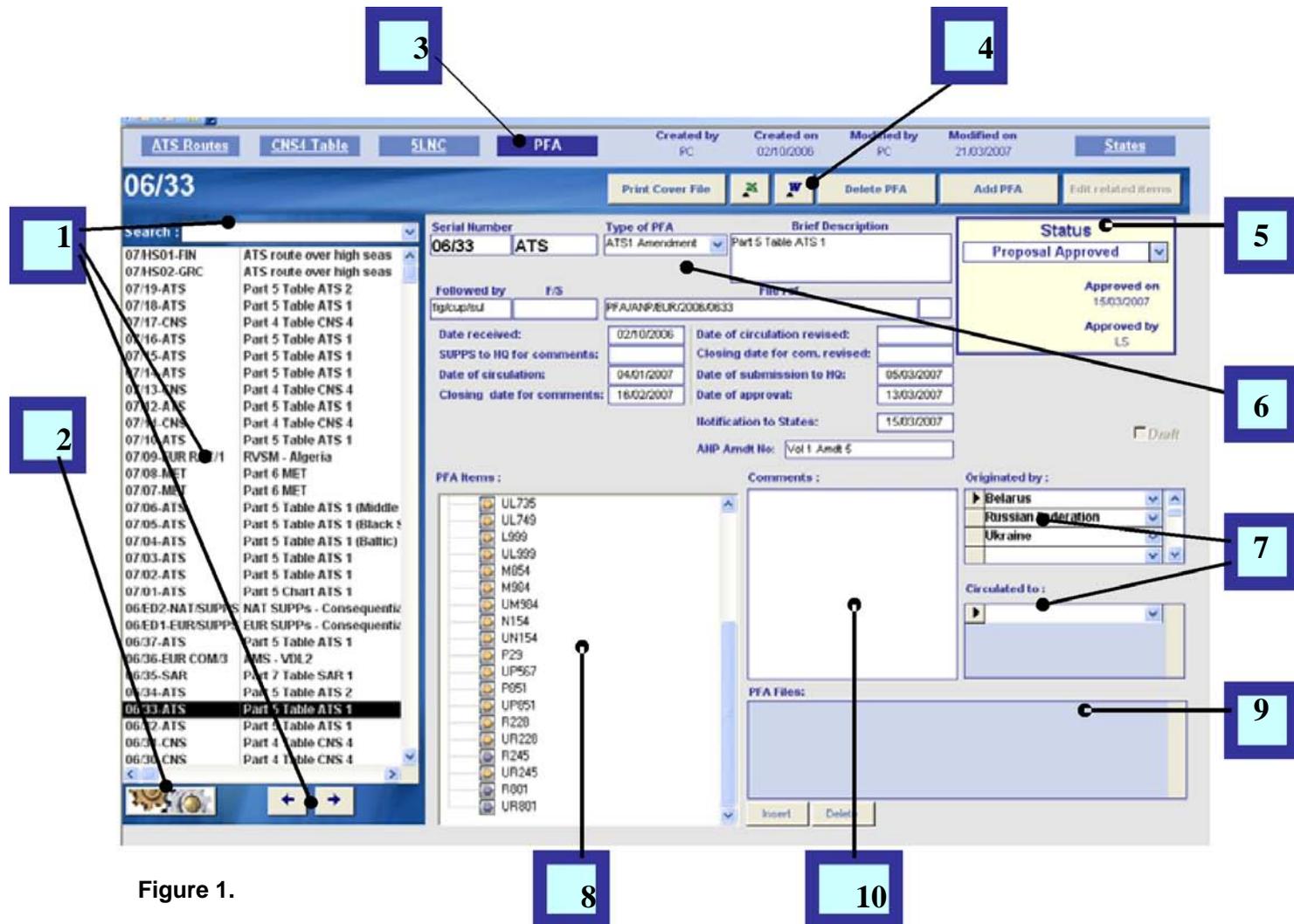
Figure 1.

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.
   o *Print File Cover:* print the file cover sheet of the PFA displayed *(if paper filing still being done)*
   o *Print PFA List:* Print List of PFA in progress in Word or Excel. *(This could be placed in the "Search Criteria" menu.)*
   o 🖫 : Print the PFA in Word. *(DISABLED UNTIL INTEGRATED WITH E-ANP MODULES)*
   o Delete PFA: Delete current PFA displayed on screen
   o Add PFA: Create a new PFA.
   o 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.
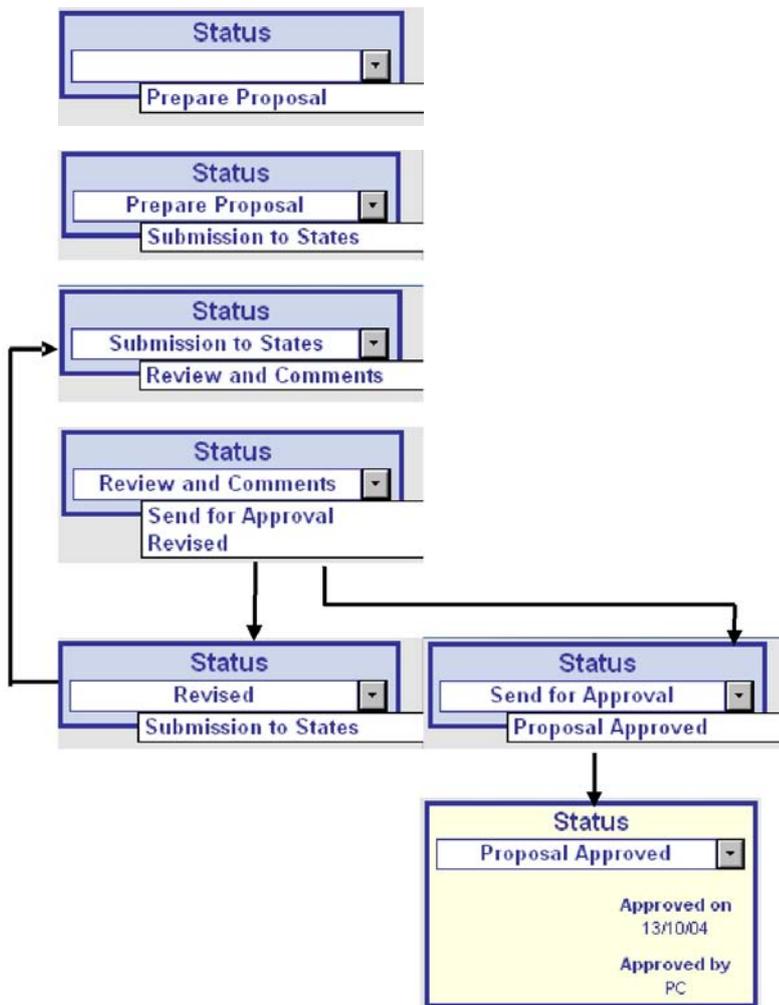
Figure 2 – Flow of Status of Processing of Amendment Proposal

If, or When, integrated with the other elements of the eANP umbrella, when selecting "Proposal Approved", the following message will be displayed:
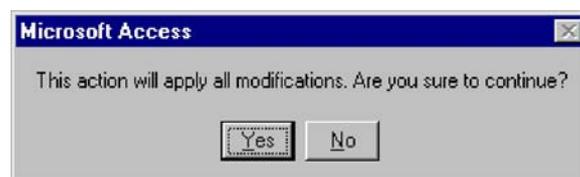
If "No" is selected, the status remains "Send for approval". If "Yes" is selected, all PFA changes (ATS1, FIRs, etc.) will be migrated into the main e-ANP database.

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

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.

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

IFPS FOCAL POINTS

No.	Name	Full Address	Email Address	Office Number	Mobile Number	Fax Number	Role
1	Mr. Fathi Ebrahim Al Thawadi	Ministry of Transportation Civil Aviation Affair P.O.Box 586 BAHRAIN	fathi@caa.gov.bh	(973) 17 329 153	(973) 396 766 14	(973) 17 321 992	
2	Mr. Mohsen Lotfy Elagaty	National Air Navigation Services Company (NANSC) Cairo Air Navigation Center (CANC) Cairo Airport Road EGYPT	mohselelagaty@yahoo.com	(202) 2265 0743	(2010) 623 922	(202) 2267 1056	
3	Mr. Ramezanali Ziaee Gravi	Iranian Airport Company AIS Mehrabad Int'l Airport P.O.Box 11798 13445 Tehran -IRAN	ais_iran@airport.ir	(9821) 6602 5108	(9819) 127090876	(9821) 4464 9269	
4	Mr. Khodakarami Mohammad	Iranian Airport Company AIS Mehrabad Int'l Airport P.O.Box 11798 13445 Tehran -IRAN	MKHD4444@yahoo.com	(9821) 6603 6241	(9819) 123908196	(9821) 6603 6241	
5	Mr. Al Jammoul	Rafic Hariri Beirut Int'l Airport Beirut 3rd Floor - LEBANON	ais@beirutairport.gov.lb	(961-1) 629 067	(961-70) 913 440	(961-1) 629 023	
6	Mr. Mounzer Kherbek	Syrian Civil Aviation Authority 1, Al Najmeh Square P.O.Box 6257 - Damascus Syrian Arab Republic	atm@scaasy.com	(963-11) 331 5547	(963-944) 586 424	(963-11) 331 5547	

International Civil Aviation Organization

WORKING PAPER

SPECIAL AFRICA-INDIAN OCEAN (AFI)
REGIONAL AIR NAVIGATION (RAN) MEETING

Durban, South Africa, 24 to 29 November 2008

Agenda Item 6: Development of a set of comprehensive work programmes in the air navigation field, aimed at improving efficiency of the air navigation system (Efficiency Committee)

IMPLEMENTATION OF A GLOBAL ATM SYSTEM
ICAO TECHNICAL COOPERATION PROJECT

(Presented by the Secretariat)

SUMMARY

This working paper presents a brief summary of ICAO Technical Cooperation Regional Project RLA/06/901, which was developed for the CAR/SAM Region, to assist States in their transition to a Global ATM system.

Action by the meeting is in paragraph 5.

1. **INTRODUCTION**

1.1   States and planning and implementation regional groups (PIRGs) recognize that 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 air traffic management (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.

2. **INITIATION OF A PROPOSAL FOR A TC PROJECT FOR THE CAR/SAM REGION**

2.1   The ninth meeting of Civil Aviation Directors held in Santiago, Chile in April 2005, analyzed the results of the ICAO Eleventh Air Navigation Conference taking into account the Global ATM Operational Concept and the Global Air Navigation Plan and consequently, requested ICAO to prepare and circulate a technical cooperation project document for assistance in CNS/ATM systems implementation leading to a global ATM system.

3. **ASSISTANCE TO STATES: DEVELOPMENT OF RLA/06/901 TC PROJECT**

3.1   Further to the above request, the project document prepared by ICAO (jointly by the Technical Co-operation Bureau and the Lima Regional Office) was circulated to South American

States on 17 November 2006, whereby States were requested to review the project document and advise of their interest and commitment to the TC project. At the same time, the Mexico Regional Office was invited to consider its dissemination among the States of its accreditation.

3.2   As a result, replies advising of the participation in the project were received from the following nine States: Argentina, Bolivia, Brazil, Chile, Panama, Paraguay, Peru, Uruguay and Venezuela. The annual budget for the implementation of project activities was estimated at USD$ 250 000. Therefore, with nine States involved in the project, the annual cost-sharing contribution per State resulted in USD$ 27 778**.**

3.3   Subsequent to the formalities of adherence to TC projects concluded and cost-sharing contributions received, activities of project RLA/06/901 commenced in January 2008 with a target date of completion in 2012. The details of project RLA/06/901 are available in the appendix, hereto. It should be noted that objectives, results and related activities of this project are part of a living document, which can be amended, created, deleted, as required by the dynamics of the implementation process and is managed through the Coordination Committee formed by the representative of States and ICAO. The goals of the RLA/06/901 are aligned with performance objectives of the region and States and serves primarily to support implementation of the Regional Air Navigation Plan.

4.   ASSISTANCE TO STATES: RELATED PROJECTS

4.1   In addition to major project RLA/06/901 enveloping many national performance objectives, the TC would also assist States in developing and implementing specific related projects such as addressing air navigation deficiencies; training on performance framework; planning and implementation of quality assurance systems; and establishment of State Safety programmes (SSP).

5.   ACTION BY THE MEETING

5.1   The meeting is invited to:

    a) take note of the information provided herein; and

    b) consider establishing an ICAO Technical Cooperation project as appropriate for implementation of the performance objectives, embodied in the performance framework forms, as contained in the appendices of several of the working papers of the meeting.

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INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

ANNEX

to the Letter of Agreement between the American States and ICAO
for the provision of technical cooperation financed with a trust fund

PROJECT DOCUMENT

Project Number: RLA/06/901

Project Title: Assistance in the implementation of a ATM regional
                                                        system according to the ATM operational concept
                                                        and the corresponding technological support for
                                                        communications, navigation, and surveillance (CNS).

Duration: 5 years, renewable

Executing government agencies: Civil aviation authorities

Executing organization: ICAO

Foreseen start-up date: January 2007

Project cost (estimated):   US$ 1,250,000

Participating States and organizations:

Brief description: The purpose of this project it to provide assistance to the civil aviation authorities of
participating States and organisations in the development of global air navigation plan initiatives that will
contribute to the implementation of a regional air traffic management system, taking into account the global
ATM operational concept and the corresponding CNS technology support, including the necessary AGA,
AIS, and MET elements, the exchange of experiences concerning the processes, and the training of personnel
in the topics involved.

A.   CONTEXT

1. Sub-sector description

1.1.   The industry of air transportation plays an important role in the economic activities of States and it is still one of the sectors having quicker growth on world economy. States depend of the aeronautical industry to maintain and stimulate economical growth as well as to render essential services to local communities. Taking this into account, it can be considered that civil aviation contributes in an important way to general welfare and to economic vitality of each nation and of the world in general.

1.2.   The Convention on International Civil Aviation, signed in Chicago on December 7, 1944 (Chicago Convention), establishes certain principles and arrangements in order that the international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunities and operated soundly and economically.

1.3.   The Convention provides the appropriate reference framework to identify and define the responsibilities of the States in connection with the administration of civil aviation and the organization and methods to be followed in order to comply with their mandate. The Chicago Convention gave origin to the International Civil Aviation Organization (ICAO), a specialised agency charged with developing the principles and techniques of international air navigation and promoting the organisation and development of international air transportation in order to develop a safe and orderly international civil aviation worldwide. All the States that participate in this regional project are parties to the Chicago Convention and members of ICAO.

1.4.   During the 1994-2004 period, scheduled passenger traffic (in passenger-kilometres performed) of airlines in the Latin American and Caribbean Regions grew in average 3.3% per year, compared to the global annual average growth rate of 5.1%. In some areas of the Caribbean and South American (CAR/SAM) Regions, traffic grew up to 13% in 2005, and it is expected to continue improving in the medium term in hand with economic activity.

1.5.   One of the keys to maintaining civil aviation vitality in face of its continuous growth is to ensure the availability of a safe, protected, efficient and environmentally sustainable air navigation system. This requires the implementation of an air traffic management system that permits full use of the improved capabilities offered by technical developments.

1.6.   In recent years, major technological developments have taken place in aeronautics, giving rise to opportunities that led to the successful completion of research studies and tests, and the development of the applicable procedures and specifications. As an example, automatic dependent surveillance – broadcast (ADS-B) is being successfully implemented and is available everywhere for surveillance in domestic airspaces; modern aircraft are equipped with data link and automatic dependent surveillance systems that are improving air traffic control efficiency and effectiveness in oceanic areas; the concept of required navigation performance has emerged, and ICAO will soon publish new guidance material and standards on performance-based navigation, taking advantage of the capabilities available on board. All this will optimise the use of global navigation satellite systems (GNSS).

1.7.   The global air traffic management (ATM) operational concept, endorsed by the Eleventh Air Navigation Conference convened by ICAO in 2003 (AN-Conf/11), offers a new vision for the implementation of a global ATM system. Following a consultation meeting held in 2004 with the ICAO Air Navigation Commission, the industry partners developed an ATM implementation guide with a view to obtaining short- and medium-term benefits while pursuing the implementation of the global ATM system foreseen in the operational concept. As requested by the Commission, this guide was included in a revision of the global air navigation plan for CNS/ATM systems.

1.8.　　　　The revised global plan contains a set of initiatives aimed at facilitating the evolution of the work already done by the regional planning and implementation groups (PIRGs). Most importantly, the global plan will have the support of planning tools (for example, software applications, planning documentation, web-based reporting forms, and project management tools) that the States and PIRGs will use as a guide for their work and as a basis for the establishment of efficacy objectives and implementation dates.

1.9.　　　　According to the revised global plan, planning will ensure an effective interaction between the staff at ICAO headquarters and the regional offices, resulting in the harmonisation and alignment of regional programmes and implementation activities. The global plan is gradually becoming the point of reference to measure the progress made and the implementation of a global ATM system, while the ground system-based approach to the planning and implementation of an air navigation infrastructure continues to evolve to an aircraft performance-based approach.

1.10.　　　　The revised global air navigation plan will facilitate the planning and implementation of these developments, applying new and innovating methods. A set of global plan initiatives (GPIs) will ensure full use of available short- and medium-term opportunities, while the related planning tools will provide guidance for planned activities and will serve as a basis for the establishment of performance objectives and implementation dates.

2.　Strategy of the States of the region

2.1.　　　　As ICAO contracting States and as signatories to the Convention on International Civil Aviation, the States participating in this project have accepted specific obligations regarding the adoption of internationally agreed upon standards and recommended practices to regulate international civil aviation. The Director of Civil Aviation or similar administrative authority of each State is responsible for ensuring that the civil aviation administration abides by and complies with these international obligations.

2.2.　　　　Among such obligations, the civil aviation administrations are responsible for the development and implementation of the facilities, services and procedures necessary to conduct safe, regular, and efficient air operations. The orderly and timely implementation of said facilities, services, and procedures is agreed upon by the contracting States and coordinated by ICAO through air navigation regional plans.

2.3.　　　　The air navigation plans describe in detail the facilities, services, and procedures necessary for international air navigation within a specified area. These plans contain recommendations that the governments may follow in their air navigation facility programmes, with the certainty that, if provided according to the plan, they will make up, along with those of the other States, a general network that will be adequate for a long time.

2.4.　　　　Each contracting State is responsible for providing the facilities and services within its territory, pursuant to Article 28 of the Convention. The ICAO Council has recommended that these facilities and services include those specified in the air navigation plans. These plans are revised and updated by ICAO on an ongoing basis, with the support of the corresponding regional planning and implementation group (PIRG), based on a global plan that consolidates and brings together general requirements. With regard to the Caribbean (CAR) and South American (SAM) Regions, the planning of said facilities is contained in Document 8733, Air Navigation Plan - Caribbean and South American Regions - Volume II-FASID.

2.5.　　　　The air navigation plan for the CAR and SAM Regions describes in a concise manner the ICAO plan to provide international air navigation facilities, services, and procedures in the Caribbean and South American Regions. The plan also includes some facilities and services outside the described regional boundaries in order to maintain the integrity of the systems and ensure, as far as possible, that all facilities and services made available by a State are included in a document of the air navigation plan. Most of the plan is derived from the recommendations issued by the corresponding regional air navigation conferences convened by ICAO, mainly, and in the case of the CAR/SAM Regions, the recommendations of the Third Caribbean/South

American Regional Air Navigation Meeting (CAR/SAM RAN/3).

2.6.   Each State is responsible for providing the facilities within its territory, as established in the plan. Since the financial and technical resources vary significantly from one State to the other, some parts of the plan may be implemented in different ways. For this reason, ICAO makes all possible efforts to ensure the homogeneous implementation of the plans and to assist governments in the implementation of the facilities foreseen, including those systems that require multinational mechanisms for their operation and maintenance, considering for this purpose the guidance material contained in the CAR/SAM FASID and the relevant recommendations of the CAR/SAM RAN/3 meeting.

2.7.   According to the revised Global Air Navigation Plan, planning will focus on the set of Global Plan Initiatives (GPIs). These initiatives are air traffic management improvement options that, when implemented, will result in a direct increase in performance. This project intends to assist the participating States and organisations in the implementation of the following global plan initiatives:

GPI-1   Flexible use of airspace
GPI-5   Performance-based navigation
GPI-6   Air traffic flow management
GPI-7   Dynamic and flexible management of ATS routes
GPI-8   Collaborative airspace design and management
GPI-9   Situational awareness
GPI-10   Terminal area design and management
GPI-11   RNP and RNAV SIDs and STARs
GPI-12   FMS-based arrival procedures
GPI-13   Aerodrome design and management
GPI-14   Runway operations
GPI-15   Maintaining the same operational capacity under IMC and VMC conditions
GPI-16   Decision-making support systems and alert systems
GPI-17   Implementation of data link applications
GPI-18   Aeronautical information
GPI-19   Meteorological systems
GPI-20   WGS-84
GPI-21   Navigation systems
GPI-22   Communication network infrastructure.

2.8   The revised Global Air Navigation Plan and its planning approach will thus serve as a starting point for measurable achievements, as system-based management evolves towards performance-based management and the planning and implementation of a global air traffic management system that permits global interoperability and continuity for all users during all flight stages across the Regions, meets the agreed safety levels, provides for cost-effective operations, is environmentally sustainable, and meets national security requirements. The goal is to achieve door-to-door flight operations where successive planning and the operational phases of their processes can be managed and performed in a continuous and consistent manner.

2.9   The Ninth Meeting of Civil Aviation Authorities of South America (RAAC/9), held in Santiago, Chile, on 18-20 April 2005, upon analysing the results of Project RLA/98/003 on the Transition to CNS/ATM Systems in the CAR and SAM Regions and the conclusions of AN-Conf/11, deemed it necessary to establish a new regional technical cooperation project to guide SAM States in the implementation of a regional ATM system, taking into account the global ATM operational concept and the corresponding CNS support.

2.10   In response to this requirement, this project has been designed with immediate objectives directly linked to the following ICAO strategic objectives and the corresponding suggested measures for their attainment (fully reproduced in Attachment A):

A: Safety – *Improve the safety of global civil aviation*, through the following measures:

- ✓ Draft corrective plans aimed at the root causes of deficiencies;
- ✓ Assist States in the resolution of deficiencies through regional corrective plans;
- ✓ Encourage the exchange of information among States in order to foster mutual trust among the States regarding the level of aviation safety and to expedite safety oversight improvements;
- ✓ Support the application of safety management systems in all safety-related disciplines in all States.

C: Environmental protection – *Minimise the detrimental impact of global civil aviation on the environment*, through the following measures:

Develop, adopt and promote new or amended measures in order to:

- ✓ limit or reduce the number of people affected by significant levels of aircraft noise;
- ✓ limit or reduce the impact of aircraft engine emissions on local air quality; and
- ✓ limit or reduce the impact of greenhouse gases on global climate.

D: Efficiency – *Improve the efficiency of aeronautical operations*, through the following measures:

- ✓ Draft, coordinate and implement air navigation plans that reduce operational unit costs, facilitate an increase in traffic (of both passengers and goods), and optimise the use of existing and emerging technologies.

- ✓ Assist States in the improvement of air operation efficiency through technical cooperation programmes.

E: Continuity – *Maintain the continuity of aeronautical operations*, through the following measures:

- ✓ Assist States with the resolution of discontinuities that hinder air navigation.

3.   Previous or existing assistance to the same sub-sector

Transition to CNS/ATM systems in the CAR/SAM Regions (RLA/98/003)

3.1.   The purpose of this project, funded by 15 CAR and SAM countries, was to assist the States with the implementation of the new comunications, navigation and surveillance/air traffic management (CNS/ATM) systems, in keeping with the CAR/SAM regional implementation plan and ICAO standards and recommended practices. It started in 1998 with a expected duration of 3 years, and was extended until 2006. Project operations were a major tool for the restructuring of the ATS route network through area navigation (RNAV) routes, involving the implementation of 64 RNAV routes, the realignment/extension of 44 ATS routes, the elimination of 19 ATS routes and the implementation of 12 ATS route segments, as well as the plan for the implementation of reduced vertical separation minima (RVSM) and the implementation of the required navigation performance (RNP 10) in the Santiago-Lima segment. This translated into better safety and efficiency levels. The regular practical and theoretical meetings and seminars organised and promoted to that end by the project contributed significantly to the improvement of regional coordination.

3.2.   Project RLA/98/003 also developed the document entitled *"Guidance material for the evolution towards the ICAO Global ATM in the CAR/SAM Regions"*, which will be an important guide on this matter in

the coming years. Likewise, a software tool known as *Planning and Evaluation Tool (PET)* for the implementation of the CNS/ATM systems was distributed to all States. Three seminars on institutional aspects of CNS/ATM systems, studies on possible institutional arrangements to support the GREPECAS Institutional Aspects Subgroup, advisory missions to the States to verify the status of implementation of the world geodetic system WGS-84, and four seminars on WGS-84 coordinates and aeronautical information issues were held, providing training to more than 150 specialists of the more than 1,400 CAR/SAM professionals who participated in various seminars and workshops organised by the project.

Implementation of the SAM – REDDIG Digital Network (RLA/98/019)

3.3.   The purpose of this project, which was implemented between 1999 and 2003, was to provide assistance to the States for the acquisition, installation, start-up and initial management of a digital network in South America, aimed at modernising aeronautical fixed service communications at the regional level.

Regional safety oversight cooperation system (RLA/99/901)

3.4.   Funded by eleven member States, and having AIRBUS, EMBRAER and the DGCA of Spain as observers, and a contribution by the European Commission, this project seeks to establish a regional safety oversight system in the South American Region with the necessary technical, logistic and administrative support. It started in 2002, and was expected to last 5 years, extendable for equal periods. Its activities help to improve cooperation among civil aviation administrations in the area of safety oversight, and to harmonise national regulations on licensing, aircraft operation and airworthiness.

Regional GNSS augmentation trial (RLA/00/009)

3.5   This project was financed by twelve States and the *Corporación Centroamericana de Servicios a la Navegación Aérea* (Central American Air Navigation Service Corporation - COCESNA). Its goal was to develop a plan to test and assess the technical and operational advantages of the WAAS satellite-based augmentation system (SBAS) of the Federal Aviation Administration (FAA) of the United States in the Caribbean and South American Regions, in order to contribute to the establishment of the operational model for satellite-based augmentation systems. It started in 2001 with an expected duration of 3 years, and was extended until 2007.

REDDIG management system and satellite segment administration (RLA/03/901)

3.6   The purpose of this project, which is financed by thirteen States, is to establish a multinational mechanism for the management of the South American digital network (REDDIG), taking into account regional developments and the need to modernise aeronautical fixed service communications so that they can be homogeneous, interconnected and interoperate with other digital networks. It started in 2003 with an expected duration of 5 years. Trinidad and Tobago became a member of REDDIG in 2005.

GNSS transition in the CAR/SAM Regions – South American, Central American and Caribbean Augmentation Solution– SACCSA (RLA/03/902)

3.7   The governments of Cuba, Colombia and Spain and COCESNA, with the support of the European Commission and the European Spatial Agency (ESA), through the Galileo Joint Undertaking (GJU), are funding this project that is aimed at planning the development of the technical, financial and operational aspects of a pre-operational EGNOS-type satellite-based augmentation system (SBAS) for the CAR and SAM Regions. It started in 2003 with an expected duration of 4 years.

Projects by country

3.8   Through country projects in Argentina, Bolivia, Brazil, Colombia, Cuba, Ecuador, El Salvador, Guatemala, Haiti, Panama, Paraguay, Peru, Trinidad and Tobago, and Venezuela, ICAO, in some cases with the assistance of UNDP, is providing the technical assistance that States require to solve the specific problems they face for the application of ICAO standards, recommended practices and procedures and for the implementation of the regional air navigation plan.

4.   Regional institutional framework for the sub-sector

4.1.   ICAO has Regional Offices in Lima (for South America) and Mexico (for North America, Central America and the Caribbean) accredited before the States that participate in this project, which are responsible for promoting the application of the standards, recommended practices and international procedures established in the Annexes to the Chicago Convention and for implementing the regional air navigation plan.

4.2.   The Regional Air Navigation Planning and Implementation Group for the Caribbean and South American Regions (GREPECAS) is the regional mechanism (PIRG) responsible for ensuring the continued implementation of the regional air navigation plan and for identifying the specific problems that affect air navigation, and suggesting the appropriate solutions. Some of the States that participate in this project are members of GREPECAS.

4.3.   The ICAO Technical Co-operation Bureau (TCB) with headquarters in Montreal, maintains contact through the Lima and Mexico Regional Offices with the contracting States that require or receive technical cooperation in the civil aviation field, and coordinates the management and provision of the agreed assistance.

B.   PROJECT JUSTIFICATION

1.   Problems to be addressed: Current status

Limitations in the provision of air traffic services

1.1.   The air traffic management (ATM) system has limitations that may occur at different times and places, including, but not limited to, the following:

a)   differing services and procedures as a result of having different systems and limited supporting tools for making decisions and adopting systems;

b)   increasingly congested voice radio communication units for air-ground exchange;

c)   rigid airspace sub-divisions and route structures that prevent making full use of all ATM resources;

d)   inadequate planning of collaboration among ATM, aerodrome and aircraft operators;

e)   sub-optimal use of scarce resources, such as airspace and air side capacity;

f)   insufficient facilities for real-time exchange of information among ATM, aerodromes and aircraft operators, leading to sub-optimal solutions to real-time events and changes in the operational requirements of users;

g)   limited capacity to maximise the benefits for the aircraft equipped with advanced avionics; and

h)   long time required for the development and installation of improved systems in the aircraft fleet or ground infrastructure.

1.2   It has been recognised that the approach applied to the provision of air traffic services (ATS) and to the air navigation system was restricting the continuous growth of aviation and the introduction of

improvements to flight safety, efficiency and regularity. The shift in scope started with the adoption of the CNS/ATM system concept, which reached a certain degree of maturity with the implementation and utilisation of new technologies aimed at improving air operations. However, it was later acknowledged that technology was not an end in itself, and that there was a need for an integrated global air traffic management system concept, based on clearly established operational requirements.

1.3   The new approach involves the achievement of a global inter-functional air traffic management system for all users during all flight phases, which meets the agreed safety levels, permits economically optimum operations, is environmentally sustainable, and meets national security requirements.

1.4   The implementation of the global ATM operational concept has a long-term horizon, until the year 2025 and beyond. The transition process that has already started includes the adoption of several operational initiatives in the CAR and SAM Regions, some of which have been implemented with the support of the ICAO technical cooperation programme. The process is expected to continue with the assistance of the present project, which has been prepared at the request of the States in order to facilitate the implementation of new operational initiatives and the training of the personnel involved.

1.5   The CAR and SAM Regions are planning short- and medium-term activities for the implementation of the global air navigation plan initiatives, the results of which will lead to an air traffic management system as the one envisaged in the global ATM operational concept.

Performance-based navigation (PBN)

1.6   A significant number of aircraft have the capacity required for area navigation (RNAV) and the required navigation performance (RNP). These capacities should be further exploited to develop more efficient routes and aircraft paths that are not directly linked to air navigation ground aids. Some RNAV-equipped aircraft are also capable of better meeting runway sequencing requirements, especially through the use of the "required time of arrival" function of the flight management system (FMS).

1.7   The performance-based navigation (PBN) concept, which is a variation of the RNP concept, recognises that, when designating operations, a clear distinction must be made between aircraft operations that require an airborne autonomous performance control and alert system and those that do not require it. The global navigation satellite navigation (GNSS)-oriented PBN permits a seamless, harmonious and profitable navigation from departure to final approach, thus resulting in safety, efficiency and capacity benefits. Short-term GNSS applications are aimed at enabling the early introduction of satellite-based area navigation, without the need to invest in infrastructure, using the basic satellite constellations and the integrated multiple-sensor systems on board the aircraft. The use of these systems already provides greater reliability of non-precision approach operations at some airports.

Air traffic flow management (ATFM)

1.8   At some airports and airspace sectors of the CAR and SAM Regions, special periods and hours have been identified in which some congestion occurs that should be avoided, even though, in general terms, there is no air traffic congestion at the present time that requires a complicated flow management. This congestion occurs basically due to limitations in airport infrastructure and lack of air traffic flow management.

1.9   In view of the above, GREPECAS has considered that the early implementation of ATFM will guarantee an optimum air traffic flow to or through given areas during periods in which traffic demand regularly exceeds capacity, with the resulting frequent and continuous traffic delays, or when it is obvious that the demand for traffic forecasts will exceed the available capacity. In such cases, the appropriate ATM units, after consulting with aircraft operators, should consider the adoption of measures to improve the use of the existing system

capacity and to develop plans aimed at increasing capacity in order to meet actual or expected demand. Capacity increases should be planned in a structured and collaborative manner.

1.10   The States and the Regions should evolve towards a collaborative approach to capacity management. The ATM operational concept foresees a more strategic approach to ATM in general, and, through the adoption of collaborative decisions, aims at relying less on tactical traffic flow management. Tactical intervention in traffic flow management is unavoidable, but a better coordination between airspace users and ATM service providers can reduce the need for routine tactical interventions that usually disturb aircraft operations.

1.11   The final objective of ATFM is to balance the demand for, and capacity of, air traffic services, and the airport acceptance regime, by applying strategic, pre-tactical and tactical measures aimed at organising and managing traffic flows in such a way that all the traffic that needs to be organised at any time or in any airspace or aerodrome is compatible with the capacity of the air traffic management system.

Communication capacity improvements

1.12   ATM relies to a great extent, and more and more so, on the availability of relevant, precise, validated, and quality information in real time or quasi-real time, to permit the adoption of informed decisions. The timely availability of appropriate aeronautical mobile and fixed (voice and data) communication capabilities is essential to meet ATM requirements and provide the appropriate capacity and quality required by the service. The aeronautical communication network infrastructure should be adapted to the growing need to collect and exchange information within a seamless network in which all stakeholders can participate.

1.13   The gradual introduction of performance-based standards and recommended practices, functional requirements, and the whole system will permit a greater use of available voice and data telecommunication technologies and services. Within the framework of this strategy, the States should maximise the use of the appropriate technologies, services, and products offered by the telecommunication industry.

1.14   Taking into account that communications play a fundamental role since they permit aeronautical operations, the common objective is the attainment of a more efficient communication network system that provides the services desired with the required performance and interoperability in order to maintain the appropriate safety levels at the lowest cost.

1.15   The implementation of ground aeronautical telecommunication network (ATN) applications, such as the aeronautical message handling system (AMHS) and ATS interfacility data communication (AIDC), will enable faster, safer navigation aid services with increased capacity. The implementation of said systems has already started in the CAR/SAM Regions, and there is a need to develop a regional interface protocol (IP) addressing plan to ensure communications among ATN applications installed by the participating States and organisations.

1.16   A regional implementation plan will be required for the harmonised implementation of ground-air ATN applications, such as controller-pilot data link communications (CPDLC).

Navigation system improvements

1.17   It is necessary to foster GNSS implementation in order to provide navigation systems during all flight phases. GNSS trials conducted in the CAR/SAM Regions under projects RLA/00/009 and RLA/03/902 have shown the difficulty of implementing SBAS augmentation systems to support non-precision approach procedures that require vertical accuracy (APV-1 and APV-2).

1.18   Taking into account the results of these SBAS GNSS system trials, the implementation of a new civilian satellite positioning system (Galileo), the implementation of new GPS and GLONASS satellites, and the availability of a second frequency for civilian use, a GNSS implementation plan for the medium and long term needs to be developed in order to ensure air navigation during all flight phases.

Surveillance capacity improvements

1.19   There is a need to encourage the application of improved surveillance techniques that will reduce separation minima, enhance safety, increase capacity, and improve flight efficiency in a cost-effective manner. These benefits can be achieved by providing surveillance in areas that lack primary or secondary radar, when profitability models warrant it. In airspaces with radar coverage, improved surveillance could further reduce separation minima between aircraft and, in areas with high traffic density, it could improve the quality of surveillance information both on the ground and in the air, thus increasing safety levels.

1.20   The existing surveillance systems have limitations that prevent them from meeting the capacity, flexibility and efficiency requirements of the expected air traffic growth. In order to overcome these limitations, the aeronautical industry has developed various surveillance technologies, including extended squitter Mode S on 1090 MHz (1090 ES) as a means of interoperation for ADS-broadcast (ADS-B) in the short term.

1.21   The implementation of surveillance systems for surface movement at aerodromes where it is justified due to meteorological conditions and capacity considerations will also improve safety and efficiency, while the display of traffic information in the cockpit and the associated procedures will permit the pilot to participate in the ATM system and improve safety through a better situational awareness.

1.22   In remote and oceanic airspace where ADS-C is used, many air transport aircraft have FANS capabilities that could be incorporated into commercial aircraft. ADS-B can be used to improve traffic surveillance in domestic airspace. In this regard, it should be noted that extended squitter 1090 is an available option that should be adopted as the preferred option worldwide for ADS-B data links.

1.23   In terminal areas and aerodromes surrounded by significant terrain and obstacles, the availability of terrain and obstacle databases of an assured quality, made up by digital data sets that depict the ground surface in terms of continuous elevation values, and digital data sets on obstacles that constitute terrain features that have vertical significance in relation to adjacent and surrounding features and which are considered a hazard for air navigation, will improve situational awareness and will contribute to a general reduction in the number of associated controlled flight into terrain events.

Aerodrome design and management

1.24   Activities to improve aerodrome design and management, including coordination and collaboration among ATM service providers, vehicle operators and aircraft operators, may have a significant impact on safety and aerodrome capacity.

1.25   In most cases, operations conducted in the aerodrome parking area are under the responsibility of the aerodrome operator or aircraft operator. The capacity of taking an aircraft from its gate to the departure-holding position, or from the exit taxiway to its gate is essential to meet performance expectations. Coordination among all parties is required in order to use parking areas efficiently. Surface traffic management would also include the organisation of ground vehicle movement in the manoeuvring area.

1.26   In many places, structural improvements in aerodromes will result in a significant increase in efficiency. This would include the implementation of additional taxiways; taxiways running parallel to the main runways for two-way traffic to and from the runways; additional runway exits, including high-speed or quick exit taxiways; and improved lighting and signs.

1.27   Local collaborative decision-making processes should seek the sharing of key flight scheduling data in such a way that all the participants (aerodromes, ATC, ATFM, aircraft operators, ground handling providers) will have a more precise knowledge of the aircraft status throughout the "ground handling" process. This would permit the adoption of minimum and precise ATFM measures and make flight scheduling more predictable. The benefits to be derived include a more efficient use of aerodrome and ground handling resources, reduction of delays, and greater flight scheduling predictability.

Runway operations

1.28   The improvement of runway operation performance starts with the establishment of runway capacity reference values that are usually defined as the maximum number of flights to which an aerodrome can provide routine services in one hour for operations with weather minima above Category I. These reference values are estimates that vary according to runway configuration and aircraft type combinations. The objective should be the use of aircraft capabilities and available runways in the most appropriate manner so that the number of all-weather operations will be as close as possible to the number of operations under visual meteorological conditions.

1.29   Achieving the optimum capacity for each runway is a complicated task that involves many factors, both tactical and strategic. In order to accomplish this task in an effective manner, it is absolutely necessary to measure the impact of the changes and to control the performance of airspace users and ATM providers. The latter will apply to the analysis of pilot and controller performance, recognising the need to maintain the trust of the users and to work within the existing safety culture. A performance indicator system should be designed to serve as the basis for measurements and analyses. The tactical factors that affect runway occupancy include flight operations and ATM factors. Aspects related to flight operations include operator performance, the effects of corporate procedures, the use of airport infrastructure, and issues related to aircraft performance.

1.30   Limitations in runway capacity are defined by the procedures, the design of the surface area, aircraft performance capabilities, surveillance capabilities, aircraft spacing, and weather restrictions. The application of improved procedures to minimise spacing, such as the application of reduced separation minima in the runway, runway precision control (PRM) and RNP and RNAV approaches for parallel runways that are close to each other, will optimise spacing capacity.

Aeronautical information

1.31   ATM, RNAV, RNP and computer-based navigation system requirements introduced the need to have new AIS requirements to ensure the quality and timely distribution of information. In order to provide information and meet these new requirements, the traditional function of aeronautical information services will become an information management service with changing obligations and responsibilities.

1.32   In order to facilitate coordination, improve efficiency and safety, and make sure that the various members of the ATM community have the same information for collaborative decision-making, it is essential to have quality-assured real-time electronic information (aeronautical information on the terrain and obstacles). Electronic information will improve the situational awareness of pilots during en-route, terminal area, and aerodrome operations, to which end the aircraft will be equipped with geographical reference data sets containing information for the en-route, terminal and aerodrome phases. The same information can be provided at different AC positions, pre-flight planning units, and made available to airline flight planning departments or general or private aviation users. Electronic information can be adapted and its format modified in order to meet ATM user requirements and match their applications. Standard data formats will be used to create databases that will incorporate quality-assured data sets.

World geodetic system – 1984 (WGS-84)

1.33   The geographic coordinates used in several States worldwide to determine the position of runways, obstacles, aerodromes, navigation aids and ATS routes are based on a broad variety of local geodetic reference systems. With the introduction of RNAV, the problem of having geographic coordinates referenced to local geodetic data has become more apparent and has clearly shown the need to have a universal geodetic reference system. To address this issue, in 1994, ICAO adopted the world geodetic system – 1984 (WGS-84) as the common horizontal geodetic reference system for air navigation, effective 1 January 1998.

1.34   GNSS implementation requires that use be made of a common geographic coordinate system. ICAO adopted the geodetic reference system WGS-84 as the standard geodetic reference system, and many States have also implemented it or are in the process of implementing it. If this system is not implemented, or if the decision is made to use another reference system, a discontinuity in ATM service will be created, which will delay the full realisation of GNSS benefits. Full implementation of the geodetic reference system WGS-84 is a prerequisite for numerous ATM improvements, including GNSS.

Meteorological systems

1.35   The improvement of the world area forecasting system (WAFS), of the international airways volcano watch (IAVW), and of the ICAO tropical cyclone advisory system, with a view to enhancing the precision, timely distribution and usefulness of the information produced by these systems will facilitate an optimum use of airspace. Increased use of data links for the transmission of meteorological information through uplinks and downlinks so as to contribute to the automatic ordering of aircraft during approach will help maximise capacity.

1.36   The global ATM system will require immediate access to global real-time meteorological information. These stringent requirements will call for the automation of most meteorological systems. Automatic downloading of MET information *via* downlink, which is included in ADS messages, will provide precise real-time upper wind fields and wind profiles. The use of data link to send meteorological information to the aircraft *via* uplink during approach and departure should gradually increase, including the application of the data link-automatic terminal information service (C-ATIS) and D-VOLMET.

1.37   Said improvements will give ATC units access to precise upper wind field displays, both in the form of WAFS global upper wind forecasts and of "real-time" wind fields and wind profiles derived from wind information automatically sent by the aircraft through the automatic dependent surveillance (ADS) system, and to reports and forecasts of hazardous meteorological conditions, particularly volcanic ash, tropical cyclones, storms, clear air turbulence, icing, and wind shear. This information will assist ATM in the adoption of tactical decisions for aircraft surveillance, air traffic flow management, and flexible and dynamic aircraft routing, and will contribute to optimise the use of airspace.

1.38   To this end, the States and the Regions will have to implement the following improvements on the planned dates:

   a)   *WAFS*:   universal binary form of representing BUFR-coded meteorological data; significant weather forecasts (SIGWX); improvement of space and time resolution in WAFS forecasts; and GRIB2-coded turbulence, icing and convection cloud forecasts;
   b)   *IAVW*: volcano observatories of selected States;
   c)   *Tropical cyclone advisory system* (EC): graphical tropical cyclone advisories;
   d)   *Data links*:   ICAO provisions on the use of data links, taking into account the implementation of ADS and SSR Mode S data links; the replacement of VOLMET broadcast with D-VOLMET in Regions where appropriate data link communications are available.

Training

1.39   Aeronautical authorities and technical officials of civil aviation administrations must receive the training that is deemed necessary in order for them to learn about, and become involved with, the new systems, programmes, and technological developments, through their participation in meetings, panels, seminars, workshops and other activities.

Institutional aspects

1.40   At present, each individual State is responsible for the provision of the facilities, services, and procedures recommended in the ICAO regional air navigation plan. Some States provide some services to each other by virtue of bilateral agreements that benefit both parties. However, technological developments, high costs, and the multinational nature of CNS/ATM systems and other air navigation services have led to the consideration and establishment of various institutional arrangements for the joint collaborative planning, funding, implementation and management of certain facilities.

1.41   An example of this are the arrangements developed through the ICAO multinational technical cooperation projects described in this document, some of which are seeking to become permanent. On the other hand, GREPECAS has selected a series of systems that need to be implemented on a regional basis in the short and medium term.

1.42   The analysis and discussion at various fora of the institutional aspects involved in the implementation of a regional air navigation management system has resulted in a proposed set of tools that would enable a multilateral agreement for the establishment of an international organisation at the regional level, with legal status and administrative and financial autonomy, that would bring together and centralise the existing arrangements, consider the additional requirements for multinational facilities contained in the regional plan, and would be in charge of its implementation, management and operation.

1.43   Once the corresponding multilateral agreement is reached, additional assistance will be required for its implementation. It will be necessary to agree upon and propose the appropriate arrangements for the establishment and initial operation of a regional organisation responsible for the implementation, management and operation of air navigation facilities, taking into consideration the possibility of doing so through an ICAO regional technical cooperation project similar to those currently in operation.

Quality assurance systems

1.44   ICAO standards and recommended practices prescribe the establishment of quality assurance systems to monitor compliance with aircraft operation procedures and to guarantee the accuracy and integrity of aeronautical information and data, as required by Annexes 6, 11, and 14 to the Chicago Convention. As established in Annex 15, each contracting State shall take the necessary measures to establish a duly organised quality system containing the necessary procedures, processes and resources for the implementation of quality management at each stage of the production and distribution of the integrated aeronautical information package. The implementation of quality management should be demonstrable at every functional stage, when so required. The quality system could be established in keeping with ISO 9000 quality assurance standards, and certified by a recognised organisation.

1.45   A quality assurance system defines and establishes the quality policies and objectives of an organisation, and makes sure that the organisation has the necessary elements to improve efficiency and reduce risks. If properly applied, a quality assurance system ensures that procedures are conducted in a uniform manner and in keeping with applicable requirements, that problems are identified and resolved, and that the organisation is continuously analysing and improving its procedures, products, and services.

Safety management system (SMS)

1.46   Although major air disasters rarely occur, accidents that do not reach the level of a catastrophe and a whole range of incidents occur more frequently. These less serious events can be an indication of underlying safety problems. To ignore these underlying safety hazards could lead to an increased number of more serious incidents.

1.47   Safety has always been a major consideration in all aviation activities. Article 44 of the Chicago Convention charges ICAO, within its goals and objectives, with *achieving the safe and orderly development of international civil aviation worldwide*. This is reflected in the corresponding standards and recommended practices contained in Annexes 6, 11, and 14 to the Convention. Upon establishing the requirements that States must meet for safety management, ICAO makes the following distinction between safety programmes and safety management systems (SMS):

   a)   A *safety programme* is an integrated set of regulations and activities aimed at improving safety.
   b)   A *safety management system (SMS)* is a systematic approach to safety management, which includes the necessary organisational structures, responsibilities, policies, and procedures.

1.48   ICAO standards and recommended practices (SARPS) require all States to establish a *safety programme* in order to achieve an acceptable level of safety in aeronautical operations. The States concerned will define the acceptable level of safety.

1.49   A *safety programme* may be very broad, including many activities aimed at achieving its objectives. The safety programme of a State includes the regulations and directives issued in order to conduct safe air operations from the perspective of certified aircraft operators, aircraft maintenance organisations, air traffic service providers, and aerodrome operators. The safety programme may include requirements as diverse as incident reporting, investigations, audits, promotion of safety, etc. In order to carry out these activities consistently, a safety management system is required.

1.50   As part of their safety programme, the States will require certified aircraft operators, maintenance organisations, air traffic service providers and aerodrome operators to implement a safety management system that is acceptable to the State and which, at least:

   a)   identifies safety hazards,
   b)   ensures the enforcement of the necessary corrective action in order to keep an acceptable safety level; and
   c)   provides for continuous monitoring and periodical assessment of the level of safety achieved.

1.51   An approved safety management system must clearly define safety responsibilities. States need advice and training in order to successfully implement safety management systems in the areas concerned.

ATM automated systems

1.52   There are several States and service providers that have implemented or are in the process of implementing automated technologies, thus the need to provide guidance for the implementation of a regional integrated, safe, evolutionary, and harmonious methodology, in keeping with ICAO guidelines and the directives of GREPECAS and its contributory bodies. To this end, GREPECAS agreed to recommend a regional strategy for the integration of ATM automated systems, whose development requires professional assistance and support through this project.

1.53   The integration of electronic databases with communication and surveillance systems for purposes of coordinating all demand/capacity balancing activities provides automated methods and tools and improves ATM situational awareness for the resolution of problems through collaborative decision-making by airspace users and service providers, while providing full operational capacity in all weather conditions.

1.54   ATFM coordination requires the use of voice communications and automated methods to ensure a complete exchange of information. Both methods provide a common analytical support for the broader situational awareness functions, such as the collection of all available data on capacity, traffic flows, congestion areas, peak hours, etc.

1.55   Under project RLA/98/003, the task of integrating automated systems between CAR/SAM ACCs has begun. In a first stage, interface control documents (ICDs) have been developed in order to integrate flight plan and radar data applications. To complete this task, other applications need to be integrated, such as real-time aeronautical information and operational meteorological information (OPMET) data banks, which calls for the development of an implementation plan that involves data quality and integrity assurance and harmonisation criteria. This will expedite RNAV and RNP implementation and coordination, thus improving efficiency and safety in the ATM community.

2.   **Situation foreseen upon completion of the project**

2.1   The coordinated and homogeneous planning and implementation of various initiatives of the global air navigation plan in the CAR/SAM Regions will have been accomplished, together with the exchange of experiences throughout the process, and of information and knowledge through meetings, seminars and other training activities, with a view to the implementation of a safe, integrated, interoperable, and cost-efficient regional ATM system, within a global safety and interoperability framework that meets the needs of international civil aviation, including:

a)   The application of the PBN concept, with the incorporation of advanced aircraft navigation capabilities into the air navigation system infrastructure, which will translate into greater capacity and efficiency through reduced separation minima, thus benefiting operators that equip their aircraft to meet performance requirements. PBN will also enhance safety, particularly during approach, through a reduction of controlled flight into terrain events.

b)   Regional application of demand/capacity measures, commonly known as air traffic flow management (ATFM), whenever necessary, thus increasing airspace capacity and operational efficiency through the implementation of strategic, pre-tactical, and tactical measures aimed at the organisation and management of air traffic flows in such a way that the whole traffic being managed at a given point in time or in a given airspace or aerodrome is compatible with ATM system capacity.

c)   The evolution of the aeronautical mobile and fixed communication infrastructure, in such a way that it may be applied to voice and data communications, adapt to the new functions, and provide the appropriate service capacity and quality to support ATS requirements.

d)   The implementation of an interface protocol 2.1(IP) addressing plan, in order to harmonise aeronautical telecommunication network (ATN) applications at regional level.

e)   The drafting of a medium- and long-term GNSS facility plan to support navigation system performance during all flight stages.

f) Operational implementation of data link-based surveillance, using equipment that will permit the display of traffic information on board the aircraft to support conflict forecasting and collaboration between flight crews and the ATM system. This will improve situational awareness in the cockpit, through the provision of electronic quality data concerning the terrain and obstacles.

g) Implementation of aerodrome management and design strategies to improve the use of the movement area and reduce runway occupation time.

h) Broadcasting of real-time quality-assured electronic information, including aeronautical information concerning the terrain and obstacles, and the availability of meteorological information to support a global ATM system with seamless components.

i) Indoctrination of authorities and training of the technical personnel involved, in the topics addressed by the project.

2.2 Based on the incorporation instruments approved by the States, the appropriate multinational arrangements will be made for the establishment and start-up of a regional organisation charged with the implementation, management, and operation of multinational air navigation facilities, with legal status and administrative and financial autonomy.

2.3 Pursuant to the provisions of Annexes 6, 11, 14, and 15, the States will have established quality assurance systems that will help the administration ensure the necessary standardisation of the services under its responsibility, in order to reduce the risk of accidents.

2.4 In keeping with the ICAO Safety Management Manual (Doc 9859), States will establish safety programmes and will require each certified aircraft operator, maintenance organisation, air traffic service provider, and aerodrome operator to implement a safety management system (SMS) approved by the State.

2.5 The automation of air traffic management and the integration of its services will improve the quality of traffic information exchanged among sectors, making it more predictive, timely and reliable, thus permitting the application of reduced separation minima, reduced work loads, and increased capacity, efficiency and safety in flight operations.

2.6 The implementation of real-time databases for satellite navigation, including aeronautical and meteorological information, flight plans, radar information and its corresponding integration, will be a key task for the implementation of the global ATM.

3. **Need for future assistance**

3.1. Depending on the roll out of the Project, it is possible that the participating States and organisations will require additional assistance for the establishment and initial operation of a regional organisation charged with the implementation, management and operation of air navigation facilities, as well as for the implementation of new initiatives of the global air navigation plan, and for the resolution of deficiencies that affect air navigation services.

4. **Expected beneficiaries**

4.1. The following will benefit from the results of this project:

a) Airspace users, through the reduction of aircraft spacing and increase in capacity;

b) Aircraft operators, who will be able to better accommodate their preferred flight profiles, thus reducing operating costs and delays, and using a minimum amount of avionics;

c) General and utility aviation, through better access to avionics that will allow them to depart and arrive under flight conditions under which they could not operate before, due to the associated costs and requirements;

d) Administrations and air traffic service providers, through the reduction of infrastructure and maintenance costs of traditional air navigation systems and the modernisation of infrastructure at a very low cost;

e) The ATM community, through better conflict detection and resolution systems;

f) The community in general, through the reduction of aircraft noise and emissions as a result of optimised routes and flight levels; and

g) Passengers, through a reduction in flight time.

5.   **Project strategy and institutional arrangements**

5.1.   In keeping with the general purpose of the project, which is to guide the States in the implementation of a regional ATM system, taking into account the global ATM operational concept and the corresponding CNS support, its strategy is based on the development and availability to the participating States and organisations of a series of model action plans and guidelines for the implementation of various global plan initiatives, in addition to other instruments, and on the programming and implementation of the necessary coordination and training activities.

5.2.   Project implementation must be sufficiently flexible to adjust to any future changes, provided the activities can be carried out within budget limitations and within the established time frames. To this end, there will be continuous monitoring of its development, including a periodic update of the work plan and, whenever necessary, a revision of its scope and activities, through the participation of civil aviation authorities and the respective personnel from the States and organisations that participate in the Project Coordination Committee.

5.3.   The civil aviation administrations of the States and organisations participating in the project will designate their representatives to the Project Coordination Committee, which shall meet at least once a year at the request of the executing body, and will provide the necessary facilities, services, supplies, and experienced personnel to ensure the appropriate development of project activities and to contribute to the execution of the work plan.

5.4.   As soon as feasible, project activities will be executed by experienced professionals of the required specialties, who will be proposed and assigned to the project by the participating States and organisations. From the experienced personnel proposed by the participating States and organisations, ICAO will select the most appropriate professionals to carry out the planned activities, using project funds to cover transportation, insurance and *per diem* expenses throughout the assignment period. The participating States and organisations that assign professionals to the project will continue paying their regular salary throughout the assignment period.

6.   **Reasons for ICAO assistance**

6.1.   As the international aeronautical community knows, ICAO, for more than half a century, has been the United Nations agency specialised in civil aviation and, as such, is responsible for providing the frame of reference for virtually all of the civil aviation regulations of its contracting States. The same experts that provide assistance for the development and maintenance of this frame of reference provide technical support to the ICAO Technical Cooperation Programme. Therefore, since 1952, ICAO has been executing technical assistance projects for its contracting States in a neutral, non-profitable, and therefore more cost-effective way.

6.2   The States and organisations participating in project RLA/98/003 on the Transition to the CNS/ATM Systems in the CAR/SAM Regions, executed by ICAO between 1998 and 2006, have considered that the project has been an effective and successful supporting tool for the implementation of the regional plans of the regular ICAO programme, and of assistance to the States for the timely implementation of the ATM and CNS elements foreseen in the regional air navigation plan. They also felt that the project contributed to the timely and successful achievement of the objectives envisaged by GREPECAS, which permit an increase in airspace capacity and efficiency.

6.3   In view of the above, the ninth meeting of civil aviation authorities of the SAM Region, held in Santiago, Chile, in April 2005, adopted a conclusion charging lCAO with the drafting of this technical cooperation project document to serve as a guide for the States in the implementation of a regional ATM system, taking into account the global ATM operational concept and the corresponding CNS support.

7.   **Special considerations**

7.1.   This project will maintain links with existing regional projects that are related to its objectives, and with the national technical cooperation programmes that the participating States may already have in progress for the same sub-sector, in order to coordinate and complement the activities required on a national level with the support of their national projects.

8.   **Coordination arrangements**

8.1.   The administrative coordination of the project will be centralised at the ICAO Technical Co-Operation Bureau in Montreal, which shall appoint the International Coordinator and report this appointment to the participating States and organisations. TCB will fulfil its tasks in keeping with the policies, regulations, and instructions established for the ICAO Technical Cooperation Programme.

8.2.   Regarding the technical aspect, the ICAO Regional Offices in Mexico and Lima will support the International Coordinator in the monitoring of the project and will make the necessary arrangements for the control and follow-up on its activities and results, taking into account the conclusions and recommendations adopted by the States within GREPECAS on matters related to the objectives of the project.

9.   **Counterpart support capability**

9.1.   The States and organisations that participate in the project will undertake to fully participate in all the activities concerning planned assistance and accept the technical and monitoring missions that may be scheduled to visit airports and air navigation facilities. They also agree to apply or implement the results and recommendations of the project in those aspects that concern them.

9.2.   The States and organisations participating in the project will provide the counterpart support that may be required for the successful implementation of the activities foreseen and to ensure the sustainability of their results. This support may include full-time or part-time participation of professionals or other personnel, and the provision of office facilities, classrooms, furniture, equipment, materials, local transportation, telephone, telefax, internet and other essential services for the effective fulfilment of the activities by the personnel assigned to the project throughout the duration of their mission.

C.   DEVELOPMENT OBJECTIVE

The project will contribute to maintain a safer, more efficient and economical air transport system, as a means to support the social, economic, and cultural development of the CAR/SAM Regions.

D. IMMEDIATE OBJECTIVES, RESULTS AND ACTIVITIES

They are presented in the following pages. The abbreviations used in the third column mean:

ATM	Air traffic management specialist
RO	ICAO Regional Office in Lima or Mexico
CNS	Communication, navigation and surveillance specialist
CBA	Cost-benefit analysis specialist
OPS	Aircraft operation specialist
AIR	Airworthiness specialist
AGA	Aerodrome specialist
AIS	Aeronautical information service specialist
MET	Aeronautical meteorology specialist
TCB	ICAO Technical Co-operation Bureau in Montreal
PCC	Project Coordination Committee
CAAs	Civil aviation authorities
SRVSOP	Regional safety oversight cooperation system

Immediate objective No. 1

Development and implementation of global air navigation plan initiatives that will lead to the transition from an air traffic management system based on ground systems to another one based on aircraft performance.

Success criterion: A number of global plan initiatives (GPIs) developed and implemented at regional level. A minimum of 30 specialists from the participating States and organizations trained in each related matter.

Results	Activities	Party responsible for each activity
1.1 Implementation of performance-based navigation (PBN) – (GPIs 5, 7, 10, 11, 12, and 21).	1.1.1. Obtain and complete the information, learning about the current status in the participating States and organisations with respect to: a) Available CNS infrastructure, with the corresponding coverage and plans for future facilities; b) Characteristics of available ATM automated systems and future automation plans; c) Aircraft fleet operating in the CAR/SAM ATS route network and its RNAV and RNP capabilities, including capacity for arrival procedures based on the flight management system (FMS) and future plans of the users; d) Airworthiness and operational approval capabilities; e) Airports that might derive operational benefits from the use of RNAV and/or RNP; f) Status of implementation of WGS 84; g) Existing SIDs and STARs connecting international airports to ATS routes; h) Real-time and accelerated simulation of operations;	

	i) Cost-benefit analysis of facilities; j) Safety assessment models; k) Regulation of GNSS use (secondary, primary means) l) Documentation concerning the training of air traffic controllers; m) Terminal control area design and control. Start-up date: week 1 Estimated duration: 2 weeks	
	1.1.2. Analyse the application of GNSS to support all flight stages, including: a) The required ground navigation infrastructure for the operations contemplated in current plans, based on the development of system technology; b) En-route operations without using precision values with RNAV-5 (continental airspaces) and with RNP-4 (oceanic airspaces); c) TMA operations (RNAV 1) and approaches (RNP 0,3 and RNP AR), with ABAS; d) Operational benefits of using GBAS, taking into account the impact of the implementation of Galileo and the L5 frequency on the GPS, likely implementation dates, and the convenience of including APV operations in the planning. Start-up date: week 3 Estimated duration: 2 weeks	ATM, CNS, RO
	1.1.3. Develop a model action plan based on the information processed in 1.1.1 and 1.1.2, to be used by the participating States and organisations in the implementation of PBN in TMA and approach, according to the following regional planning: I. Short term (until 2010) a) Terminal area operations, including standard instrument departures and arrivals (RNAV 1 in radar environments with the proper navigation infrastructure and RNP 1 in non-radar environments without the proper DME coverage infrastructure); and b) Instrument flight rule approaches (RNP 0.3 in as many aerodromes as possible and in all international airports, and RNP AR in airports deriving operational benefits). II. Medium term (2011 to 2015) a) Terminal area operations, including standard instrument departures and standard instrument arrivals (extended application of RNAV1/RNP1	ATM, OR

	and mandatory use of RNAV1/RNP1—exclusionary airspace—in TMAs with greater air traffic density); and b) Instrument flight rule approaches (extended application of RNP 0.3 in as many aerodromes as possible and in all international airports, RNP AR in airports deriving operational benefits, and start-up of the application of GLS procedures). Start-up date: week 5 Estimated duration: 1 week	
	1.1.4. Develop guidelines based on the information processed under 1.1.1, 1.1.2, and 1.1.3, to be used by the participating States and organisations in the implementation of PBN in TMA and approach, including the following main tasks: a) Cost-benefit analysis; b) Safety assessment; c) Design of procedures; d) Real-time and accelerated simulation of operations; e) ATC automated systems; f) Training of air traffic controllers; g) Aircraft and operator approval; h) Terminal control area design and management; i) Model regulations for GNSS application (primary, secondary means, operational restrictions, etc.). Start-up date: week 6 Estimated duration: 4 weeks	ATM, RO
	1.1.5. Develop an action plan based on the information processed under 1.1.1 and 1.1.2 for the implementation of PBN for en-route operations, according to the following regional planning: I. Short term (until 2010) Oceanic airspace RNP 10 and continental airspace RNAV 5. II. Medium term (2011 to 2015) Oceanic airspace RNP 4 and selected continental airspaces RNP 2. Start-up: week 11 Estimated duration: 1 week	ATM, OR
	1.1.6. Prepare a working paper supporting the submission of the model action plan and guidelines for PBN implementation in TMAs and approach, and the	ATM, RO

	action plan for PBN implementation, for consideration and approval. Start-up date:　　　week 11 Estimated duration:　1 week	
	1.1.7　　Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date:　　　to be determined Estimated duration:	RO
	1.1.8　　Make the necessary adjustments or changes to the material mentioned in 1.1.6 based on the comments generated, and update the proposal and working paper for consideration and approval by GREPECAS. Start-up date:　　　to be determined Estimated duration:	ATM, RO
	1.1.9　　Process, edit, and distribute the material, introducing the amendments made by GREPECAS during its approval. Start-up date:　　　to be determined Estimated duration:	RO

	1.1.10　　Determine and develop the necessary material for PBN implementation for en-route operations, in coordination with the participating States and organisations, taking into account environmental protection methods and procedures, and including the following aspects:
	
	   a)　PBN operational concept;
	   b)　Cost-benefit analysis;
	   c)　Aircraft and operator approval requirements and processes;
	   d)　Modification of national norms and airspace regulations;
	   e)　RNAV and RNP document formats to be included in the CAR/SAM web;
	   f)　Required AICs/NOTAMs and AIP supplements;
	   g)　Amendment to Doc 7030 as required;
	   h)　Amendments to the corresponding letters of agreement;
	   i)　Procedures for pilots and ATC;
	   j)　Procedures to accommodate non-RNAV and non-RNP aircraft where applicable;
	   k)　Transition procedures, if necessary;
	   l)　ATC training;
	   m)　Post-implementation follow-up plan.
	
	Start-up date:　　　to be determined
		ATM, CBA, OPS, AIR, RO

	Estimated duration:	
	1.1.11 Provide assistance to the participating States and organisations for the implementation of the PBN implementation action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	ATM, OPS, AIR, RO
	1.1.12 Prepare a final report on activities performed, including relevant recommendations. Start-up date: to be determined Estimated duration:	ATM

1.2 Regional implementation of air traffic flow management (ATFM) wherever necessary to improve airspace capacity and operational efficiency -(GPI 6)	1.2.1 Obtain and complete the information, learning about the current status in the participating States and organisations with respect to:
	
	a) The methods for estimating airport and ATC capacity;
	b) ATFM procedures for the following phases:
	   ✓ Airport strategic
	   ✓ Airport tactical
	   ✓ Airspace strategic
	   ✓ Airspace tactical
	
	Start-up date: week 12
	Estimated duration: 1 week
		ATM, AGA, RO

	1.2.2 Obtain and complete the information, learning about the current status in the participating States and organisations of the electronic databases required for the ATFM evolutionary phases, in relation to the following aspects:
	
	a) Flow management data processing and display:
	   ✓ Flight planning and flight plan processing data (FPL, RPL, etc.);
	   ✓ Airspace and airport structure data;
	   ✓ Display of the situation in the air;
	   ✓ Automatic messages to support decision-making (access to SLOTS, reporting of delays, alternate routes, etc.);
	   ✓ Monitoring of the operational status of air navigation infrastructure;
	   ✓ Capacity of the airport acceptance regime (AAR);
	   ✓ ATC capacity;
	   ✓ Air traffic demand;
	   ✓ Airspace structure and ATS route network;
	   ✓ Radio navigation aids, radar, etc.;
	   ✓ Aircraft performance.
		ATM, AIS, AGA, CNS, MET, RO

	b) Surveillance system data (SSR, ADS, etc.);
	c) AIS/MAP (mapping, ATFM advisories, AIRAC updates, etc.);
	d) Meteorological information (MET);
	e) Data for historical and statistical analysis of air operations, meteorology, etc.;
	f) Communication systems in support of collaborative decision-making (CDM) with:
	   ✓ Other centralised ATFM systems;
	   ✓ Other FMUs and/or FMPs and/or ATS units;
	   ✓ Operators and users (airlines, general aviation, State aircraft, etc.);
	   ✓ Airport authorities;
	   ✓ Meteorological authorities;
	   ✓ Aeronautical information services.
	g) The necessary communication requirements to effectively support centralised air traffic flow management in its linkage with:
	   ✓ Other centralised ATFM systems;
	   ✓ FMUs, FMPs and/or ATS units involved;
	   ✓ Operators and users;
	   ✓ Airport authorities;
	   ✓ Meteorological authorities;
	   ✓ Aeronautical information services;
	   ✓ The transmission of ADS and radar data to the ATFMC.
	
	Start-up date: week 13
	Estimated duration: 1 week	

	1.2.3 Develop model action plans based on the information processed under 1.2.1 and 1.2.2, to be used by the participating States and organisations for the implementation of: a) Airport strategic ATFM; b) Airport tactical ATFM; c) Airspace strategic ATFM; and d) Airspace tactical ATFM. Start-up date: week 14 Estimated duration: 4 weeks	ATM, RO
	1.2.4 Develop guidelines, based on the information processed in the preceding activities, to be used by the participating States and organisations for the implementation of flow management units (FMUs) or flow management positions (FMPs) and for the incorporation of new procedures applicable to FMUs or FMPs concerning: a) Airport strategic ATFM; b) Airport tactical ATFM; c) Airspace strategic ATFM; and	ATM, RO

	d) Airspace tactical ATFM. Start-up date: week 18 Estimated duration: 4 weeks	
	1.2.5 Develop a model action plan, based on the material processed in the preceding activities, for the implementation of the centralised ATFM in each of the CAR and SAM Regions. Start-up date: week 22 Estimated duration: 1 week	ATM, RO
	1.2.6 Draft a working paper to support the submittal of the action plan for the implementation of the centralised ATFM for consideration and approval. Start-up date: week 23 Estimated duration: 1 week	ATM,RO
	1.2.7 Submit the working paper introducing the plan to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	1.2.8 Make the necessary adjustments or changes to the plan based on the comments generated, and update the proposal and the working paper for consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	ATM, RO
	1.2.9 Process, edit, and distribute the plan, introducing the amendments that GREPECAS may have made in the course of its approval. Start-up date: to be determined Estimated duration:	RO
	1.2.10 Identify and develop the necessary material for the implementation of the centralised ATFM, in coordination with the participating States and organisations, taking into account environmental protection practices and procedures, and including the following aspects: a) Cost-benefit analysis; b) Definition of data collection plans; c) Determination of the required automated systems, including performance parameters and the necessary tests and assessments; d) Updating of the CAR/SAM ATFM operational concept, if necessary; e) Drafting of a handbook on common operational	ATM, CNS, AIS, RO

	procedures for air traffic flow management, including, *inter alia*, the following aspects:
	  ✓ Procedures applicable to the strategic, pre-tactical, and tactical phases;
	  ✓ Procedures for coordination and teleconferencing with FMUs/FMPs, ATS units, ATFMC, users, airports, and other organisations involved;
	  ✓ Collaborative decision-making procedures;
	  ✓ Methodology to determine airport and ATS capacity;
	  ✓ Procedure to keep ATFM databases permanently updated;
	  ✓ Procedures for pilots and ATC;
	  ✓ Required ATFM messages.
	  f) Models of the required AICs/NOTAMs and AIP supplements;
	  g) ATFM document formats to be included in the CAR/SAM web;
	  h) Amendment to Doc 7030, if necessary;
	  i) Amendments to the corresponding letters of agreement;
	  j) ATC simulations;
	  k) Harmonisation of applicable ANP requirements;
	  l) ATFM training;
	  m) Contingency plans.
	
	Start-up date: to be determined
	Estimated duration:	

	1.2.11 Provide assistance to the participating States and organisations for the execution of the ATFM implementation action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	ATM, OR
	1.2.12 Draft a final report of the activities carried out, including relevant recommendations. Start-up date: to be determined Estimated duration:	ATM

1.3 Implementation of communication and surveillance (CNS) capacity improvements for en-route and terminal area operations – (GPIs 6, 7, 9, 17, 18, and 22)	1.3.1 Obtain and complete the information, learning about the current status in the participating States and organisations with respect to:
	
	  a) Existing CNS facilities and equipment;
	  b) Regional planning and documentation on existing CNS;
	  c) Aeronautical message handling systems (AMHS);
	  d) Very high frequency data link (VDL) and high-frequency data link (HFDL);
		CNS, ATM, RO

	e) ATS interfacility data communication (AIDC); f) Automatic dependent surveillance by contract (ADS/C); g) Automatic dependent surveillance by broadcast (ADS/B); h) Multilateration, etc.; i) Communication protocols used. Start-up date: week 22 Estimated duration: 2 weeks	
	1.3.2 Analyse the operational scenarios of existing and planned ATS, in order to determine the operational requirements for improving communication and surveillance systems in the short and medium term, as well as other operational requirements to meet future ATM expectations, using, inter alia, the following tools: a) Aeronautical message handling system (AMHS), b) Very high frequency digital link (VDL), c) ATS interfacility data communication (AIDC), d) Automatic dependent surveillance by contract (ADS/C), e) Automatic dependent surveillance by broadcast (ADS/B), f) Multilateration, etc. Start-up date: week 24 Estimated duration: 2 weeks	CNS, ATM, RO
	1.3.3 Prepare a cost-benefit analysis of the various options available for communication and surveillance systems, comparing the existing structure with the improvement resulting from the implementation of the new systems, also taking into account the existence of two or more technologies to meet the same operational requirement (for example: multilateration or ADS/B). Start-up date: week 26 Estimated duration: 2 weeks	CBA, CNS, ATM,RO
	1.3.4 Develop a regional interface protocol (IP) addressing implementation plan for ATN applications. Start-up date: week 28 Estimated duration: 1 week	CNS, ATM, RO
	1.3.5 Identify medium- and long-term GNSS implementation requirements to provide support during all flight phases, taking into account: a) The results of trials conducted under projects RLA/00/009 and RLA/03/902; b) The status of development of GNSS technology; c) The coordination activities and training programmes required.	CNS, RO

	Start-up date: week 29 Estimated duration: 1 week	
	1.3.6 Develop a strategy for the implementation of communication, navigation, and surveillance improvements in the CAR/SAM Regions, taking into account the information obtained in the preceding activities. Start-up date: week 30 Estimated duration: 2 weeks	CNS, ATM, RO
	1.3.7 Develop a model action plan, based on the information processed in the preceding activities, to be used by the participating States and organisations in the implementation of improvements to CNS capabilities for en-route and terminal area operations, including the inputs and the programming of the necessary coordination and training activities. Start-up date: week 32 Estimated duration: 1 week	CNS, ATM, RO
	1.3.8 Draft a working paper to support the submittal of the strategy and action plan for the implementation of improvements to en-route and terminal area CNS capabilities, for consideration and approval. Start-up date: week 33 Estimated duration: 1 week	CNS, ATM, RO
	1.3.9 Submit the working paper introducing the strategy and plan to the consideration of the corresponding GREPECAS bodies, through the established channels. Start-up date: to be determined Estimated duration:	RO
	1.3.10 Make the necessary adjustments or changes to the strategy and the plan based on the comments generated, and update the proposal and the working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	CNS, ATM, RO
	1.3.11 Process, edit, and distribute the strategy and the plan, introducing the amendments that GREPECAS may have generated in the course of their approval. Start-up date: to be determined Estimated duration:	RO
	1.3.12 Follow up on the implementation of CNS facilities and capacity improvements for en-route and terminal area operations in the CAR/SAM Regions,	CNS, RO

	including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	
	1.3.13 Draft a final report on all the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	CNS, ATM
1.4 Implementation of improvements to aerodrome design and management -(GPIs 13 and 14)	1.4.1 Obtain and complete the information, learning about the current status of international aerodromes in the participating States, including: a) Available runways and their characteristics; b) Design and utilisation of the movement area; c) Number, location, and utilisation modality of aircraft parking positions; d) Available handling services; e) Aircraft arrival and departure procedures; f) Flight scheduling; g) Number of operations during peak hours. Start-up date: week 32 Estimated duration: 2 weeks	AGA, RO
	1.4.2 Develop a model action plan to be used by the participating States and organisations for the implementation of improvements to the design and management of international aerodromes, with a view to: a) Using aerodrome resources and ground handling services more efficiently; b) Reducing delays; c) Achieving greater predictability in flight programming; d) Increasing capacity by improving aircraft arrival, parking, and departure procedures; e) Improving coordination among all parties, in order to make efficient use of parking areas; f) Optimising collaborative decision-making processes among ATM service providers, vehicle operators and aircraft operators; g) Optimising the use of the movement area by introducing the necessary structural improvements, such as: ✓ Additional taxiways; ✓ Runways that run parallel to the main runways for two-way traffic; ✓ Additional runway exits, including high-speed or fast-exit taxiways; ✓ Improved lighting and signs, etc.	AGA, ATM, RO

	h) Sharing key data on flight programming among all stakeholders; i) Optimising surface traffic through improved organisation of ground vehicle movement in the manoeuvring area; j) Reducing runway occupation time, taking into account: ✓ Airspace user performance; ✓ ATS provider performance; ✓ Surface area design; ✓ Aircraft performance capabilities; ✓ Surveillance capabilities; ✓ Aircraft spacing; ✓ Meteorological limitations; ✓ Application of improved procedures to minimise spacing. k) Increasing safety and environmental protection. Start-up date: week 34 Estimated duration: 2 weeks	
	1.4.3 Develop guidelines based on the information processed under 1.4.1 and 1.4.2, to be used by the participating States and organisations for the implementation of international aerodrome design and management improvements that imply increasing capacity and reducing holding times. Start-up date: week 36 Estimated duration: 2 weeks	AGA, ATM, RO
	1.4.4 Draft a working paper supporting the presentation of the model action plan and the guidelines for their consideration and approval. Start-up date: week 38 Estimated duration: 1 week	AGA, ATM, RO
	1.4.5 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	1.4.6 Make the necessary adjustments or changes to the material mentioned in 1.4.4, based on the comments generated, and update the proposal and the working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	AGA, ATM, RO
	1.4.7 Process, edit, and distribute the material, introducing the amendments that GREPECAS may have generated in the course of its approval.	RO

	Start-up date: to be determined Estimated duration:	
	1.4.8 Provide assistance to the participating States and organisations for the implementation of the model action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	AGA
	1.4.9 Draft a final report on the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	AGA, ATM
1.5 Implementation of functional improvements to the provision of aeronautical information services – (GPI 18)	1.5.1 Obtain and complete the information, learning about the current status in the participating States and organisations with respect to aeronautical information services, including: a) ATM, RNAV, and RNP requirements; b) Computer-based navigation system requirements; c) Availability of aeronautical information data banks; d) Availability of an automated AIP; e) Availability of electronic information; f) AIS automation plans; g) Implementation of the WGS-84 geodetic reference system. Start-up date: week 53 Estimated duration: 2 weeks	AIS, RO
	1.5.2 Develop a model action plan, to be used by the participating States and organisations in the implementation of AIS improvements that will: a) provide quality-assured and real-time aeronautical information on terrain and obstacles; b) ensure the timely distribution of information; c) facilitate coordination among the various members of the ATM community; d) improve efficiency and safety; e) ensure that all members of the ATM community have the same information when making collaborative decisions; f) improve situational awareness of pilots during en-route, terminal area, and aerodrome operations; g) enable the completion of the implementation of the WGS-84 geodetic reference system; h) increase safety. Start-up date: week 55	AIS, ATM, RO

	Estimated duration: 2 weeks	
	1.5.3 Develop guidelines based on the information processed in 1.5.1 and 1.5.2, to be used by the participating States and organisations in the implementation of functional improvements to the provision of aeronautical information services. Start-up date: week 57 Estimated duration: 2 weeks	AIS, ATM, RO
	1.5.4 Draft a working paper supporting the presentation of the model action plan and the guidelines for their consideration and approval. Start-up date: week 59 Estimated duration: 1 week	AIS, ATM, RO
	1.5.5 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	1.5.6 Make the necessary adjustments or changes to the material mentioned in 1.5.4, based on the comments generated, and update the proposal and the working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	AIS, ATM, RO
	1.5.7 Process, edit, and distribute the material, introducing the amendments generated by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	RO
	1.5.8 Provide assistance to the participating States and organisations for the implementation of the model action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	AIS
	1.5.9 Prepare a final report on the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	AIS, ATM
1.6 Implantación de mejoras funcionales en la provisión de servicios meteorológicos para la navegación aérea	1.6.1 Obtain and complete the information, learning about the current status in the participating States and organisations with respect to the meteorological services for international air navigation, including:	MET, RO

internacional – (GPI-1.6 Implementation of functional improvements to the provision of meteorological services for international air navigation – (GPI-19)	a) ATM requirements; b) World area forecast system (WAFS) requirements; c) The international airways volcano watch; d) Tropical cyclone advisory system requirements; e) Use of data link for the transmission of meteorological information; f) Availability of meteorological information data banks; g) Automation of meteorological systems; h) Availability of electronic information; i) Plans for the automation of aeronautical meteorological services. Start-up date: week 59 Estimated duration: 2 weeks	
	1.6.2 Develop a model action plan to be used by the participating States and organisations for the implementation of improvements to the provision of MET services that will: a) Improve the availability of meteorological information in support of a seamless global ATM system; b) Improve the precision, timely distribution, and usefulness of the information produced by world area forecast, international airways volcano watch, and tropical cyclone advisory systems; c) Permit immediate access to real-time global meteorological information; d) Achieve the automation of meteorological systems; e) Assist ATM in the adoption of tactical decisions for aircraft surveillance, air traffic flow management, and flexible and dynamic aircraft routing; f) Increase safety. Start-up date: week 61 Estimated duration: 2 weeks	MET, ATM, RO
	1.6.3 Develop guidelines, based on the information processed in 1.6.1 and 1.6.2, to be used by the participating States and organisations in the implementation of functional improvements to the provision of meteorological services to international air navigation. Start-up date: week 63 Estimated duration: 2 weeks	MET, ATM ,RO
	1.6.4 Draft a working paper to support the presentation of the model action plan and the guidelines for their consideration and approval. Start-up date: week 65 Estimated duration: 1 week	MET, ATM, RO

		RO
	1.6.5 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	
	1.6.6 Make the necessary adjustments or changes to the material mentioned in 1.6.4, based on the comments generated, and update the proposal and working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	MET, ATM, RO
	1.6.7 Process, edit, and distribute the material, introducing the amendments generated by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	RO
	1.6.8 Provide assistance to the participating States and organisations for the implementation of the model action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	MET
	1.6.9 Draft a final report on the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	MET, ATM
1.7 Training of at least 30 officials from the CAAs in each topic related to the preceding results.	1.7.1 Develop annual plans for the conduction of courses, seminars, workshops, and other activities that might be required concerning: a) Airspace planning; b) Construction of air navigation procedures; c) Airworthiness and operation approval; d) Safety assessment; e) Airspace monitoring; f) Performance-based navigation; g) Planning of air traffic flow management; h) National air navigation planning, incorporating the global ATM operational concept; i) New trends in communication systems; j) New trends in navigation systems; k) New trends in surveillance systems; l) New trends in flight test systems; m) Current and future use of the radio electric spectrum for aeronautical applications; n) Integration of automated systems;	ATM, CNS, RO Consultants

	o) Other topics that may be required. Start-up date: September of every year Estimated duration: 2 weeks	
	1.7.2 Determine input requirements for organising and conducting each training activity. Start-up date: September of every year Estimated duration: 1 week	ATM, CNS, RO, Consultants
	1.7.3 Determine the costs of the inputs required for each activity, and the budget available for its execution. Start-up date: September of every year Estimated duration: 3 days	TCB
	1.7.4 Draft a working paper to submit the annual training plans and their logistic and financial requirements to the consideration and approval of the Project Coordination Committee. Start-up date: October of every year Estimated duration: 1 week	ATM, CNS, RO, Consultants
	1.7.5 Examine and approve the annual training plans and their requirements. Start-up date: November of every year Estimated duration: 1 day	CCP
	1.7.6 Prepare the information, the teaching material, and the presentations for each approved activity. Start-up date: according to the annual plan Estimated duration:	ATM, CNS, Ro, Consultants, Lecturers
	1.7.7 dvise the participating States and organisations about the details of the training activities and the logistic and financial arrangements for their implementation. Start-up date: according to the annual plan Estimated duration:	RO
	1.7.8 Nominate the candidates for training activities, and introduce them to the respective ICAO Regional Office. Start-up date: according to the annual plan Estimated duration:	CAAs and participant organizations
	1.7.9 Consider the requests for scholarships, and assign them according to the established budgetary provisions. Start-up date: according to the annual plan Estimated duration:	RO, TCB Fellowships
	1.7.10 Carry out training activities and assess their results.	ATM, CNS, RO, Consultants, Lecturers

	Start-up date: according to the annual plan Estimated duration:	
	1.7.11 Draft a report on the conduction of each activity and its results. Start-up date: according to the annual plan Estimated duration:	ATM, CNS, Consultants
1.8 Adoption of the appropriate multinational arrangements for the establishment and start-up of a regional organisation in charge of the implementation, management, and operation of multinational air navigation facilities.	1.8.1 Learn about the incorporation instruments approved by the States for the establishment of a regional organisation charged with the implementation, management, and operation of multinational air navigation facilities. Start-up date: week 27 Estimated duration: 1 week	Consultants
	1.8.2 Draft and propose an ICAO regional technical cooperation project document, based on the incorporation instruments of the new organisation, that will permit the establishment and initial operation of the latter. Start-up date: week 28 Estimated duration: 1 week	TCB, Consultants
	1.8.3 Draft a working paper supporting the submittal of the project document for its consideration and approval. Start-up date: week 29 Estimated duration: 2 days	Consultants, RO
	1.8.4 Submit the working paper presenting the proposed project document to the consideration of the civil aviation authorities, requesting their comments. Start-up date: to be determined Estimated duration:	RO
	1.8.5 Make the necessary adjustments or changes to the project document, based on the comments generated. Start-up date: to be determined Estimated duration:	Consultants
	1.8.6 Submit the final project document proposal to the approval of the corresponding bodies of each State. Start-up date: to be determined Estimated duration:	RO
	1.8.7 Make arrangements for the implementation of the project as soon as it has been approved by the States concerned. Start-up date: to be determined Estimated duration:	TCB, RO

Immediate Objective No. 2

Implementation of AIS quality assurance and safety management systems in CAR/SAM States, in keeping with international standards and recommended practices.

Success criterion: Quality assurance and safety management systems approved and established in no less than 10 CAR/SAM States.

Results	Activities	Party responsible for each activity
2.1 Implementation of quality assurance systems in no less than 10 States, in keeping with the corresponding provisions contained in Annexes 6,11,14 and 15.	2.1.1. Obtain and complete the information, learning about the current status with respect to the adoption of quality assurance systems in the participating States and organisations. Start-up date: week 66 Estimated duration: 2 weeks	AIS, RO
	2.1.2. Develop a model action plan, based on the information obtained and the regional guidance material available, to be used by the participating States and organisations for the implementation of a quality assurance system, including: Documented procedures; Inspection and trial methods; Supervision of equipment and operations; Internal and external audits; Supervision of the corrective action taken; and Use of the appropriate statistical analyses, when necessary. Start-up date: week 68 Estimated duration: 2 weeks	AIS, RO
	2.1.3. Draft a working paper to support the submittal of the model action plan for its consideration and approval. Start-up date: week 70 Estimated duration: 1 week	AIS, RO
	2.1.4 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	2.1.5 Make the necessary adjustments and changes to the model action plan, based on the comments generated, and update the proposal and working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	AIS, RO

	2.1.6 Process, edit, and distribute the model action plan, introducing the amendments generated by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	RO
	2.1.7 Assist the participating States and organisations in the implementation of the model action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	AIS
	2.1.8 Draft a final report on the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	AIS
2.2 Implementation of a State safety programme in no less than 10 States.	2.2.1 Obtain and complete the information, learning about the current status of safety management and the establishment of a safety programme in the participating States. Start-up date: week 71 Estimated duration: 2 weeks	ATM, AGA, SRVSOP
	2.2.2 Develop a model action plan, based on the information obtained and the guidelines of the Safety Management Manual (Doc 9859), to be used by the States in the implementation of a State safety programme. Start-up date: week 72 Estimated duration: 1 week	ATM, SRVSOP
	2.2.3 Draft a working paper supporting the submittal of the model action plan for its consideration and approval. Start-up date: week 70 Estimated duration: 1 week	ATM, AGA, SRVSOP
	2.2.4 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	ATM, AGA, SRVSOP
	2.2.5 Make the necessary adjustments and changes to the model action plan, based on the comments generated, and update the proposal and the working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	RO

	2.2.6 Process, edit, and distribute the model action plan, introducing the amendment generated by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	ATM, AGA, SRVSOP
	2.2.7 Assist the participating States and organisations in the implementation of the model action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	RO
	2.2.8 Draft a final report on the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	SRVSOP
2.3 Implementation of a safety management system by the corresponding bodies in no less than 10 States.	2.3.1 Obtain and complete the information, learning about the current status with respect to the adoption of a safety programme by the corresponding bodies in the participating States. Start-up date: week 74 Estimated duration: 2 weeks	ATM, AGA, SRVSOP
	2.3.2 Develop a model action plan, based on the information obtained and the guidelines of the safety management manual (Doc 9859), to be used by the participating States and organisations for the implementation of the safety management system that should be put in place by each certified aircraft operator, maintenance organisation, ATS provider, and aerodrome operator, and that will: a) Identify safety hazards; b) Make sure that the necessary corrective action is taken to mitigate risks and hazards; c) Contemplate the permanent supervision and periodic assessment of the level of safety achieved; d) Clearly define safety responsibilities; and e) Include the direct responsibility that top management has regarding safety. Start-up date: week 76 Estimated duration: 1 week	ATM, AGA, SRVSOP
	2.3.3 Develop guidelines to be used by the participating States for the establishment of a national acceptable level of safety, taking into account: a) safety efficiency indicators; b) safety efficiency objectives; and	ATM, SRVSOP

	c) safety requirements. Start-up date: week 77 Estimated duration: 1 week	
	2.3.4 Develop guidelines to be used by the States for the adoption of a systemic approach to gradually and consistently address the various elements necessary to build an effective safety management system, comprising the following steps: a) Planning; b) Commitment of top management with respect to safety; c) Organisation; d) Identification of hazards; e) Risk management; f) Investigation capacity; g) Safety analysis capacity; h) Promotion of safety and training; i) Documentation on safety and information management; j) Safety oversight and safety efficiency monitoring. Start-up date: week 78 Estimated duration: 1 week	ATM, SRVSOP
	2.3.5 Draft a working paper supporting the submittal of the model action plan and the guidelines for their consideration and approval. Start-up date: week 79 Estimated duration: 1 week	ATM, SRVSOP
	2.3.6 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	2.3.7 Make the necessary adjustments or changes to the material referred to in 2.3.5, based on the comments generated, and update the proposal and working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	ATM, SRVSOP
	2.3.8 Process, edit, and distribute the material, introducing the amendments made by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	RO

	2.3.9 Assist the participating States and organisations in the implementation of the model action plan, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	ATM, SRVSOP
	2.3.10 Draft a final report on the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	ATM, SRVSOP
2.4 Adoption of safety assessment programmes by the corresponding organisations of each State.	2.4.1 Obtain and complete the information, learning about the current status with respect to the adoption of safety assessment programmes by the corresponding organisations in the participating States and organisations. Start-up date: week 80 Estimated duration: 2 weeks	ATM, SRVSOP
	2.4.2 Develop a model action plan, based on the information obtained and the guidelines of the safety management manual (Doc 9859), to be used by the participating States and organisations for the adoption of a safety assessment programme by the corresponding organisations, that will permit: a) The identification of requirements regarding when safety assessments should be conducted; b) The drafting of safety assessment procedures; c) The development of organisational hazard classification criteria for the hazards identified; d) The development of safety assessment acceptance criteria; and e) The development of documentation and process requirements to maintain and disseminate the safety information derived from the assessments. Start-up date: week 82 Estimated duration: 1 week	ATM, SRVSOP
	2.4.3 Draft a working paper to support the submittal of the model action plan for its consideration and approval. Start-up date: week 83 Estimated duration: 1 week	ATM, SRVSOP
	2.4.4 Submit the working paper to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	2.4.5 Make the necessary adjustments and changes to the	ATM, SRVSOP

	model action plan, based on the comments generated, and update the proposal and working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	
	2.4.6 Process, edit, and distribute the model action plan, introducing the amendments made by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	RO

	2.4.7 Assist the participating States and organisations in the implementation of the model action plan for safety assessment, including the programming of the necessary coordination and training activities, and taking into account the following steps:
	
	   a) Drafting (or obtention) of a complete description of the system to be assessed and of the environment where the system will operate;
	   b) Identification of hazards;
	   c) Rating the seriousness of the consequences of a possible hazard;
	   d) Identifying the likelihood of occurrence of a hazard;
	   e) Risk assessment;
	   f) Risk mitigation;
	   g) Drafting of safety assessment documents;
	
	Start-up date: to be determined
	Estimated duration:
		ATM, SRVSOP

	2.4.8 Draft a final report of the activities carried out, including the relevant recommendations. Start-up date: to be determined	ATM, SRVSOP

2.5 Training of at least 100 officials in matters related to the preceding results.	2.5.1 Develop training programmes to disseminate the safety culture among the corresponding organisations, and a modern prevention-based safety approach, taking into account the following factors:
	
	   a) Legal and regulatory framework, based on ICAO standards and recommended practices;
	   b) Application of scientifically-based risk management methods;
	   c) Commitment by top management to safety management;
	   d) A corporate safety culture that promotes safe practices, encourages safety-related communications, and enables active safety management, giving the results the same attention as that given to financial
		ATM, SRVSOP, RO

	management; e) Effective application of standard operational procedures, including the use of checklists and information sessions; f) A non-punitive environment (or justice culture) in order to encourage an effective reporting of incidents and hazards; g) Systems to collect, analyse and share safety-related data generated by normal operations; h) Competent investigation of serious accidents and incidents that permits the identification of systemic safety-related deficiencies (instead of finding someone to blame); i) Integration of safety training (including human factors) for operational personnel; j) Forms of sharing the experience gained and best safety practices, through an active exchange of safety information (between companies and States); and k) Systemic safety oversight and efficiency monitoring, in order to assess safety efficiency and reducing or eliminating new problems. Start-up date: week 86 Estimated duration: to be determined	
	2.5.2 Identify the necessary requirements for organising and conducting each activity, following the sequence of actions defined for Result 1.7. Start-up date: week 88 Estimated duration: to be determine	ATM, SRVSOP, OR, TCB

Immediate objective No. 3

Develop a strategy for the operational implementation and integration of automated air traffic management systems in the CAR and SAM Regions, with a safe, gradual, evolutionary, and interoperable vision that facilitates the exchange of information and collaborative decision-making with respect to all the components of the ATM system.

Success criterion: A number of integrated automated ATM systems that permit a seamless, flexible, optimum, and dynamic management of international airspace and aerodromes, while increasing the safety levels required.

Results	Activities	Party responsible for each activity
3.1 Operational implementation of new automated ATM systems, and integration of the existing ones – (GPIs 6, 7, 9, 16, 17, and 18). ATM,	3.1.1 Obtain and complete the information, learning about the current status in the participating States and organisations with respect to: a) Existing facilities and equipment, especially for adjacent airspaces; b) Existing regional planning and	ATM, CNS, AIS, MET, RO

CNS, AIS, MET, RO	documentation;	
	c) Existing interface control documents (ICDs);	
	d) Implementation of new ATM automation tools (minimum safe altitude warning, conflict prediction, conflict alert, conflict resolution advisory, path conformity control, functional integration of ground and aircraft systems);	
	e) Implementation of flight data processing systems (FDPS);	
	f) Implementation of radar data processing (RDPS) and ADS ATS surveillance systems, and exchange of radar/ADS data, including mono-radar, multi-radar, and radar data sharing;	
	g) Implementation of digital communication networks at State and regional level;	
	h) Implementation of ATM applications, such as radar control handoff, automated hands-free system, AIDC, CPDLC, etc.;	
	i) Implementation of AIS data banks;	
	j) Processes to ensure quality and timely distribution of aeronautical information;	
	k) Functional integration of ground and aircraft systems;	
	l) Implementation of MET data banks;	
	m) Availability of meteorological information in support of ATM systems, including ✓ D-ATIS, D-VOLMET and other information (volcanic ash, tropical cyclones, storms, clear air turbulence, icing, wind shear, etc.) using up-linked ADS messages; ✓ MET information from down-linked ADS messages (upper wind fields, real-time wind profiles, etc.)	
	n) Implementation of collaborative decision-making (CDM) aspects for other ATM requirements, in keeping with the global ATM operational concept.	
	Start-up date: week 105 Estimated duration: 2 weeks	
	3.1.2 Analyse the operational scenarios of current and planned ATS, with a view to determining the operational requirements for the short- and medium-term integration of existing automated systems and other operational requirements to meet future ATM expectations, as well as the identification of system requirements for non-automated ATS units. Start-up date: week 107	ATM, CNS, RO

	Estimated duration: 2 weeks	

	3.1.3 Develop a strategy for the integration and implementation of automated systems in the CAR/SAM Regions, taking into account the guidance contained in Appendix K to agenda item 3 of the GREPECAS/12 report, and including the following aspects:
	
	a) The information processed under 3.1.1 and 3.1.2, and the operational scenarios of current and planned ATS;
	b) Implementation by stages, considering the required level of automation according to the volume and complexity of air traffic, taking into account:
	  ✓ The new tools (minimum safe altitude warning, conflict prediction, conflict alert, conflict resolution advisory, path conformity control, functional integration of ground and aircraft systems);
	  ✓ The flight data processing system (FDPS);
	  ✓ The radar (RDPS) and ADS ATS surveillance data processing system, and radar/ADS data exchange, including mono-radar, multi-radar and radar data sharing;
	  ✓ Automated digital communications, including radar control handoff, automated hands-free system, AIDC, CPDLC, etc.;
	  ✓ Implementation of collaborative decision-making (CDM) aspects for other ATM requirements, in keeping with the global ATM operational concept;
	  ✓ Implementation of AIS data banks;
	  ✓ Functional integration of ground and aircraft systems;
	  ✓ Processes to assure the quality and timely distribution of aeronautical information;
	  ✓ Implementation of MET data banks;
	    - Availability of meteorological information to support ATM systems, including:
	    - D-ATIS, D-VOLMET and other information (volcanic ash, tropical cyclones, storms, clear air turbulence, icing, wind shear, etc.) using up-linked ADS messages;
	    - MET information from down-linked ADS messages (upper wind fields, real-time wind profiles, etc.).
		ATM, CNS, AIS, MET, RO

	Start-up date: week 109 Estimated duration: 4 weeks	
	3.1.4 Draft technical guidelines for the functional operation of ATM automated systems, including: a) New tools (minimum safe altitude warning, conflict prediction, conflict alert, conflict resolution advisory, path conformity control, functional integration of ground and aircraft systems); b) The data communication interface control document (ICD) for the various automated systems to be implemented and common coordination among ATM centres, based on ICAO SARPs; c) Input and output data and interfaces applicable to service functions and sub-functions; d) The functional breakdown required by all ATM components, in hierarchical order; e) Determination of the various operational applications, from the lowest to the highest functional level or interface; f) Technical requirements concerning interoperability, databases, equipped aircraft, software tools, etc., that will facilitate the implementation and integration of automated systems; g) The implementation of AIS and MET data banks. Start-up date: week 113 Estimated duration: 8 weeks	ATM, CNS, AIS, MET, RO
	3.1.5 Conduct a cost-benefit study for the implementation/integration of ATM automated systems. Start-up date: week 121 Estimated duration: 2 weeks	CBA
	3.1.6 Develop bilateral or multilateral technical/operational agreement models, as appropriate, between States and international organisations responsible for adjacent airspaces and regions, with respect to the conduction of trials and the implementation/operational integration of automated ATM systems. Start-up date: week 123 Estimated duration: 1 week	ATM, CNS
	3.1.7 Develop a plan of national and regional training	ATM, CNS, AIS, MET,

	activities for the personnel involved that will facilitate the implementation or integration of automated ATM systems. Start-up date: week 124 Estimated duration: 1 week	RO
	3.1.8 Develop a model action plan based on the material prepared, to be used by the participating States and organisations for the interoperable implementation of new automated ATM systems, and for the integration of the existing systems. Start-up date: week 125 Estimated duration:	ATM, CNS, AIS, MET, RO
	3.1.9 Draft a working paper supporting the submittal of the action plan for its consideration and approval. Start-up date: week 126 Estimated duration: 1 week	ATM, CNS, RO
	3.1.10 Submit the working paper introducing the plan to the consideration of the corresponding GREPECAS bodies through the established channels. Start-up date: to be determined Estimated duration:	RO
	3.1.11 Make the necessary adjustments or changes to the action plan, based on the comments generated, and update the proposal and working paper for their consideration and approval by GREPECAS. Start-up date: to be determined Estimated duration:	ATM, CNS, RO
	3.1.12 Process, edit, and distribute the plan, introducing the amendments made by GREPECAS in the course of its approval. Start-up date: to be determined Estimated duration:	RO
	3.1.13 Give advice to the participating States and organisations regarding the implementation of the action plan for the automated systems and their integration, including the programming of the necessary coordination and training activities. Start-up date: to be determined Estimated duration:	ATM, CNS, RO

	3.1.14 Draft a final report of the activities carried out, including the relevant recommendations. Start-up date: to be determined Estimated duration:	ATM, CNS, AIS, MET, RO

E.   INPUTS

1.   Inputs of the participating States and organisations

1.1   Staff

1.1.1   The participating States and organisations shall provide:

   a)   Professionals in the required specialties, as candidates to be selected by ICAO to carry out project activities;
   b)   National counterpart personnel corresponding to the specialties of project consultants;
   c)   Administrative support personnel for project advisory missions, as required.

1.1.2   The participating States and organisations shall continue paying the normal salary of their personnel that is selected by ICAO to carry out project activities, throughout the agreed assignment period.

1.2   Training

1.2.1   The participating States and organisations shall cover the cost of air tickets to and from the places where training activities and programmes sponsored by the project take place abroad, and will continue paying their grant-holding personnel their salary and other regular allowances to which they are entitled, as long as these activities last.

1.3   Offices and equipment

1.3.1   The participating States and organisations shall provide office facilities, equipment, supplies, as well as local transportation and international communications *via* telephone or other electronic media to the project consultants.

2.   Project inputs

2.1.   Assignment of professional staff

2.1.1   International consultants will be provided to carry out the activities foreseen in those specialties in which the participating States and organisations do not have professionals available.

2.2.   Administrative support

2.2.1   The necessary administrative personnel will be provided to support the development of project activities.

2.3   Official trips and missions

2.3.1   Funds are provided, as necessary, to cover the cost of project coordination, monitoring, or review missions.

2.3.2   Funds are provided to finance the trips, insurance and *per diems* of the professionals of the participating States and organisations that are selected by ICAO to carry out project activities.

2.4   Training

2.4.1   Funds are provided to offer training grants, according to the implementation plan approved by the Project Coordination Committee every year.

2.4.2   Occasionally, and according to the available budget approved to that end, international round-trip tickets will be provided to enable the participation of State representatives in activities sponsored by the project.

2.5   Equipment

2.5.1   Funds are provided for the purchase of the necessary equipment and supplies to carry out project activities.

2.6   Others

2.6.1   Budget provisions are included to cover various project expenses, the drafting of reports, plans and manuals, simultaneous interpretation services, translation of documents, and administrative expenses of the project executing body.

F.   RISKS

1.   The factors that could delay or impair the achievement of the results and objectives of the project are the lack of timely payment of constributions or shared costs by the participant States and organisations, possible delays in the selection of the professional staff for the project and the candidates to receive grants, and bureaucratic delays in purchase approvals.

2.   A likely factor that in time could cause serious delays or prevent the achievement of project results and objectives would be a drastic change in the political or economic situation of the participant States.

G.   OBLIGATIONS AND PREREQUISITES

1.   The participating States and organisations undertake to deposit their cost-sharing contributions to the project on the dates foreseen in the payment schedule that appears in the project budget, so that the executing body may begin its activities.

2.   The States hosting project activities shall provide the professional staff of the project with all the reference material and background information available with regard to the activities to be carried out, as well as the authorisations, approvals, permits, and logistic support that may be required to fulfil their functions.

3.   The participating States and organisations shall provide the necessary counterpart support so that the project may be carried out effectively, meet its objectives, and sustain its results. To that end, the organisations receiving the technical cooperation provided for under this project will participate by assigning the necessary counterpart personnel and will provide the necessary premises, office equipment, vehicles, materials and services.

4.   The participating States and organisations will ensure the application of the necessary legal provisions to retain the personnel trained by the project, at least, for the duration of the project.

5.   ICAO will sign the project document and will provide the assistance agree upon, subject to the fulfilment or likely fulfilment of the aforementioned obligations and prerequisites. If one or more of the prerequisites is not fulfilled, ICAO may, at its own discretion, suspend or end the assistance.

H.   SUPERVISION, REPORTING AND PROJECT REVIEWS

1.   At least once every 12 months, the project will be subject to a joint review by the representatives of the participating States and organisations, who make up the Project Coordination Committee, and the first of said reviews will take place within the first 12 months from the start of full implementation. The international coordinator of the project will draft and submit a project performance assessment report at each of the joint review meetings. During the execution of the project, additional reports of this kind may be requested as necessary.

2.   A final project report will be prepared for submittal at the final joint review meeting. The draft of this report will be prepared sufficiently in advance so that the executing body may examine it and adjust its technical aspects at least four months before the final joint review.

3.   The parties will jointly determine if the project must be subject to an assessment. If so decided, the necessary budgetary provisions and arrangements must be made through consultations among the signatories to the project document regarding the composition of the assessment mission, its terms of reference and the time it will require.

4.   The following types of project document reviews will only require the approval of the executing body, provided it has the assurance that the other signatories to the project document have no objections to the proposed changes:

   a) The review of any of the project document attachments or their addenda;

   b) Reviews that do not imply significant changes to the immediate objectives, results or activities of the project, but which respond to a redistribution of the inputs agreed upon or to expenditure increases due to inflation; and

   c) Mandatory annual reviews to reschedule the delivery of inputs agreed for the project, or to increase expenditures due to inflation, or to accommodate the flexibility margin of the executing body in terms of expenses.

I.   BUDGET

The following pages contain the project budget.

PROJECT BUDGET

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ICAO STRATEGIC OBJECTIVES FOR 2005-2010

REVISED VISION AND MISSION STATEMENT

The International Civil Aviation Organization, a specialized agency of the United Nations, is the global forum for civil aviation.

ICAO pursues the vision of a safe, protected and sustainable development of civil aviation, through cooperation among its member States.

To achieve this vision, the Organization has established the following strategic objectives for the 2005-2010 period:

Safety – *Improve the safety of global civil aviation*
Security – *Improve the protection of global civil aviation*
Environmental protection – *Minimise the detrimental impact of global civil aviation on the environment*
Efficiency – *Improve the efficiency of aeronautical operations*
Continuity – *Maintain the continuity of aeronautical operations*
Rule of law – *Strengthen the legislation concerning international civil aviation*

Strategic objective A: Safety – *Improve the safety of global civil aviation*

Improve the safety of global civil aviation through the adoption of the following measures:

To identify and monitor the existing types of civil aviation safety risks, and develop and implement an effective and relevant global response to emerging risks.

To ensure the timely implementation of ICAO provisions, constantly monitoring the progress made by the States in terms of compliance.

Conduct aviation safety oversight audits to identify deficiencies and promote their resolution by the States.

Develop global corrective plans aimed at the root causes of deficiencies.

Assist the States in the resolution of deficiencies, through regional corrective plans and the creation of regional or sub-regional safety oversight organisations.

Encourage the exchange of information among the States, in order to foster mutual trust in terms of the level of aviation safety, and expedite safety oversight improvements.

Promote the timely resolution of critical safety problems identified by the regional planning and implementation groups (PIRGs).

Support the application of safety management systems in all safety-related disciplines in all the States.

Assist the States in the improvement of safety through technical cooperation programmes, and drawing the attention of donors and financial organisations to critical needs.

Strategic objective B: Security – *Improve the protection of global civil aviation*

Improve the protection of global civil aviation through the adoption of the following measures:

To identify and monitor the existing types of security threats, and to develop and implement an effective and relevant global response to emerging threats.

To ensure the timely implementation of ICAO provisions, constantly monitoring the progress made by the States in terms of compliance.

Conduct security audits to identify deficiencies and promote their resolution by the States.

Develop, adopt, and foster new or amended measures to improve the protection of travellers worldwide, while promoting efficient procedures for crossing borders.

Develop teaching material sets on security and e-training, and keep them updated.

Encourage the exchange of information among the States, in order to promote mutual trust in terms of the level of security.

Assist the States in the training of all categories of personnel responsible for the implementation of security measures and strategies, and, when appropriate, the certification of said personnel.

Assist the States in the resolution of security-related deficiencies, through the security mechanism and technical cooperation programmes.

Strategic objective C: Environmental protection - *Minimise the detrimental impact of global civil aviation on the environment*

Minimise the detrimental impact of global civil aviation activities on the environment, particularly aircraft engine noise and emissions, through the adoption of the following measures:

To develop, adopt, and promote new or amended measures to:

limit or reduce the number of people affected by significant levels of aircraft noise;
limit or reduce the impact of aircraft engine emissions on local air quality; and
limit or reduce the repercussions of greenhouse gases on global climate.

To cooperate with other international organisations, particularly the United Nations Framework Convention on Climate Change, in the tasks related to the contribution of aviation to global climate change.

Strategic objective D: Efficiency – *Improve the efficiency of aeronautical operations*

Increase the efficiency of aeronautical operations, by resolving the problems that hinder the efficient development of global civil aviation, through the adoption of the following measures:

To develop, coordinate, and implement air navigation plans that reduce operational unit costs, facilitate traffic growth (of both passengers and goods), and optimise the use of existing and emerging technologies.

Study the trends, coordinate the planning, and develop guidelines for the States that will contribute to the sustainable development of international civil aviation.

Develop guidelines and assist States in the process of liberalising economic regulations concerning international air transport, with the corresponding safeguards.

Assist States improve the efficiency of aeronautical operations, through technical cooperation programmes.

Strategic objective E: Continuity – *Maintain the continuity of aeronautical operations*

Identify and address threats to the continuity of air navigation, through the adoption of the following measures:

Assist States resolve disagreements that hinder air navigation.

Respond in a prompt and positive manner to mitigate the effects of natural or human-caused events that may interrupt air navigation.

Cooperate with other international organisations to prevent the dissemination of diseases by air travellers.

Strategic objective F: Rule of law – *Strengthen the legislation concerning international civil aviation*

To develop the international aeronautical law and keep it updated in light of the changing needs of the international civil aviation community, through the adoption of the following measures:

Develop international aeronautical law instruments that support the ICAO strategic objectives, and provide a forum where the States can negotiate said instruments.

Encourage the States to ratify the international aeronautical law instruments.

Provide aeronautical agreement registration services, and act as depository of international aeronautical law instruments.

Provide mechanisms for the resolution of conflicts related to civil aviation.

Provide the States with a model legislation.

BASIC IMPLEMENTATION STRATEGIES

In order to achieve the strategic objectives, the Organization will take the necessary measures to:

operate in a transparent manner and communicate efficiently both at the external and internal level;

maintain the efficacy and relevance of all documents and texts;

identify risk management and mitigation strategies, as necessary;

continuously improve the efficient use of its resources;

improve the use of information and communication technology, integrating it into its work procedures as soon as possible;

take into account the possible impact of its practices and operations on the environment;

improve its use of the various human resources, in keeping with the best practices of the United Nations system; and

work efficiently, with the highest level of legal propriety.

ANNUAL PROJECT REPORT

Purpose

The annual project report is intended to reflect the independent opinion of the main project stakeholders with respect to its relevance, performance, and likelihood of success. The main stakeholders are the target groups, project administrators, the government body responsible for the project, and the international executing body.

The annual report has the following objectives:

- To facilitate a written rating and assessment of the progress made by the project in the achievement of its objectives;
- Present the opinion of stakeholders on issues that have an impact on the implementation of a project, and their proposals to resolve such issues; and
- Be a source of contributions to the annual report of the regional office, which is the official means of communication between the regional offices and headquarters, and serves to collect the experiences attained in the countries for their integration and dissemination among all parties interested in development.

Questions on relevance are intended to determine to what extent the objectives and target groups of the project continue to be as valid and relevant as conceived initially, or whether they were modified subsequently in view of the new circumstances in the immediate context and outside of the project.

Questions on performance are related to efficacy, efficiency, and opportunity.

Questions on success are referred mainly to possible effects, the sustainability of results, and the contribution of the project to capacity building.

Drafting and presentation of the annual report

The drafting of the annual project report must begin in early October. The final report must be submitted to the corresponding regional office no later than 31 October.

— END —

REPORT ON AGENDA ITEM 5:   REVIEW OF THE CNS DEFICIENCIES IN THE MID REGION

5.1   The meeting noted that in an effort to enhance the process of identification, assessment, reporting and elimination of deficiencies and allow authorized users to propose updates to their deficiencies online; an Air Navigation Deficiencies Database (including CNS deficiencies) has been developed which is available on the ICAO MID Office website and updated by MID Regional Office on a regular basis and is available on ICAO MID Office website.

5.2   The meeting noted that ICAO MID Regional Office is working to enhance the MID Air Navigation Deficiencies Database to provide searching feature for the MID Air Navigation Deficiency database on the website.

5.3   The meeting reviewed the current list of the CNS deficiencies and noted that with the implementation of the phase I of the MID VSAT a considerable number of circuits related deficiencies are eliminated, States involved are Egypt, Saudi Arabia, and Yemen.

5.4   IATA had raised concern on the ATS direct speech circuits between Syria and Iraq, in this regard the meeting recalled that a Special Baghdad FIR Coordination meeting was held in which both Iraq and Syria were present and agreed on action plan for normalizing the communication safety related matter and the Syrian delegate was given the action plan for review with the concerned authorities in Syria.

5.5   The Syrian delegation updated the meeting on the upgrades taken place in system in Syria and advised that they are requested to upgrade the links between Syria and Egypt in this concern the Syrian delegation handed the request to the Egyptian delegation.

5.6   Syria also requested the upgrade of the link for all the circuits connected to the Damascus center.

5.7   In order to capture the need for the upgrades the meeting agreed to list a deficiency under all States concerned for action and resolution of the deficiency.

5.8   The meeting noted and accordingly, listed two deficiencies under Egypt and Saudi Arabia for the new link between Riyadh and Cairo centers. In this regard the meeting was provided with an update in which both States had reached an agreement and the required link would be established as soon as possible. Consequently the meeting applauded both States Egypt and Saudi Arabia on the quick resolution of the deficiencies and encouraged all States to follow their footsteps in resolving the deficiencies listed under their States.

5.9   The meeting received an update from Saudi Arabia on the list of deficiencies and updated those concerning CNS, advising Saudi Arabia to present the other areas deficiencies to the concerned subsidiary bodies meetings. The updated list of the CNS deficiencies is at **Appendix 5A** to the report on Agenda Item 5.

5.10   The meeting noted that under the performance based concept the focus should be on elimination of deficiencies. Following the review of the updates to the deficiency data base the meeting agreed that States should provide deficiency resolution plans that address actions to eliminate the deficiency including an explanation of the issues associated with the proposed corrective actions.

CNS SG/2
Appendix 5A to the Report on Agenda Item 5

Deficiencies in the CNS field

AFGHANISTAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
1	AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19	Afghanistan-Bahrain-Kabul-Bahrain AFTN Circuit	The circuit is not yet implemented	10/7/1998	Bahrain is ready to implement the circuit	S	Follow-up the matter with IATA concerning Afghanistan VSAT available check the compatibility	Afghanistan Bahrain	~~Dec-05~~ Dec-09~~8~~	B
2	AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19	Afghanistan-Iran-Kabul-Tehran AFTN Circuit	The circuit is not yet implemented	10/7/1998	VSAT network to be implemented	S	Follow-up the matter with IATA concerning Afghanistan	Afghanistan Iran	~~Dec-05~~ Dec-09~~8~~	B
3	AFTN usage (LIM MID RAN Rec 6/2)	Kabul AFTN Center	Circuit Loading Statistics	5/22/1995	Monthly statistics should be sent to MID Office	S	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office	Afghanistan	~~Dec-05~~ Dec-09~~8~~	B

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

Deficiencies in the CNS field

BAHRAIN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
1	AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19)	Afghanistan-Bahrain-Kabul-Bahrain AFTN Circuit	The circuit is not yet implemented	10/7/1998	Bahrain is ready to implement the circuit	O	Follow-up the matter with IATA concerning Afghanistan VSAT available check the compatibility	Afghanistan Bahrain	~~Dec- 05~~ Dec-09~~8~~	B
~~2~~	~~AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19)~~	~~Bahrain-Singapore-Bahrain-Singapore AFTN Circuit~~	~~Operating satisfactorily on 200 bauds~~	~~10/19/1999~~	~~Bahrain-Singapore Bahrain-Singapore AFTN Circuit~~	~~O~~	~~Planned to be up-graded to medium speed circuit (9.6 K)~~	~~Bahrain Singapore~~	~~Jun- 05~~ SEP 06	~~B~~

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

Deficiencies in the CNS field

EGYPT

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
~~1~~	~~AFTN Main Circuits (LIM MID RAN Rec 10/5)~~	~~Egypt – Kenya-Cairo – Nairobi AFTN Circuit~~	~~The circuit is implemented on 50 bauds~~	~~10/19/1999~~	~~Egypt is ready to up-grade the circuit to 9.6 K~~	~~O~~	~~Egypt and Kenya agreed to upgrade the circuit to 1200 bps~~ 9.6Kpbs with NAFISAT	~~Egypt – Kenya~~	~~Dec 05~~ Jun 08	~~A~~
2	AFTN Main Circuits (LIM MID RAN Rec 10/5)	Egypt – Tunisia-Cairo – Tunis AFTN Circuit	The circuit is implemented on 100 bauds	10/19/1999	Egypt is ready to up-grade the circuit to 64 K	O	Planned to be up-graded to ~~1200 bauds~~. Upon Tunis readiness, Egypt applied for 64K upgrade	Egypt - Tunisia	~~Dec 05~~ Jun 09	A
~~3~~	~~VHF Coverage Required in the South West part of the FIR~~	~~Egypt~~	~~Coverage by HF~~	~~9/1/2003~~	~~Egypt to Report~~	~~S~~	~~Egypt to provide VHF coverage~~ Partial coverage done ~~New Station installed~~	~~Egypt~~	~~Dec 05~~ ~~Jun 07~~ ~~Dec 08~~	~~B~~
	Circuit Egypt Syria	Syria - Egypt	Upgrade Data circuits	10/28/2008			Syria requested the upgrade	Egypt	Dec 09	B

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

Deficiencies in the CNS field

IRAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks/ Rationale for non-elimination**		**Description**	**Executing body**	**Date of completion**	**Priority for action**
1	~~AFTN Main Circuits (LIM MID RAN Rec10/5)~~	~~Iran – Kuwait Kuwait – Tehran AFTN Circuit~~	~~The circuit is implemented on 100 bauds~~	~~10/19/1999~~	~~Iran State they are ready as per letter 21/09/2006~~	~~O~~	~~Planned to be upgraded to 9.6K.~~	~~Iran Kuwait~~	~~Dec 05~~ ~~Jun~~ 08	~~A~~
2	AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19)	Afghanistan-Iran-Kabul-Tehran AFTN Circuit	The circuit is not yet implemented	10/7/1998	VSAT network to be implemented Iran State they are ready as per letter 21/09/2006	S		Afghanistan Iran	~~Dec 05~~ Jun-0~~9~~8	B
3	~~Radio Frequencies~~	~~Abadan Airport Ahwaz~~	~~121.900 MHz~~	~~7/20/2002~~	~~Interference with Basra (Iraq)~~ Iran Letter 21/09/2006	~~O~~	~~Co-ordination with concerned States~~	~~Iran Iraq~~	~~Dec 05~~	~~U~~
4	~~Radio Frequencies~~	~~Kerman Shah~~	~~119.300 MHz~~	~~7/20/2002~~	~~Interference with Qatar~~ Iran Letter 21/09/2006	~~O~~	~~Co-ordination is undergoing with Iran. No complain from Qatar~~	~~Qatar Iran~~	~~Dec 05~~	~~U~~

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

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
5	Radio Frequencies	Tehran ACC	123.900 MHz	8/14/2002	Interference with India Iran Letter 21/09/2006	O	Co-ordination is undergoing between ICAO Cairo and ICAO Bangkok	Bangkok Off. Cairo Office Iran India	Dec 05	U

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

Deficiencies in the CNS field

IRAQ

Item No	Identification		Deficiencies				Corrective Action			Priority for action
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	
1	AFTN usage (LIM MID RAN Rec 6/2)	Baghdad AFTN Center	Circuit Loading Statistics	5/22/1995	Monthly statistics should be sent to MID Office	S	Refers to ICAO fax ref. F.ME 165 reminding States to send data to ICAO Office	Iraq	~~Dec. 05~~ <mark>Dec 0~~8~~9</mark>	B
	ATS Speech Circuit	Iraq - Syria	The ATS Speech Circuit	10/28/2008			IATA reported the deficiency	Iraq	Dec. 09	A

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

Deficiencies in the CNS field

JORDAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
1	AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19)	Jordan-Lebanon-Amman-Beirut AFTN Circuit	The circuit is not yet implemented	10/7/1998	Lebanon is ready to implement the circuit	S	Jordan will co-ordinate with Lebanon for up-grading	Lebanon – Jordan	~~Dec 05~~ <mark>Jun 0~~9~~8</mark>	A

Deficiencies in the CNS field

KUWAIT

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
~~1~~	~~AFTN Main Circuits (LIM MID RAN Rec10/5)~~	~~Iran-Kuwait Kuwait – Tehran AFTN Circuit~~	~~The circuit is implemented on 100 bauds~~	~~10/19/1999~~	~~The circuit is operating satisfactorily on 100 bauds~~	~~O~~	~~Planned to be upgraded to 9.6K~~	~~Kuwait Iran~~	~~Dec 05~~ ==Jun 08==	~~A~~
2	AFTN Main Circuits (LIM MID RAN Rec10/5)	Lebanon-Kuwait-Beirut – Kuwait AFTN Circuit	The circuit is implemented on 100 bauds	10/19/1999	The circuit is operating satisfactorily on 100 bauds.	O	Kuwait is ready to upgrade to higher speed according to the readiness of Lebanon	Kuwait Beirut	~~Dec 05~~ ==Jun-09==~~8~~	A
~~3~~	~~AFTN usage (LIM MID RAN Rec 6/2)~~	~~Kuwait AFTN Center~~	~~Circuit Loading Statistics~~	~~5/22/1995~~	~~Monthly statistics should be sent to MID Office~~	~~O~~	~~Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office~~	~~Kuwait~~	~~Jun 05~~	~~B~~
	Circuit Kuwait Syria	Syria - Kuwait	Upgrade Data circuits	10/28/2008			Upgrade needed and request by Syria	Kuwait	Dec 09	B

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

Deficiencies in the CNS field

LEBANON

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
1	AFTN Main Circuits (LIM MID RAN Rec10/5	Lebanon – Kuwait Beirut – Kuwait AFTN Circuit	The circuit is implemented on 100 bauds	10/19/1999	The circuit is operating satisfactorily on 100 bauds	O	Planned to be up-graded to 300 bauds	Kuwait Lebanon	~~Dec 05~~ Jun-09~~8~~	A
2	AFTN Main Circuits (LIM MID RAN Rec10/5)	Lebanon – Saudi Arabia Beirut – Jeddah AFTN Circuit	The circuit is implemented on 100 bauds	10/19/1999	Lebanon is ready to implement the circuit to either 200 Bauds or 9.6 K	O	Planned to be up-graded to 300 bauds Planned for 64K	Lebanon Saudi Arabia	~~Dec 05~~ Oct-09	A
3	AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/ 4 Conclusion 4/19)	Jordan- Lebanon Amman-Beirut AFTN Circuit	The circuit is not yet implemented	10/7/1998	Lebanon is ready to implement the circuit	S	Another alternative should be proposed in the MID AFTN Plan	Jordan Lebanon	~~Dec 05~~ Jun-09	A

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

Deficiencies in the CNS field

OMAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
1	AFTN usage (LIM MID RAN Rec 6/2)	Muscat AFTN Center	Circuit Loading Statistics	5/22/1995	Data should be sent to ICAO Office	O	Software not available yet	Oman	~~Jun 05~~ <mark>Jun-09</mark>	B
1	ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)	Oman -Yemen	Direct Speech Circuit Oman	10/7/1998	Communications should be established within 15 seconds	O	Oman and Yemen are in the process to implement Direct Speech	Oman - Yemen	June-09	U

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

Deficiencies in the CNS field

QATAR

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks/ Rationale for non-elimination**		**Description**	**Executing body**	**Date of completion**	**Priority for action**
1	AFTN usage (LIM MID RAN Rec 6/2)	Doha AFTN Center	Circuit Loading Statistics	5/22/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office	H	Data should be sent to ICAO Office	Qatar	~~Jun-05~~ Jun-09	B
2	Radio Frequencies	Doha	119.300 MHz	2/11/2003		O	Coordination with concerned States	Qatar Iran	~~Jun-05~~	U

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

Deficiencies in the CNS field

SAUDI ARABIA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks/ Rationale for non-elimination**		**Description**	**Executing body**	**Date of completion**	**Priority for action**
1	AFTN Main Circuits (LIM RAN Rec 10/5)	Lebanon – Saudi Arabia Beirut – Jeddah AFTN Circuit	The circuit is implemented on 100 bauds	10/19/1999	Circuit to be improved ==Saudi Arabia ready==	O	Planned to be up-graded to 9.6K ==Upgrade to 64K expected==	Lebanon – Saudi Arabia	~~Dec 05~~ Oct 09	A
~~2~~	~~AFTN Main Circuits (LIM RAN Rec 10/5)~~	~~Saudi Arabia – Ethiopia Jeddah – Addis Ababa~~	~~The circuit is implemented on 50 bauds~~	~~10/19/1999~~	~~The circuit is not working satisfactorily. Saudi Arabia is ready to up-grade the circuit to higher speed~~	~~F~~	~~Planned to operate with VSAT network~~ ==Expected implementation with NAFISAT==	~~Ethiopia Saudi Arabia~~	~~Dec 06~~ ==~~Jun 08~~ Completed==	~~A~~
3	AFTN usage (LIM MID RAN Rec 6/2)	Jeddah AFTN Center	Circuit Loading Statistics	5/22/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.	O	Data should be sent to ICAO Office	Circuit Loading Statistics information is part of a software modification required in the new switching system	~~Dec 05~~ ~~Dec 08~~ ==Jun 09==	B

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

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
4	~~ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)~~	~~Saudi Arabia – Sudan~~	~~The ATS Speech Circuit connecting the following adjacent centres to Jeddah use speed dial: Asmara Khartoum~~	~~10/19/1999~~	~~Jeddah – Khartoum on speed dial~~	~~F~~	~~Planned to operate with VSAT network.~~ <mark>~~Expected implementation with NAFISAT~~</mark>	~~Saudi Arabia Sudan~~	~~Dec 06~~ <mark>~~Jun 08~~ ~~Completed~~</mark>	~~U~~
5	~~ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)~~	~~Saudi Arabia – Yemen~~	~~The ATS Speech Circuit connecting to Sanna'a centre uses speed dial~~	~~10/7/1998~~	~~Sometimes, Communications facilities do not permit communications to be established within 15 seconds~~	~~O~~	~~Planned to operate with VSAT network~~ <mark>~~Expected implementation with NAFISAT~~</mark>	~~Saudi Arabia Yemen~~	~~Dec 06~~ <mark>~~Jun 08~~ ~~Completed~~</mark>	~~U~~

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

Deficiencies in the CNS field

SYRIA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks/ Rationale for non-elimination**		**Description**	**Executing body**	**Date of completion**	**Priority for action**
~~1~~	~~AFTN usage (LIM MID RAN Rec 6/2)~~	~~Damascus AFTN Center~~	~~Circuit Loading Statistics~~	~~5/22/1995~~	~~Monthly statistics should be sent to ICAO Office~~	~~H~~	~~Planned to implement new AFTN system~~	~~Syria~~	~~Jun 05~~ <mark>~~Jun 08~~</mark>	~~B~~
	ATS Speech Circuit IATA report	Syria-Iraq	Direct ATS Speech Circuit	10/28/2008				Syria- and Iraq	Dec 09	A
	Circuit Syria-Kuwait	Syria -Kuwait	Upgrade Data circuits	10/28/2008				Syria and Kuwait	Dec 09	B
	Circuit Syria-Egypt	Syria - Egypt	Upgrade Data circuits	10/28/2008				Syria and Egypt	Dec 09	B

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

Deficiencies in the CNS field

UAE

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
1	Radio Frequencies	AL Ain	129.150 MHz	6/25/2002	Kish Air Dispatch	O	Nat. Telecom. Admin	Follow-up by ICAO and State	~~Dec-05~~ Jun-0~~8~~9	A
~~2~~	~~Radio Frequencies~~	~~UAE ACC~~	~~121.500 MHz~~	~~7/16/2002~~	~~Unknown Interference~~	~~O~~	~~Report was sent to Nat. Telecom. Admin~~	~~Follow-up by ICAO and State~~	~~Dec-05~~	~~U~~
~~3~~	~~Radio Frequencies~~	~~UAE ACC~~	~~128.250 MHz~~	~~1/26/2002~~	~~Atmospheric/ Speech~~	~~O~~	~~Report was sent to Nat. Telecom Admin~~	~~Follow-up by ICAO and State~~	~~Dec-05~~	~~U~~
~~4~~	~~Radio Frequencies~~	~~UAE ACC~~	~~129.500 MHz~~	~~3/29/2002~~	~~Unknown Interference~~	~~O~~	~~Report was sent to Nat. Telecom Admin~~	~~Follow-up by ICAO and State~~	~~Dec-05~~	~~U~~
~~5~~	~~Radio Frequencies~~	~~UAE ACC~~	~~124.850 MHz~~	~~1/24/2002~~	~~Atmospheric~~	~~O~~	~~Report was sent to Nat. Telecom Admin~~	~~Follow-up by ICAO and State~~	~~Dec-05~~	~~U~~
6	Radio Frequencies	UAE ACC	133.550 MHz	2/28/2002	Unknown Interference	O	Report was sent to Nat. Telecom. Admin	Follow-up by ICAO and State	~~Dec-05~~ Jun-0~~8~~9	U
~~7~~	~~Radio Frequencies~~	~~UAE ACC~~	~~119.300 MHz~~	~~3/29/2002~~	~~Doha~~	~~O~~	~~Report was sent to Nat. Telecom Admin~~	~~Follow-up by ICAO and State~~	~~Dec-05~~	~~U~~

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

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
8	~~Radio Navigation Aids~~	~~Dubai ILS~~	~~110.900 MHz~~	~~3/26/2002~~	~~Unknown Interference~~	~~O~~	~~Nat. Telecom. Admin.~~	~~Follow up by ICAO and State~~	~~Dec-05~~	~~U~~
9	~~Radio Navigation Aids~~	~~Dubai ILS~~	~~110.100 MHz~~	~~3/26/2002~~	~~Unknown Interference~~	~~O~~	~~Nat. Telecom. Admin~~	~~Follow-up by ICAO and State~~	~~Dec-05~~	~~U~~
10	~~Radio Navigation Aids~~	~~Dubai ILS~~	~~109.500 MHz~~	~~3/22/2002~~	~~Unknown Interference~~	~~O~~	~~Nat. Telecom. Admin~~	~~Follow up by ICAO and State~~	~~Dec-05~~	~~A~~

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

Deficiencies in the CNS field

YEMEN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Description	Executing body	Date of completion	Priority for action
~~1~~	~~ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)~~	~~Yemen – Ethiopia-Eritrea –~~ <mark>~~India~~</mark> ~~– Djibouti~~ – ~~Saudi Arabia – Somalia –~~ <mark>~~Oman~~</mark>	~~All ATS Speech Circuits connecting Sana'a with the following adjacent centres provided by Yemen use speed dial: Addis-Ababa Asmara Mumbai Djibouti Jeddah Mogadishu Muscat~~	~~10/7/1998~~	~~Communications should be established within 15 seconds~~	~~O~~	~~Yemen will be urged to implement Direct Speech Circuits with adjacent centres VSAT network will operate for some centers~~	~~Concerned States and ICAO~~	~~Dec 05 for Oman and Saudi Arabia, Dec 06 for the others~~ <mark>~~June 08~~</mark> <mark>~~Completed for Saudi Arabia~~</mark>	~~U~~
1	ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)	Yemen – <mark>India</mark> –	All ATS Speech Circuits connecting Sana'a with India	10/7/1998	Communications should be established within 15 seconds	O	Yemen are in the process to implement Direct Speech	Yemen India	<mark>June-09</mark>	U
1	ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)	Yemen – Djibouti	All ATS Speech Circuits connecting Sana'a with India	10/7/1998	Communications should be established within 15 seconds	O	Yemen are in the process to implement Direct Speech	Yemen Djibouti	<mark>June-09</mark>	U

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

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks/ Rationale for non-elimination**		**Description**	**Executing body**	**Date of completion**	**Priority for action**
1	ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)	Yemen – Oman	All ATS Speech Circuits connecting Sana'a with Oman	10/7/1998	Communications should be established within 15 seconds	O	Yemen are in the process to implement Direct Speech	Yemen- Oman	June-09	U

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

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

'U' priority = Urgent requirements having a direct impact on safety and requiring immediate corrective actions.

Urgent requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is urgently required for air navigation safety.

'A' priority = Top priority requirements necessary for air navigation safety.

Top priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation safety.

'B' priority = Intermediate requirements necessary for air navigation regularity and efficiency.

Intermediate priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation regularity and efficiency.

Definition:

A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.

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

CNS SG/2
Report on Agenda Item 6

**REPORT ON AGENDA ITEM 6:   DEVELOPMENTS IN CNS FIELD AND REVIEW OF CNS ACTIVITIES
IN THE MID REGION**

6.1   The meeting was presented with an overview of the WRC-07 items related to
aeronautical spectrum this included an overview of the important aviation issues, direct threats to
aviation and potential threats to aviation spectrum. The summary of the overview of the ITU WRC-07
results is at **Appendix 6A** to the report on Agenda Item 6 and the items that require action by the MID
States should be noted and action to be taken as appropriate.

6.2   The meeting was also provided an overview of the current status of the activity to
prepare the ICAO position for WRC-11. The draft position will be presented to the ANC for their
review in November 2008 and the approved draft position will be sent to States for their comments
and the position is expected to be finalized by mid 2009.

6.3   The meeting agreed that States should be encouraged to review and comment on the
updated ICAO position for WRC-11 when it is received.

6.4   The meeting was reminded of the ICAO policy and practices related to radio frequency
spectrum matters are as outlined in Assembly Resolution A36-25 (updated A32-13). A36-25 urges
ICAO Contracting States to support aviation requirements for spectrum and instructs ICAO to make
sufficient resources available to enable increased participation in spectrum management activities.

6.5   In this regard the meeting further updated the list of members as at **Appendix 6B** to the
report on Agenda Item 6, of the Ad hoc Action Group for the support of Aeronautical Frequency
Bands and urged States that have not nominated their States member do so. The meeting also updated
the Terms of Reference (TOR) of the Adhoc Action Group for the support of Aeronautical Frequency
Bands as at **Appendix 6C** to the report on Agenda Item 6**.**

6.6   The meeting was of the view that the Civil Aviation experts need to actively participate
in the regional Preparatory Group meetings and other national and regional meetings organized in the
preparation for the WRC-11.

6.7   It is proposed that States which did not appoint members to the Adhoc Action Group
for the support of Aeronautical Frequency Bands are to send their nomination to this Group which as
State(s) Civil Aviation experts who are needed to actively participate in the regional Preparatory
Group meetings and other national and regional meetings organized on this issue. Consequently the
meeting agreed to the following draft conclusion which will replace and supersede MIDANPIRG
conclusion 10/65 and 10/67:

> *DRAFT CONCLUSION 2/7:   UPDATE ADHOC ACTION GROUP MEMBERS AND*
> *PARTICIPATE IN NATIONAL AND REGIONAL*
> *ACTIVITIES RELATED TO WRC-11*

> *That,*

> a)   *MID States that have not nominated experts to the Adhoc Action Group are*
> *requested to do so as soon as possible;*

> b)   *the Terms of Reference (TOR) of the Adhoc Action Group be revised as in*
> *Appendix 6C to the report on Agenda Item 6; and*

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> c) *Civil Aviation Authorities, aviation spectrum experts to participate in the national and regional level activities related to WRC-11in support to ICAO Position for WRC-11.*

6.8   The meeting was presented with an overview of the Aeronautical Communications Panel (ACP), Working Group of the Whole (ACP WG-W/2) was held at Montreal from 21 to 25 April, 2008. The full report and Synopsis of the meeting can be viewed at ICAO ACP website http://www.icao.int/anb/panels/acp.

6.9   The meeting noted that in the evolution from the system based to the performance based standards and supported the current ICAO mandate that a new standardization regime needs to be adopted where high level requirements related to aviation safety would be standardized, and more use would be made of public standards.

6.10   The meeting was of the view that any upgrade to the ground-ground messaging systems should take into consideration the transition to the System Wide Information Management (SWIM), and the results of the studies that are ongoing at the ACP in this regard, there fore it is premature at this time to begin standardization based on alternative technologies.

6.11   The meeting noted that IPS SARPs are completed and applicable as of November 2008, it was further noted that the ATN-IPS (Doc 9896) guidance material is available at the ICAO ACP website.

6.12   The meeting was further advised that the frequency assignment planning criteria for VDL mode 4 will be provided in the planned part II of the frequency hand book DOC 9718.

6.13   The meeting also noted that the updated manual for AMS(R)S, related to Inmarsat/MTSAT and Iridium Satellite systems is contained in the AMS(R)S draft manual which is also available at the ACP website.

6.14   The meeting noted that the Navigation Systems Panel (NSP) Working Group of the Whole (Montreal, 29 October to 9 November 2007) recommended a number of amendments to Annex 10 — *Aeronautical Telecommunications*, Volume I — *Radio Navigation Aids*, addressing issues associated with the implementation of ground-based radio navigation aids.

6.15   The final comments on the proposed amendments has been received and undergoing final review for presentation to the ANC. Further more the meeting encourage the States to always contribute by sending their comments on amendments on time.

6.16   The meeting was presented with the State Letter containing a proposal for a comprehensive amendment of the flight plan provisions of the PANS ATM Intended date for implementation on 15 November 2012 and noted that the proposal for amendment addresses recent developments in ATM matters, for example reduced vertical separation minimum (RVSM) and performance based navigation (PBN), while at the same time maintaining a high degree of commonality with the existing flight plan format.

6.17   The meeting was of the view that a technical audit would be required on the current systems and agreed to develop Regional Strategy for transition and implementation of the new ICAO flight plan model by the required date.

6.18   Based on the above the meeting agreed to the following Draft Conclusion:

> ***DRAFT CONCLUSION 2/8:***   ***IMPLEMENTATION OF THE NEW ICAO FLIGHT PLAN MODEL***
>
> *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 Flight Plan Model by applicability date.*

6.19   The meeting received information on Bahrain's new Aeronautical Fixed Telecommunication Network AFTN, Common ICAO Data Interchange Network CIDIN and ATS Message Handling System Centre. The hardware platform is based on a Cluster configuration of two servers units connected to a shared disk storage unit and both server units operate in the active/standby mode (switchover mechanism) The system is connected to IP based network for national circuit communication through Bahrain International Airport community network which is running on a state of art IP platform implemented in January 2008.

6.20   The advanced AFTN/CIDIN/AMHS system with high speed and reliable circuits will ensure efficient and economic flow of the messages for the benefit of all users. By implementing this new AFTN/CIDIN/AMHS system, Bahrain provides to the international aviation community in general and the Aeronautical Fixed Services community particularly in the MID Region

6.21   Saudi Arabia informed the meeting of three new projects; the new Riyadh/Jeddah ACC's, National Air Navigation Service Network (NAN) and ATN Message handling system.

6.22   The meeting was also informed of several other Regional projects ongoing in the Region for which the meeting encouraged the concerned States to share information that could benefit the Region.

6.23   Based on the above the meeting agreed to the following Draft Conclusion:

> ***DRAFT CONCLUSION 2/9:***   ***SUPPORTING DOCUMENTS FOR ATN PLANNING***
>
> *That, IPS Working Group consider during the review of the AFTN rationalize plan and ATN planning document developments the new deployed and operational MID States AFTN/CIDIN/AMHS system capabilities.*

6.24   The meeting noted that some of the MID Region States were participating in the ASIOACG and FIT-BOB meetings, in this context the meeting recalled MIDANPIRG/10 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 (ADS-C/CPDLC) as an interim solution, until a fully ATN compliant ADS/CPDLC system is made available.*

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6.25   The meeting was informed by Saudi Arabia that a FANS1/A trial has been proposed to take place during 2009. ICAO HQ Chief CNS/AIRS advised that the proposed trial is on the right track and it is essential to cooperate with adjacent FIRs with FANS equipage and then running trials on those routes. It is suggested that a technical audit 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. Experience in other regions has shown that this is a critical step if the trials are to be successful. The majority of the issues that have been discovered in past trials have been associated with ground equipage and ground-ground coordination. There will also be some pilot and controller training issues but once the ground systems are working properly the flight crew and ATC items can be worked without issue.

6.26   The meeting was informed 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.

6.27   Access to CRA services is critical. Boeing as BOB-CRA and FIT-BOB are able to assist. The FANS Operational Manual (FOM) provides system End-to-End guidance material so it is suggested during the course of the meeting MID Region Use the FOM as well as other APAC guidance material and see if it is suitable for adoption in the MID Region, which is at **Appendix 6D** to the report on Agenda item 6.

6.28   Based on the above the meeting suggested the establishment of a MID Region FANS Implementation Team (MID-FIT). The TOR would be similar to other FITs, to coordinate the activities associated with the trials and the operational introduction of the FANS1/A capabilities into the MID Region and was of the view that access to the data link CRA functions be extended to MID-FIT, consequently the meeting agreed to the following Draft Conclusion:

> *DRAFT CONCLUSION 2/10:   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 6D to the report on Agenda Item 6.*

6.29   In accordance with the RCP guidance material the meeting noted that FANS1/A is satisfies the requirement of RCP consequently the meeting agreed to the following Draft Conclusion which will supersede and replace MIDANPIRG/10 Conclusion 10/16:

> *DRAFT CONCLUSION 2/11:   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.*

OVERVIEW OF THE ITU WRC-07 RESULTS

Agenda Item No.	Agenda Item	ICAO Position	Results	Conclusion
1.1	Suppression of national footnotes.	Suppress 5.181, 5.197 and 5.259 (ILS bands).	The number of countries in those footnotes keeps decreasing. Only Egypt, Israel, Pakistan and the Syrian Arab Republic remain.	In line with the ICAO Position.
"	"	Suppress 5.203, 5.203A and 5.203B (136-137 MHz).	These footnotes have been deleted.	Satisfies the ICAO Position.
"	"	Suppress 5.362B, 5.362C and 5.363 (GNSS bands)	A number of countries have been removed from 5.362B and 5.362C. Secondary allocation for a few countries in 5.362B has been pushed back to 2010. A large number of countries still with a secondary allocation to the FS until 2015. 5.363 has been deleted.	In line with the ICAO Position.
"	"	Suppress 5.439 (radio altimeters).	5.439 provides for a secondary allocation to the FS. Two countries remain in this footnote: Iran (Islamic Republic of), and the Libyan Arab Jamahiriya.	In line with the ICAO Position.
1.3	Upgrading the RLS to primary status in the band 9 000-9 200 MHz and 9 300-9 500 MHz.	Include a footnote to protect the primary status of the RNS in these bands.	The RLS was upgraded to primary status, with the inclusion of appropriate footnotes to protect radars and their associated transponders.	Satisfies the ICAO Position.
1.4	Spectrum for IMT-2000.	No sharing of aeronautical frequencies with the mobile service.	No allocations were made for the IMT service in bands used by aviation.	Satisfies the ICAO Position.

Agenda Item No.	Agenda Item	ICAO Position	Results	Conclusion
1.5	Spectrum for non-safety related aeronautical mobile telemetry (AMT).	Support the allocation of suitable spectrum, while ensuring that priority is given to AM(R)S in bands shared between the two services. Ensure priority of MLS over all other services.	A shared allocation was made in the MLS extension band, while also reducing the protection for MLS in this band. Regional allocations for AMT were also made in non-aviation bands.	Partially satisfies the ICAO Position.
1.6	Consider allocations for the AM(R)S service in accordance to Resolution 414.	Support allocation for AM(R)S in the VHF and DME ARNS bands and in the MLS extension band.	Allocations were made for AM(R)S in 112-117.975 MHz, 960-1 164 MHz and 5 091-5 150 MHz. Appropriate provisions were developed to protect the ARNS service.	Satisfies the ICAO Position. More spectrum may be needed in the 5 GHz band.
"	Study current satellite frequency allocations that will support infrastructure in underdeveloped regions, in accordance with Resolution 415.	Support development of an ITU recommendation in the RR, recognizing that VSAT can be used for aeronautical safety applications.	An ITU recommendation was developed for inclusion in the RRs, which recognizes that VSAT networks can be used to carry aeronautical safety related traffic.	Satisfies the ICAO Position.
1.13	Review allocations in the HF bands between 4 and 10 MHz.	Ensure that new allocations and techniques in the HF bands will not cause harmful interference to aviation.	Protection to the existing aeronautical mobile allocations ensured.	Satisfies the ICAO Position.
1.16	Consider provisions for MMSIs for equipment other than ship borne.	Support measures improving the use of MMSIs onboard SAR aircraft.	MMSIs can be allocated to SAR aircraft.	Satisfies the ICAO Position.
1.17	Consider results of ITU-R studies on compatibility between FSS and other services in the 1.4 GHz band.	Use of the band around 1.4 GHz by the FSS should not be introduced in any of the aeronautical bands in this frequency range.	Secondary allocations to the FSS were suppressed. No new allocations were made.	Satisfies the ICAO Position.

Agenda Item No.	Agenda Item	ICAO Position	Results	Conclusion
1.20	Consider proposals for regulatory measures to protect the EESS (passive) from unwanted emissions of active services.	Protection of EESS in the 1.4 GHz band should not impose undue constraints on adjacent bands for aviation.	No constraints given to operation in the ARNS band, 1 300-1 350 MHz.	Satisfies the ICAO Position.
1.21	Compatibility between the radio astronomy service and the active space services.	Protection of radio astronomy in the band 1 610.6-1 613.8 MHz band should not impose undue constraints on adjacent bands for aviation.	A guiding limit for unwanted emissions was developed by the conference. This limit is not believed to affect current or foreseen GNSS networks.	In line with the ICAO Position.
2	Examine and update revised ITU-R recommendations incorporated by reference in the RR.	No change to the current references in the RR, to ITU-R recommendations related to aeronautical services.	Some ITU-R recommendations which reference aviation spectrum are to be included in Volume 4 of the RR. The referenced recommendations are not being modified.	Satisfies the ICAO Position.
4	Review resolutions/-recommendations of previous conferences.	Itemized list in ICAO position.	A number of resolutions and recommendations were updated in line with the ICAO Position.	Satisfies the ICAO Position.
7.2	Agenda for WRC-11 and 2015.	Support inclusion for WRC-11 addressing the MSS 1.5/1.6 GHz bands to ensure AMS(R)S availability and protection.	Agenda Item 1.7, WRC-11 refers. Many other items on the agenda for WRC-11, which affect civil aviation.	Satisfies the ICAO Position. Preparation for WRC-11 to start immediately.

MEMBERS OF ADHOC ACTION GROUP

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TERMS OF REFERENCE OF THE

**AD-HOC ACTION GROUP FOR THE SUPPORT OF AERONAUTICAL
FREQUENCY BANDS**

Terms of Reference (TOR)

1.   Raise awareness of the National Telecommunication Regulatory Authorities on the aviation
      spectrum use and importance for protection.
2.   Ensure proper support to ICAO Positions in WRC from MID region States.
3.   Participate in the WRC Preparatory meeting.

Composition

The Group will be composed of experts nominated by MID Region Provider States.

Working Arrangements

The representatives shall maintain continuity in the work of the Group, by using communication
facilities particularly e-mails to keep the Members and the Secretary in permanent touch with each
other, the group shall meet during the CNS Sub-Group meetings.

Reporting

The Group will present its report to MIDANPIRG through the CNS Sub-Group.

No.	Associated Strategic Objective	Task	Action Proposed/In Progress	Action By	Target Date
1	D- Efficiency E- Continuity	Support the ICAO position WRC-11	Coordinate the issue of supporting ICAO Position with the respective Administrations and regional telecommunications organizations in the Region and before WRC 11	Ad-Hoc WG	Oct 2009
2	D- Efficiency E- Continuity	Support for Preparation of Agenda Item of WRC 11	Coordinate the long term support to ICAO on elements of establishing WRC-11 Agenda Item to ensure future spectrum availability for AMS(R)S;	Ad-Hoc WG CNS SG	Oct 2009
3	D – Efficiency	Study radio frequency spectrum needs for civil aviation, arising from the introduction of new technologies.	Present and support ICAO position for spectrum needs for civil aviation, arising from the introduction of new technologies in ITU	Ad-Hoc WG CNS SG	On-going

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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.

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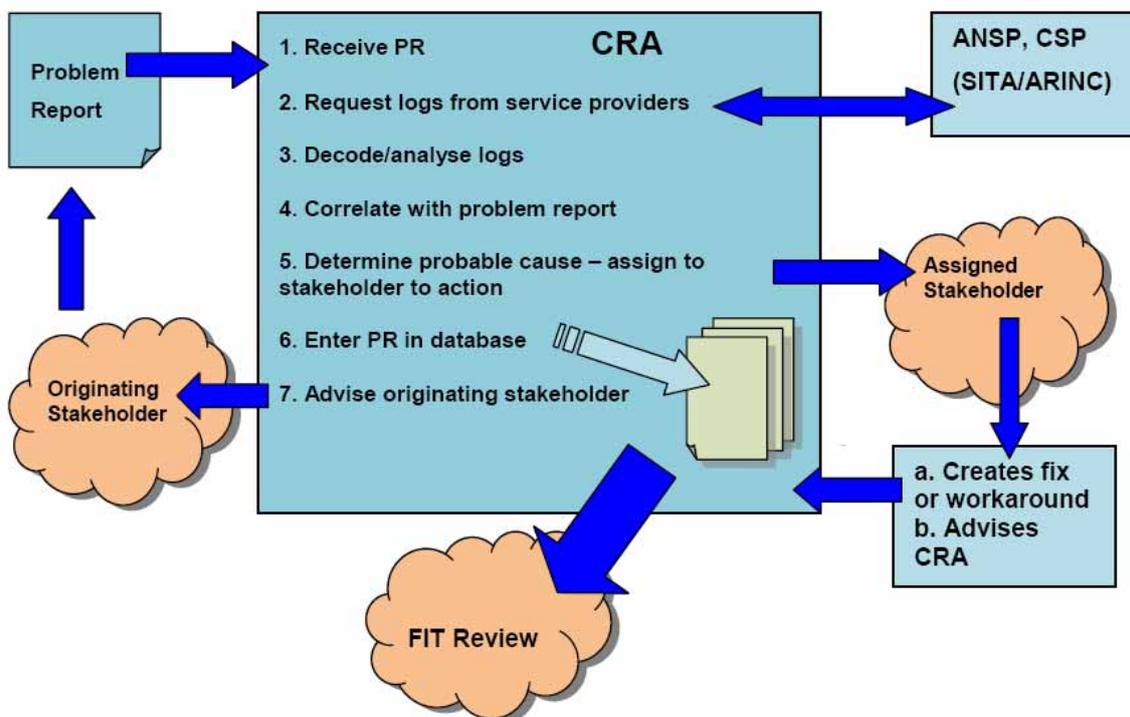
7.5　　　　The problem identification task begins with receipt of a report from a stakeholder, usually an operator, ANSP or CSP. If the person reporting the problem has used the problem reporting form provided in the appropriate regional manual, then data collection can begin. If not, additional data may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

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

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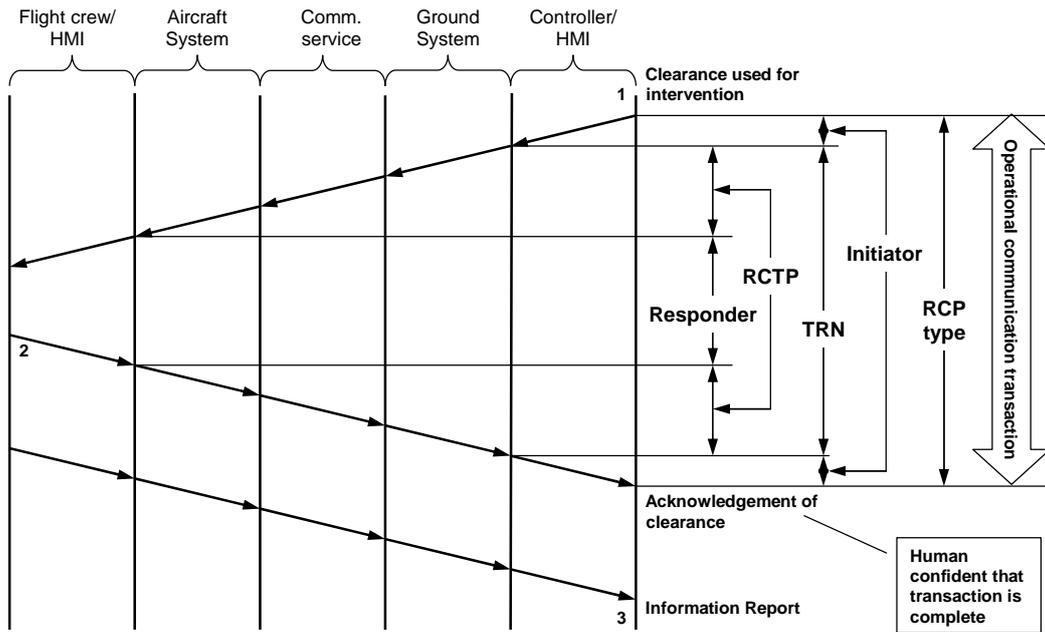
Figure 1: *RCP allocations for intervention capability (DO-306/ED-122, Figure 5-3)*

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:	99.9%
	The maximum allowed time of continuous unavailability or downtime should be declared MTTR (Mean Time To Repair) ∗	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 SG/2
Report on Agenda Item 7

REPORT ON AGENDA ITEM 7:   DEVELOP CNS PERFORMANCE OBJECTIVE FOR MID REGION

7.1   The meeting noted that ICAO planning objective is to achieve a performance based global air traffic management (ATM) system through the implementation of air navigation systems and procedures in a progressive, cost-effective and cooperative manner. The regional planning and implementation process is the principal engine of ICAO's planning framework. It is here that the top-down approach comprising global guidance and regional harmonization measures converge with the bottom-up approach constituted by national planning by States.

7.2   The meeting noted that the basis for the transition to a performance based air navigation system emanated from good industry practices that have emerged over many years. As the aviation industry has evolved into a less regulated and more corporatized environment with greater accountabilities, the advantages of transitioning from systems based to performance-based planning are apparent.

7.3   The Performance-Based Approach (PBA) adheres to the following principles: strong focus on results through adoption of performance objectives and targets; collaborative decision making driven by the results; and reliance on facts and data for decision making. Assessment of achievements is periodically checked through a performance review, which in turn requires adequate performance measurement and data collection capabilities.

7.4   The PBA is result oriented, transparent and promotes accountability; shift from prescribing solutions to specifying desired performance; employs quantitative and qualitative methods; avoids a technology driven approach; helps decision makers to set priorities, makes the most appropriate trade-offs, and allows optimum resource allocation.

7.5   To facilitate the realization of a performance based Global ATM system, the meeting noted that ICAO has made significant progress in the development of relevant guidance material. The intent of the guidance material is to promote a globally harmonized approach to transition planning and to ensure collaboration in developing air navigation systems and procedures. These documents include *Global Air Traffic Management Operational Concept (Doc 9854)* , *The Air Traffic Management System Requirements (Doc 9882), the Manual on Global Performance of the Air Navigation System (Doc 9883) which is* to assist planners in weighing outcomes and making appropriate decisions, and the *Global Air Navigation Plan* (Doc 9750).

7.6   The MIDANPIRG along with other PIRGs play a pivotal role in facilitating and monitoring the implementation of regional air navigation infrastructure. The planning flow chart in the Global Air Navigation Plan in conjunction with the Transition approached contained in Part II of the Global Performance Manual Doc 9883), provide a broad overview of the tasks that need to be undertaken by the PIRGs.

7.7   The meeting recalled MIDANPIRG 10/13 and noted that a standardized performance framework planning template has been adopted to be applicable to both regional and national planning. The common template ensures easy understanding and harmonization. The template and the explanatory notes are as at **Appendix 7A** to the report on Agenda Item 7.

CNS SG/1
Report on Agenda Item 7

7.8   The meeting noted that a global ATM system will emerge through the implementation of many initiatives over several years on an evolutionary basis. The set of initiatives contained in the Global Plan are meant to facilitate and harmonize the work already underway within the regions and States so as to bring needed benefits to aircraft operators over the near and medium terms. ICAO will continue to develop newer initiatives on the basis of the operational concept. Subsequently these will 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.

7.9   Based on the above the meeting reviewed part of the current MID Regional performance objective and started the transition to the new planning templates and the first version is at **Appendix 7B** to the report on Agenda Item 7. In addition the meeting also noted that he corresponding action plans that will need to be developed and completed to support both regional and National planning, consequently agreed to the following Draft Conclusions:

> *DRAFT CONCLUSION 2/12:   REGIONAL PERFORMANCE FRAMEWORK*
>
> *That, a regional performance framework be adopted on the basis of ICAO guidance material and ensure its alignment with the Global Air Navigation Plan and the Global ATM Operational Concept. The performance framework should include identification of regional performance objectives and completion of regional performance framework forms.*
>
> *DRAFT CONCLUSION 2/13:   NATIONAL PERFORMANCE FRAMEWORK*
>
> *That, MID States 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.*

7.10   The meeting noted that ICAO MID Regional Office conducted a workshop on the ICAO Performance Framework on the 27 Oct 2008 in which the participants gained experience in developing outcome based planning. The workshop was highly appreciated by participants who requested additional workshops of similar nature to be conducted.

7.11   The meeting noted that the PBN/GNSS TF/1 was held in Egypt, Cairo 20-23 October 2008 developed 6 Draft Conclusions and 1 Draft Decision, the meeting further noted the different PBN related plans that were developed by the PBN/GNSS TF/1.

7.12   The meeting reviewed the document "Improvement of Navigation System in the MID Region which has been previously developed by the GNSS TF and was of the view that the contents that are of value is to be captured in a separate database and to discontinue the efforts in developing this document further.

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Appendix 7A to the Report on Agenda Item 7

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 SG/2
Appendix 7B to the Report on Agenda Item 7B

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 AOM, 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			
	• Implement frequency spectrum management			
	•			
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 (2010)** *Medium term (2011 - 2015)*				
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;			
	• Commitment of States through the signature of MOU;			
	• Agreement on a funding mechanism;			
	• Implementation and operation of the MID IFPS			
	•			
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 (2010)** *Medium term (2011 - 2015)*				
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			
This task shall be before migration from AFTN	• Implement high speed digital circuits between main centres			High speed digital circuits implemented at some centers
	• Monitor the implementations			
	• Follow up the developments in the Panels			
	• Implement the appropriate developments			
	•			
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 (2010)** *Medium term (2011 - 2015)*				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO AOM, ATMSDM	• Develop Regional ATN Planning document	2010	ICAO, States, IPS Working Group	
	• Review of ATN implementation problems and develop coordinated solutions			
	• Develop ATN Operation procedures			
	• Develop conformance procedures and check list for AMHS and ATN routers			
	• 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 (2010)** *Medium term (2011 - 2015)*				
ATM OC COMPONENTS	**TASKS**	**TIMEFRAME START-END**	**RESPONSIBILITY**	**STATUS**
AO, TS, CM, AUO AOM, ATMSDM	• Identify & implement selected, harmonized data links to ensure interoperability between States and Regions	2010	ICAO, States	
	• Implement available technologies in support of and to facilitate ground and airborne applications (CPDLC, ADS, D-ATIS			
	•			
Linkage to GPIs	GPI-22: Communications Infrastructure; GP!-17: Data Link Application			

<table>
<tr><td colspan="6" align="center">**MID-RNI-01 - IMPLEMENTATION OF GNSS IN THE MID REGION**</td></tr>
<tr><td colspan="6" align="center">**Benefits**</td></tr>
<tr><td>**Efficiency**</td><td colspan="5">• Optimal use of advanced technologies</td></tr>
<tr><td></td><td colspan="5">• Optimization of infrastructure</td></tr>
<tr><td></td><td colspan="5">• Operational Efficiency</td></tr>
<tr><td>**Safety**</td><td colspan="5">• Reduced navigational errors</td></tr>
<tr><td>**Environment**</td><td colspan="5">• Reduction in environmental impact</td></tr>
<tr><td></td><td colspan="5">•</td></tr>
<tr><td colspan="6" align="center">*Strategy*
Short term (2010)
Medium term (2011 - 2015)</td></tr>
<tr><td>**ATM OC COMPONENTS**</td><td>**TASKS**</td><td>**TIMEFRAME START-END**</td><td colspan="2">**RESPONSIBILITY**</td><td>**STATUS**</td></tr>
<tr><td>AO, TS, CM, AUO AOM,</td><td>• Implement GNSS for En-route</td><td>2010</td><td colspan="2">ICAO, States</td><td></td></tr>
<tr><td></td><td>• Implement GNSS for TMA</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>• Implement GNSS for APP</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>• Carry out GNSS trials, demonstrations and test beds;</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>• Determine the most appropriate augmentation system for the MID Region based on cost-benefit analysis;</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>• Introduce, in an evolutionary manner, the use of GNSS with appropriate augmentation system in the MID Region</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>• Monitor implementation progress</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>•</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td>**Linkage to GPIs**</td><td colspan="5">GPI-21:   NAVIGATION SYSTEMS</td></tr>
</table>

REPORT ON AGENDA ITEM 8:   FUTURE WORK PROGRAMME

8.1   Under this Agenda Item the meeting noted that the fifth meeting of the ANC in its 177th Session held on 7 February 2008, considered the review of the MIDANPIRG/10 Report.

8.2   The meeting further noted that the future format of this report will be based upon the outcomes described in the regional performance framework forms taking into consideration the Global ATM Operational Concept, the Global Air Navigation Plan, and other supporting documents.

8.3   The performance framework forms will describe performance outcomes, identify major efforts/goals/objectives, establish action plans with timelines; and directs sub-groups to develop national action plans which are more detailed it is necessary for each MIDANPIRG body to include the relevant follow-up tasks in their respective work programmes and reflect the same in the Business Plan/Operational Plans.

8.4   Based on the above the meeting revised it TOR and Work programme as at **Appendix 8A** to the report on Agenda item 8 and agreed to the following Draft Decision that will replace and supersede MIDANPIRG/10 Decision 10/69:

> *DRAFT DECISION 2/14:   REVISED TOR OF THE CNS SUB-GROUP*
>
> *That, the Terms of Reference and Work Programme of the CNS Sub-Group be updated as at **Appendix 8A** to the report on Agenda Item 8.*

8.5   The meeting was of the view to create a consolidation matrix to facilitate the execution and follow-up of CNS/ATM Implementation efforts which lists status of implementation of various major CNS/ATM elements within the Region such as ATN, AIDC, CPDLC, GNSS ADS-C and ADSB and agreed to the following Draft Conclusion:

> *DRAFT CONCLUSION 2/15:   CNS/ATM IMPLEMENTATION PLANNING MATRIX*
>
> *That,*
>
> *a) the Secretariat be requested to develop and maintain a matrix listing all MID FIRs and the associated status of implementation of various major CNS/ATM elements; and*
>
> *b) the MID States will provide the updates to be incorporated in the MATRIX..*

8.6   With regard to the date of the next CNS Sub-Group 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 SG/3 meeting will be held during the fourth quarter of 2009.   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 SG/3 will be held prior to MIDANPIRG/12.

CNS SG/2
Report on Agenda Item 8

8.7   The meeting agreed to the Provisional Agenda for the CNS SG/3, as in **Appendix 8B** to the report on Agenda Item 8.

8.8   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 SG/2 meeting as attached at **Appendix 8C** to the report on Agenda Item 8.

**COMMUNICATION, NAVIGATION AND SURVEILLANCE SUB-GROUP
(CNS SG) OF THE MID REGION**

1. Terms of Reference

No.	Strategic Objectives	Tasks
1	A/B/D/E	Review and identify any deficiencies that impede the implementation or provision of efficient CNS (Communication, Navigation and Surveillance) services in the MID Region.
2	A/B/D/E	Make specific recommendations aimed at improving communication, navigation, and surveillance services through the use of existing procedures and facilities or, through modernization programmes and evolutionary introduction of new procedures and technologies such as ADS-B and other data links.
3	A to E	Review and identify inter-regional co-ordination issues in the fields of CNS and recommend actions to address those issues based on clearly established performance objectives in support of the ICAO Strategic Objectives and in connection with the Global Plan Initiatives (GPIs).
4	A/D/E	Follow up on the implementation of the elements of the Aeronautical Fixed Services (AFS) data and digital voice communications and plan for the transition and implementation of ATN in the MID Region to meet performance capacity requirements of the CNS ATM System. The planning function includes the development of necessary recommendations and regional documentation.
5	A to E	Ensure the continuing and coherent development of the MID Regional Air Navigation Plan with the monitoring of the New CNS/ATM Systems research and development, trials and demonstrations in the fields of CNS and facilitate the transfer of this information and expertise between States.

2. Work Programme

No.	Task	Deliverables	Action by	Target date
1	Monitor CNS/ATM planning and development trials in the field of CNS and facilitate the transfer of this information and expertise amongst States	1) monitor global development that many have beneficial consequences in regional planning activities 2) encourage States to conduct, trials of available CNS services that have been identified to support agreed operational outcomes; 3) serve as a focal point for review of ongoing work regional groups that is relevant to CNS 4) ensure that the capabilities and capacities offered through existing aircraft equipage , ATM infrastructure and ATC systems is utilized to the maximum extent possible to support agreed operational outcomes..	CNS SG	Ongoing

No.	Task	Deliverables	Action by	Target date
2	Survey and update of CNS deficiencies in the MID Region on a regular basis and focus on surveys and information from users such as IATA and IFALPA.	That the MID Regional Office presents the results of the surveys and the updated deficiencies to the next CNS SG meeting. States should provide deficiency resolution plans that address actions	CNS SG	On going
3	To follow-up the developments of ICAO position regarding future ITU World Radio Communication (WRC) Conferences and their preparatory meetings	Highlight the ICAO position concerning future ITU WRC conferences to the MID States, and ensure States understand and Support ICAO position during the WRC meetings. States should be encouraged to review and comment on the updated ICAO position for WRC-11 when it is received.	CNS SG	Ongoing
4	Harmonization of AIM, MET and FPL	States should take the necessary measures to enable users to access both AIM and MET information from a common interface based on the flight plan entry	States	Ongoing
5	Implementation of High Speed digital circuits between main centers	Harmonize and increase the number of high speed digital circuits between MID States and interregional for the support of the Global plan ensuring that the capabilities and capacities offered are utilized to the highest degree possible	CNS SG States	2009
6	Establishment of IFPS in the MID Region	Support Bahrain for the development of the IFPS study	CNS SG Bahrain	2009
7	Review the AFTN performance levels	Keep monitor of AFTN performance and recommend upgrade when necessary. This will be re-addressed by the IPS WG in the assessment to transition to an IPS based system to replace AFTN.	CNS SG IPS WG	Ongoing
8	- ATN Development for the MID Region	1) Keep track of the ATN development in the ACP and incorporate in the region guidance document 2) Develop MID region implementation Plans and guidance based on IPS protocols ensuring compatibilities with other regions	CNS SG	Ongoing
	- ATN Operational procedures	1) The IPS WG to conduct an assessment to transition to an IPS based system to replace AFTN capable of supporting existing AFTN transitional/ operational procedures and develop a new transitional and operational procedures applicable to the operation and use of the AMHS. 2) Develop appropriate ATN operational procedures accommodating ATN-IPS.	CNS SG IPS WG	9

No.	Task	Deliverables	Action by	Target date
		3) The IPS WG to conduct an assessment to developed a coordinated transition to an IPS based system AFTN routing that is interoperable with AMHS routing change procedures.		
	- ATN-IPS Implementation coordination	1) Review and analyze implementation problems and develop coordinated solutions 2) States to report and share implementation and operational experience gained	CNS SG States	ongoing
9	Frequency issues	1) Review frequency congestion and propose recommendation 2) Review frequency interference and propose recommendations 3) Recommend new AMS systems 4) Evaluate the proposed eANP communication tool in conjunction with the development of the MID COM list	CNS SG HQ	Ongoing
10	AMHS register	1) Assist states in development of the addressing scheme 2) Complete the addressing scheme for the MID region 3) Introduce monitoring and management procedures. 4) Adopt the AMHS register database solution agreed by ICAO HQ supported by Eurocontrol	CNS SG States HQ	2009
11	Data Links	Introduction of data link usage to support the ATC at flight level 290 by 2010	CNS SG	2010
12	Develop Regional Performance Framework Forms	Develop Regional Performance Framework Forms supported by detailed action plans for associated projects.	CNS SG	2009
13	Establish and adopt a RCP Methodology	Develop MID Region target	CNS SG	2010

3. **Composition**

3.1   The Sub-Group will compose of:

     a)   MIDANPIRG Provider States; and

     b)   concerned International/Regional Organizations as observers.

CNS SG/2
Appendix 8C to the Report on Agenda Item 8

CNS SG/2
FOLLOW-UP TO CNS SG/2 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. 2/1 A,D,E	MID Region Strategy for the Implementation of ADS-B	That MID Region, Strategy to be amended as at **Appendix 2A** to the report on Agenda Item 2.	Implement the Strategy	States users	Implementation reports	Nov 2009
Draft Dec. 2/2 D	Implementation of the Rationalize AFTN Plan	That Internet Protocol Suite (IPS) WG review the Rationalized AFTN Plan by performing an assessment to transition to an IPS based system.	Review the plan	MIDANPIRG IPS members States	Assessment Plan Revised plan	Nov 2009
Draft Dec. 2/3 D	Establishment of an Internet Protocol Suite (IPS) Working Group	That, an IPS Working Group is established with Terms of Reference as at **Appendix 3C** to the report on Agenda Item 3.	Group established	MIDANPIRG IPS WG	WG formed members WG report	Nov 2009
Draft Conc. 2/4 A,D,E	IFPS project support	That, MID States: a) provide Bahrain the necessary support to finalize the study; and b) develop and agree on a funding mechanism to pursue the project.	Final Study	MIDANPIRG CNS SG CNS/ATM/IC SG	States support List of Focal points Support mechanism	Nov 2009
Draft Conc. 2/5 D	Digital High Speed Links	That, in support of ATN implementation, MID States are urged to continue with the implementation of digital high speed links.	Implement high speed links	States	High Speed links	Nov 2009
Draft Conc. 2/6 D	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 modeled as at Appendix 4C to the report on Agenda Item 4.	Proposal for establishment States hosting	MIDANPIRG/ 11 States	Office Established	Feb 2009 Nov 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. 2/7 A,D,E	Update Adhoc Action Group and Participate in National and Regional activities related to WRC-11	That, a) MID States that have not nominated experts to Adhoc Action Group are requested to do so; b) the TOR of the Adhoc Action Group be revised as in Appendix 6C to the report on Agenda Item 6; and c) Civil Aviation Authorities, aviation spectrum experts to participate in the national and regional level activities related to WRC-11 to support ICAO Position for WRC-11.	State letter State letter States assign members Communication and sharing of information between members	ICOA States	State letter Updated list of members Report of the group	June 2009 Nov 2009
Draft Conc. 2/8 A,D,E	Implementation of the New ICAO Flight Plan Model	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 Flight Plan Model by applicability date.	State Letter	ICAO MID Office States	MDANPIRG State Letter Members of the group MID Guidance material	Feb 2009 Nov 2009 Nov 2012
Draft Conc. 2/9 D	Supporting Documents for ATN Planning	IPS working group consider during the review of AFTN rationalize plan and ATN planning document development new deployed and operational MID States AFTN/CIDIN/ AMHS system capabilities.	Notify States	IPS WG	Justified Plan	Nov 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. 2/10 D	Establishment of MID-FIT	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 6D to the report on Agenda Item 6.	Notify States	ICAO MID Office	State Letter	Mar 2009
Draft Conc. 2/11 A,D	Introduction of FANS1/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. 2/12 D,E	Regional Performance Framework	That, a regional performance framework be adopted on the basis of ICAO guidance material and ensure its alignment with the Global Air Navigation Plan and the Global ATM Operational Concept. The performance framework should include identification of regional performance objectives and completion of regional performance framework forms.	Develop performance framework	Sub Groups MIDANPIRG	Regional Performance objectives; Performance Framework Forms	Jan 2009
Draft Conc. 2/13 D,E	National Performance Framework	That, MID States 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	ICAO MID Office	State Letter States National Performance Framework Forms	Mar 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 Dec. 2/14 D	Revised TOR of the CNS Sub-Group	That, the Terms of Reference and Work Programme of the CNS Sub-Group be updated as at **Appendix 8A** to the report on Agenda Item 8.	Follow up the work programme	CNS SG	CNS SG3 REPORT	Nov 2009
Draft Conc. 2/15 D	CNS/ATM Implementation Planning Matrix	That, a) the Secretariat be requested to develop and maintain a matrix listing all MID FIRs and the associated status of implementation of various major CNS/ATM elements; and b) the MID States will provide the updates to be incorporated in the MATRIX.	Notify States	ICAO MID Office States CNS SG	State letter Matrix	Nov 2009

PROVISIONAL AGENDA FOR CNS SG/3

Agenda Item 1:   Adoption of the Provisional Agenda

Agenda Item 2:   Follow-up action on Reports
                      MIDANPIRG, MSG, CNS/ATM and CNS SG

Agenda Item 3:   Aeronautical Fixed Service (AFS)

Agenda Item 4:   Aeronautical Mobile Service (AMS)

Agenda Item 5:   Navigation

Agenda Item 6:   Surveillance

Agenda Item 7:   Monitoring and Follow up CNS Deficiencies in the MID Region

Agenda Item 8:   Latest Developments in CNS

Agenda Item 9:   Review and update of CNS projects in MID Region

Agenda Item 10:   Review and update of CNS/ATM Implementation Planning Matrix systems

Agenda Item 11:   Future work programme

Agenda Item 12:   Any other business

CNS SG/2
Report on Agenda Item 9

REPORT ON AGENDA ITEM 9:   ANY OTHER BUSINESS

9.1   ICAO Headquarters C/CNS/AIRS informed the meeting for creating of this section at HQ emphasizing on the importance of the data in today aviation and also provided open invitation to MID States to participate in the ACP, ASP, and NSP, also advised that ICAO HQ would facilitate the visa requirement in case needed.

ATTACHMENT A

CNS SG/2
Attachment A to the Report

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