



INTERNATIONAL CIVIL AVIATION ORGANIZATION
AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP
SEVENTEENTH MEETING (APIRG/17)
(2-6 August, 2010)

Agenda Item 3: AFI Regional Air Navigation Planning and Implementation Issues

3.3 Communications, Navigation and Surveillance (CNS)

Review of the Report of the Third Meeting of APIRG Communications, Navigation and Surveillance Sub-group (CNS/SG/3)

GENERAL

(Presented by the Secretariat)

SUMMARY
The report of the Third Meeting of the CNS Sub-group (CNS/SG/3) is presented for review by APIRG.
Action by the meeting is at paragraph 3.
References : [1] – Report of the CNS/SG/3 Meeting (Principal reference) [2] – Report of the CNS/SG/2 Meeting [3] – Report of the APIRG/16 Meeting [4] – Report of the ICAO Special AFI RAN Meeting (2008) (Doc 9930) [5] – Annex 10 to the Convention on International Civil Aviation <i>Note: References [1], [2], [3] and [4] can be downloaded from: http://www.icao.int.</i>
Related ICAO Strategic Objectives: A, D.

1. INTRODUCTION

1.1. The Third Meeting of the AFI Communications, Navigation and Surveillance Sub-group (CNS/SG/3) was held at the ICAO Eastern and Southern African Office (ESAF) in Nairobi, Kenya, located within the United Nations Office in Nairobi (UNON), from 26 to 30 April 2010. It was attended by 42 delegates from 20 States and 5 international Organizations. The meeting formulated 17 draft conclusions and 03 draft decisions for consideration by APIRG.

2. DISCUSSION

2.1 Election of Chairman and Vice-Chairman of the Sub-Group

2.1.1 In accordance with the APIRG Procedural Handbook, the meeting unanimously elected Mr. Richard Rwahesi from Uganda as Chairperson of the CNS Sub-group and Mr. Boubacar Diallo from Guinea as a Vice- Chairperson of the Sub-group.

2.2 Review of the terms of reference, work programme and composition of the Communications Sub-group as defined By APIRG/16

2.2.1 Under this Agenda Item, the Sub-group reviewed its terms of reference, work programme and composition as established by APIRG /16. Amendments to the work programme were agreed. These are shown in the future work programme of the Sub-group considered under Agenda Item 9.

2.2.2 The meeting then considered the outcome of a survey on the attendance of the past CNS Sub-group meetings by its members. The available statistics showed a steady decline from 1998 which had 78 percent participation down to 58 percent in 2007 (CNS/SG/2). The Meeting adopted the draft following draft Decision:

DRAFT DECISION 03/01: PARTICIPATION OF ALL MEMBERS IN CNS SG MEETINGS

That all States and Organizations which are core members of the CNS Sub-group should participate in the Sub-group meetings.

2.3 Follow up of APIRG/16 - CNS/SG/2 and ICAO SP AFI RAN Conclusions, Decisions and Recommendations

2.3.1 Under this agenda item, the meeting reviewed and noted the follow-up actions on APIRG/16, CNS/SG/2 and SP AFIRAN/2008 Conclusions, Decisions and Recommendations.

2.4 Aeronautical Fixed Service (AFS)

2.4.1 Review of performance and implementation status of the aeronautical fixed telecommunication network (AFTN) in the AFI Region, identification of deficiencies and remedial action for their elimination

Review of Status of AFTN Implementation

2.4.1.1 With the implementation of SADC/2 and NAFISAT networks and their interconnection to AFISNET, all AFI Air Navigation Plan (ANP) requirements for AFTN have been implemented. However, a number of circuits need to be improved upon.

Review of AFTN performance

2.4.1.2 The AFTN performance was reviewed as supported by AFISNET, CAFSAT, NAFISAT and SADC 2 networks.

2.4.1.3 The meeting was informed that some States and ANSPs that have implemented bilateral AFTN circuits should to take into consideration the requirements of ATM dictated by new airspace organization.

2.4.1.4 The meeting noted that in spite of the efforts undertaken by States/Organizations to replace the old VSAT nodes of AFISNET that were implemented over 20 years ago, some weaknesses remain, notably, Accra /Kano and Brazzaville /Kinshasa circuits. The meeting then formulated the following draft Conclusion:-

DRAFT CONCLUSION 03/02: AFTN PERFORMANCE

That Congo DR, ASECNA, Ghana and Nigeria should endeavour to improve Accra/Kano and Brazzaville/Kinshasa circuits as soon as possible but not later than the end of December 2010.

AFTN Monthly statistical Data

2.4.1.5 The meeting noted that only 20 percent of States in the AFI Region responded to AFI/7 recommendations by sending the monthly AFTN availability statistics to the regional office. The meeting requested ICAO to develop a web based data collection centre where States can key in directly the AFTN statistical data for compilation and analysis. The meeting formulated the following draft Conclusions:-

DRAFT CONCLUSION 03/03: AFTN MONTHLY STATISTICAL DATA

That States which have not implemented AFI/7 recommendation, to follow Recommendation 9/4 of AFI/7 (Performance of AFTN circuits) and Decision 16/12 of APIRG/16 (Follow up of the performances of the Aeronautical Fixed Service) by forwarding to the regional offices the AFTN monthly statistics (missing flight plans status, transit time statistics).

DRAFT CONCLUSION 03/04: DEVELOPMENT OF AN AFTN DATABASE

That ICAO develop a secure website to facilitate electronic compilation of AFTN statistical data collection and monitoring.

2.4.1.6 The meeting was informed of the recent development of AMHS implementation in other regions and noted that the implementation of AMHS in AFI should be conducted without any dysfunction during the transition of AFTN to full AMHS operating time. The meeting was also informed of a training programme to be provided to AFI States by EUROCONTROL on the implementation of AMHS. AFI States will be given an opportunity to send their candidates and thereafter they will be given access to the EURONCONTROL website for additional training on AMHS. In order to conduct a standardized and harmonized implementation process the meeting proposed the creation of an Implementation Task Force to coordinate the implementation of AMHS in the AFI Region, with the terms of reference shown at **Appendix A** to this working paper. The following draft Conclusions were formulated:

DRAFT CONCLUSION 03/05: IMPLEMENTATION OF AMHS

That, when implementing AMHS as part of ATN system, AFI States and Organizations adopt a cooperative approach based on a regional coordination to ensure the continuity of AFS during the transition period between AFTN and full AMHS operations.

DRAFT CONCLUSION 03/06: CREATION OF AN AMHS IMPLEMENTATION TASK FORCE

That:

- a) **A Task Force be formed with Terms of Reference as at Appendix C to the CNS/SG/3 Report in order coordinate and plan for the implementation of AMHS in AFI; and**
- b) **ICAO continue to strongly support AFI States in the implementation of AMHS by organizing more relevant workshops and seminars in AFI Region.**

2.4.1.7 The AFI Communication Chart (COMs Chart) was updated and will be included in the AFI FASID (Doc 7474).

4.2 ATS/DS

Implementation of ATS/DS Circuits

2.4.2.1 In reviewing the ATC direct speech circuit status of implementation and performance, the meeting noted a great improvement in the implementation of ATS/DS circuits. However, the following circuits were yet to be implemented. These are as follows:

- Luanda /Accra (in progress)
- Luanda /Atlantico
- Kigali/ Goma
- Bujumbura /Goma
- Kigali/ Bukavu
- Algiers/ Trípoli
- Ouagadougou/Niamtougou
- Nouadhibou/ Dakhla
- Dakar /Rochambeau
- Bangui/ Gbadolite.

2.4.2.2 A detailed list of ATS/DS deficiencies is provided at Appendix E1 to the CNS/SG/3 Report. The meeting noted that the following circuits could be implemented using the interconnection circuitry supported by SADC/2 and AFISNET: Kinshasa /Brazzaville, Bangui/Gbadolite (AFISNET) and (RVA network). Algiers/Tripoli (AFISNET and NAFISAT) Ouagadougou/Niamtougou AFISNET. The meeting formulated the following draft Conclusion:-

DRAFT CONCLUSION 03/07: IMPLEMENTATION OF ATS/DS CIRCUITS

That concerned States and Organizations take the appropriate action and implement the outstanding AFI ANP ATS/DS circuits. In doing so, the guidelines developed by ICAO for the implementation of VSAT should be taken into consideration and ensure:

- a) **Harmonized networks avoiding the multiplication of sub-networks and technology; and**
- b) **Cost effective networks by sharing existing networks interconnection capability.**

2.4.2.3 The meeting noted that the following circuits have been implemented but not activated due to non technical reasons:

- Addis Ababa /Asmara
- Kinshasa/ Kigali
- Bujumbura/ Kinshasa

2.4.2.4 The meeting formulated the following draft Conclusion:

DRAFT CONCLUSION 03/08: ACTIVATION OF AFS CIRCUITS

That DRC, Ethiopia, Eritrea, Rwanda and Burundi endeavour to activate the above mentioned circuits which have been implemented through NAFISAT/SADC/2 Networks in order to improve flights coordination.

2.4.2.5 The following circuits have been implemented but their performance is below expectation:

- Kinshasa /Brazzaville
- Kano /Accra
- Accra / Libreville
- Brazzaville / Accra
- Maiduguri /N`Djamena

2.4.2.6 The meeting was informed by the secretariat that AFISNET members have set up the Joint Technical Evaluation and Re-engineering Team to carry out the joint technical evaluation exercise by the end of June 2010 in line with Conclusion 6/18 of SP AFI/RAN meeting. A coordinating meeting held in the WACAF Office from 13 to 14 April 2010 developed a consolidated site mission programme and planning to start the Joint Technical Evaluation exercise on 01 May 2010. The meeting formulated the following draft Conclusion:

DRAFT CONCLUSION 03/09: AFISNET NETWORK

That AFISNET States/Organizations pursue their effort in implementing the various Conclusions of the previous relevant meetings (*Conclusion 16/07 of SNMC/16; Recommendation 6/18 of SP AFI RAN; Conclusion 17/02 of SNMC/17; Conclusions of the Joint Technical Team*) to modernize the Network by evaluating and re-engineering AFISNET.

VSAT Meeting (Recommendation 6/19 of SP AFI RAN 2008)

2.4.2.7 The meeting discussed at length the implementation of Recommendation 6/19 of SP AFI RAN 2008 meeting. The meeting noted that SADC VSAT supervisory committee tasked ATNS (South Africa) to represent them at the meeting. However, NAFISAT Supervisory Committee tasked its members and ATNS to represent the network taking into consideration that some of the re-modification might have financial implications. The next SNMC meeting will take place on 1-4 June 2010, and the meeting will inform the Regional Office of the composition of AFISNET's representation. CAFSAT network is in the process of forming CAFSAT Management Committee.

2.4.3 Back-up systems for AFS

2.4.3.1 The meeting discussed in detail the need to have back-up systems for the AFS operation. The new optical cable system in AFI was also considered. The meeting noted that Satellite telephones, Public Switched Telephone systems could also act as back-up systems. However, the systems should adhere to ATM operational requirements. The meeting formulated the following draft Conclusion:

DRAFT CONCLUSION 03/10: BACK UP-SYSTEMS FOR AFS

That States and organizations provide suitable backup systems for AFS and they should install and/or update their:

- a) **Satphone voice and//or data facilities with recording systems;**
- b) **Public Switched Telephone Network with recording systems ;**
- c) **The telephone numbers for back-up systems should be forwarded to ICAO for publication and;**
- d) **When implementing backup systems for AFS, States and organizations should take into consideration AFS Performance Level Requirements for ATM operation.**

2.5 Aeronautical Mobile Service (AMS)

2.5.1 Review of the implementation and performance of the Aeronautical Mobile Service in the AFI Region, identification of deficiencies and remedial action for their elimination

Very High Frequency Communications (VHF)

2.5.1.1 The CNS Sub-group reviewed the implementation and the performance of aeronautical mobile services in the AFI Region. The meeting noted that States and Organization undertook efforts to increase of their airspace VHF coverage. Ongoing VHF coverage enhancement projects status were presented to the meeting by DRC and Nigeria

2.5.1.2 However, there has been deterioration of the current service in the following FIRs: Brazzaville, N'Djamena, Luanda and Kano. There has been a slight improvement in Harare and Kinshasa FIRs. The meeting formulated the following draft Conclusion:-

DRAFT CONCLUSION 03/11: AMS IMPLEMENTATION AND PERFORMANCE

That DRC (RVA), Congo (ASECNA), Chad (ASECNA), Nigeria (NAMA) and Angola (ENANA) improve and complete their VHF coverage as stated in the AFI Navigation Plan.

2.5.1.3 The CNS Sub-group acknowledged the efforts made by ASECNA to extend VHF coverage on ATS routes using remote VHF stations, in accordance with AFI/7 Recommendation 5/12. It particularly noted the recent achievements in *Antananarivo, Brazzaville, Dakar, N'Djamena and Niamey* FIRs.

2.5.1.4 IATA presented the results of the VHF Survey conducted from 3 to 23 July 2009. Some of the results were not conclusive due to lack of responses from States and Airlines. IATA informed the meeting that the survey will be carried out every 18 months and appealed to States for cooperation. IATA was requested to forward the questioner for the survey to States for comments before the survey.

High Frequency Communications (HF)

2.5.1.5 The meeting discussed at length the problems being encountered with the propagation of HF. The meeting requested ICAO to investigate with the States involved and report to the next meeting of CNS/SG.

Frequency Management

2.5.1.6 The meeting was informed of a web-based frequency management tool being developed by ICAO. A workshop on the final version of the software programme will be conducted in September 2010 for the AFI Region at a venue to be decided on. States were urged to participate in the workshop. The updated ICAO Communications Lists COM 1, COM 2 and COM 3 are needed to make sure that the correct database is reflected in the programme. All extended VHF sites should be included with site coordinates provided in WGS-84 format. The meeting formulated the following draft Conclusion:

DRAFT CONCLUSION 03/12: SUBMISSION OF COM LISTS

That States that have not submitted their updated COM lists to the ICAO regional offices should do so. The submitted lists should have the aeronautical coordinates provided in WGS-84 format.

2.5.2 Controller-Pilot Data Link Communications (CPDLC)

2.5.2.1 The meeting noted the slow pace of implementation of the requirements for en – route controller-pilot data link communications (CPDLC) as contained in the Air Navigation Plan (ICAO Doc 7474). These requirements were introduced by APIRG/13 for AFI ACCs in 2001.

2.5.2.2 The meeting also noted that operational CPDLC procedures were implemented in 2009 within the EUR/SAM Corridor (Atlantico, Canaries and Dakar Oceanic FIRs) by Brazil, Spain and Senegal (ASECNA). ASECNA was also implementing CPDLC procedures in Abidjan, Brazzaville, Dakar Terrestrial, Ndjamena and Niamey managed airspace. Implementation projects developed by Cape Verde and Ghana for CPDLC procedures were also noted.

2.5.3 Required Communication Performance (RCP)

2.5.3.1 The meeting reviewed the new concept of Required Communication Performance (RCP) as developed in the ICAO RCP Manual (Doc. 9869). RCP being a performance specification serves as one possible safety net in airspace planning in order to ensure that the various infrastructural, operational and technological components blend the aircraft systems and the ground systems to deliver a safe, reliable and repeatable service. An RCP type is not inherently prescriptive. Where both voice and data link applications are required (such as remote and oceanic) in order to support enhanced surveillance and communication services, an ANSP might choose to prescribe an RCP type and/or surveillance performance specifications. Under the broad provisions of the ICAO RCP Manual (Doc.

9869), it remains within the remit of the ANSP working closely with other ATM users to indicate the best combination of technologies to support the RCP type adopted. Procedures are required in order to cope with failures on the ground and air.

2.5.3.2 RCP provides a critical feature in measuring and bench-marking a system as whole rather than individual technological components that may perform well individually but not be compatible with each other. It is now possible using RCP to monitor and ensure that the minima levels as used in the airspace communications are being safely met. For example, in the performance-based navigation context (PBN), an RCP240 will assure safe communication latency in a 30NM separation minima environment (RNP 4). Likewise, RCP400 would deliver 50 NM (RNP 10) or more in minima.

2.5.3.3 It was suggested that the AFI Region consider using RCP guidelines for planning towards the safe reduction in Separation standards based on RNAV10 (RNP10) and RNP4 PBN navigation specifications.

Global Operational Data Link Document (GOLD)

2.5.3.4 The meeting recalled APIRG 16/33 Conclusion on the adoption of the FANS 1/A Operational Manual (FOM) for application in the AFI Region.

2.5.3.5 The meeting was informed that an ICAO-sponsored Ad-hoc Working Group was developing the Global Operational Data Link Document (GOLD). The purpose of the GOLD is to facilitate global harmonization of existing data link operations and resolve regional and/or State differences impacting seamless operations. It will also include required communication performance (RCP) and surveillance specifications, based on RTCA DO-306/EUROCAE ED-122, and guidelines on post-implementation monitoring and corrective action to address a number of issues with satellite data communication services.

2.5.3.6 The meeting noted that, when finalized, the GOLD would effectively replace the Guidance Material for ATS Data Link Services in North Atlantic Airspace (NAT Data Link GM) and the FANS-1/A Operations Manual (FOM) for the Asia-Pacific, South American and African-Indian Ocean Regions.

2.6 Implementation and performance of Aeronautical Radio Navigation Service

2.6.1 Review of ARNS deficiencies

2.6.1.1 CNS/SG/3 reviewed the implementation and performance of the Radio Navigation systems. The meeting noted that there has not been any significant improvement in the service since the CNS/SG/2 meeting. The following draft Conclusion was formulated:

DRAFT CONCLUSION 03/13: ELIMINATION OF ARNS DEFICIENCIES

That States take urgent action to eliminate as soon as possible the current outstanding ARNS deficiencies as identified in Appendix E to the CNS/SG/3 Report.

2.7 Surveillance

2.7.1 Implementation and performance of Surveillance Systems

2.7.1.1 States provided updated information concerning their implementation of surveillance systems.

2.7.1.2 The meeting noted the slow pace of implementation of AFI Aeronautical Surveillance Plan requirements for en – route operations as contained in the Air Navigation Plan (ICAO Doc 7474). It recalled APIRG Decision 16/26 requesting that the status of implementation of the AFI Aeronautical Surveillance Plan for en-route operations be included in the review of CNS system performance.

2.7.1.3 The meeting also noted that operational ADS/C procedures were implemented in 2009 within the EUR/SAM Corridor (Atlantico, Canaries and Dakar Oceanic FIRs) by Brazil, Spain and Senegal (ASECNA). ASECNA was also implementing ADS/C procedures in Abidjan, Brazzaville, Dakar Terrestrial, Ndjamena and Niamey managed airspace. Implementation projects developed by Cape Verde and Ghana for ADS/C procedures were also noted.

2.8 Review of the ICAO position and preparations for the ITU WRC-2012

2.8.1 ICAO position at WRC-2012

2.8.1.1 Under this agenda item, the meeting reviewed the *ICAO position for WRC-2012* which has been developed by Working Group F of the Aeronautical Communication Panel (ACP) and the Navigation Systems Panel (NSP). The ICAO position was sent to Contracting States under State Letter Ref E 3/5-09/61 dated 30 June 2009 from the Secretary General. The meeting's attention was drawn to the successful outcome from the ITU WRC-07 as a result of direct participation of African Aviation Community.

2.8.1.2 States were urged to participate in national and regional WRC preparatory meetings and those of the African Telecommunications Union (ATU) in order for ICAO's position to be reflected in their submissions to the ITU. The following draft Conclusion was formulated:

DRAFT CONCLUSION 03/15: ICAO POSITION FOR THE ITU WRC-2012

That States and Air Navigation Service Providers (ANSPs):

- a) Continue their efforts on implementation of the relevant elements of ICAO Assembly Resolution A32-13 and in particular, participate in the preparatory work of the ITU and the ATU for WRC-; and**
- b) Continue to assign high priority to the tasks relating to the protection and availability of radio frequency spectrum allocated to aeronautical services and in particular, actively participate in the relevant activities of the ITU-R and ATU.**

2.8.2 Preparations for ITU WRC-2012

2.8.2.1 Under Agenda Item 1.1 of WRC-12, the following States were urged to delete footnote 5.330: Angola, Cameroon, Chad, Eritrea, Ethiopia, Mozambique, Somalia, Sudan, Tanzania and Togo, due to the effect it might have on PBN implementation. The following States were also urged to delete the footnotes 5.362B and 5.362C: Algeria, Benin, Gabon, Guinea, Guinea-Bissau, Nigeria, Senegal, Swaziland, Tanzania, Uganda, Chad, Congo, Egypt, Somalia, Sudan and Togo, in order to give protection to aeronautical radio navigation services from disabling interference, and allow the implementation of ADS-B and improvement of safety of aircraft operations. The following draft Conclusion was formulated:

DRAFT CONCLUSION 03/16: DELETION OF FOOTNOTES 5.330, 5.362B AND 5.362C

That States with footnotes at 5.330, 5.362B and 5.362C be urged to contact their spectrum regulators to delete these footnotes.

2.8.3 Review of AFI Frequency Management Group (AFI/FMG) Meeting

2.8.3.1 The meeting was briefed by the AFI/FMG Rapporteur (ASECNA) on the last meeting that was held in Dakar, Senegal, 12 October 2009. The draft terms of reference and work programme for AFI/FMG are provided at **Appendix B** to this working paper. States were urged to formally register their Aviation frequencies with their telecommunication regulatory authorities. The following draft Conclusion was formulated:

DRAFT CONCLUSION 03/17: REGISTRATION OF OPERATIONAL FREQUENCIES

That States which have not formally registered their operational frequencies take the necessary steps and register their operational frequencies with their telecommunication regulatory authorities.

2.8.3.2 The work plan of the AFI Region for WRC-12 was discussed. South Africa, Kenya and Ghana were assigned agenda items from WRC-12 to work on and develop Africa position to be discussed at the next AFI/FMG meeting for submission to ICAO Aeronautical Communication Panel Working Group F (ACP/WG/F) and African Telecommunication Union Conference Preparatory Meeting (ATU CPM) respectively. The following draft Decision was formulated:

DRAFT DECISION 03/18: FOLLOW –UP OF AFI/FMG ACTION PLAN

That:

- a) **The following States should follow up on ITU WRC-12 Agenda Items and report to AFI/FMG as follows:**
 1. **South Africa: Agenda Item 1.7;**
 2. **Ghana: Agenda Item 1.3; and**
 3. **Kenya: Agenda Item 1.4;**
- b) **The AFI/FMG Rapporteur (ASECNA) should coordinate and follow up the AFI/FMG Action Plan and report to the CNS Sub-group.**

2.9 Future work programme and composition of the CNS/SG

2.9.1 Review of the future Work Programme and Composition of the CNS Sub-group

2.9.1.1 Under this Agenda Item, the CNS Sub-group reviewed and updated its work programme and composition as shown in **Appendix C** to this working paper. The following draft Decision was formulated.

DRAFT DECISION 03/19: FUTURE WORK PROGRAMME AND COMPOSITION OF THE CNS SUB-GROUP

That the work programme and composition of the CNS Sub-group be adopted as shown at Appendix M to the CNS/SG/3 Report.

2.9.2 CNS Performance Objectives

2.9.2.1 The meeting reviewed the CNS performance objectives and related framework form (PFF) developed by the ICAO Special RAN Meeting of 2008. **Appendix D** to this working paper contains a revised CNS performance framework form prepared by the Sub-group for submission to the APIRG.

DRAFT CONCLUSION 03/20: CNS PERFORMANCE OBJECTIVES

That the CNS performance objectives and performance framework form developed by ICAO SP AFI RAN (2008) be amended as shown at Appendix N to the CNS/SG/3 Report.

2.10 Any other business

2.10.1. ICARD Software

2.10.1.1 Under this Agenda item, the CNS Sub-group held a joint session with the ATS/AIS/SAR Sub-group (ATS/AIS/SAR/SG/11). The meeting was briefed on ICARD and its implementation in the AFI Region in order to avoid duplication of codes and to improve air safety. States were encouraged to log into ICARD website and validate their five-letter named codes (5LNC) and their coordinates.

2.10.2. Missing flight plans

10.2.1 The joint session discussed the critical issue of missing flight plans. The problems were attributed to a number of issues, namely the difference in modulation rate of AFTN centres whereby some centres with higher modulation rate cannot record messages if the in-coming feeder rate is very slow. The centres were requested to verify if the automatic generation of schedule flights was done by their message switches. Human factors could also be part of the problem. The last survey on missing flight plans was inconclusive due to lack of feedback from States.

2.10.2.2 AMHS implementation Task Force should work closely with AFI Flight Plan Transition Task Force, and include related activities in its work programme.

2.10.3. Safety management systems (SMS)

2.10.3.1 The meeting was briefed on safety management systems (SMS) in ATM and their effect on CNS systems. States were encouraged to address aeronautical telecommunications in their SMS.

3. ACTION BY APIRG

3.1 The meeting is invited to:

- a) Note the report of the CNS/SG/3 Meeting as presented in this working paper; and
- b) Review and endorse the following Draft Conclusions and Draft Decisions:
 1. Draft Conclusions 03/02, 03/03, 03/04, 03/05, 03/06, 03/07, 03/08, 03/09, 03/10, 03/11, 03/12, 03/13, 03/15, 03/16, 03/17, 03/20; and
 2. Draft Decisions 03/01, 03/18 and 03/19.

— E N D —

APPENDIX A

AFI AMHS IMPLEMENTATION TASK FORCE

Terms of Reference:

- 1) Conduct a comprehensive review of ICAO Standards and Recommended Practices for the Aeronautical Message Handling System (AMHS) application as specified in Annex 10 Volume II[3], chapter 4.6 and Annex 10 Volume III, Part I[26], chapter 3.5.3) and ICAO Doc.9880 Part IIB[5];
- 2) Collect and analyze information on the status of AFI ANSP Aeronautical Message Handling System plan processing systems including ongoing upgrades to existing systems;
- 3) On the basis of the above, and in accordance with relevant additional ICAO provisions, develop a coordinated AFI transition strategy and plan with associated timelines to enable the streamlined coordinated implementation of AMHS.

Considerations:

In addressing these terms of reference, the Task Force should consider, inter alia, the following aspects:

- a) The implemented systems in the AFI Region could differ from systems in other ICAO Regions and accordingly provide recommendable Regional action with global goals;
- b) Inter and intra regional issues;
- c) Personnel training for operational migration from AFTN to AMHS;
- d) AFS network backbone capability;
- e) Contingency arrangements for States that cannot comply by the due date;
 - Way to handle staged implementations by States,
 - Expectations across ANSPs with different implementation dates, and
- f) Systems that transition early will need to be capable of handling both new and current instructions.
- g) Inter-system exchanges need to take account of differing automation capabilities in order to avoid excessive message rejection;
- h) Establishment of an Information Management system to track implementation timelines for various States/systems;
- i) Impacts to users (compliance to new flight plan format); and
- j) Appropriately timed withdrawal of existing systems specific requirements to ensure consistency with new instruction.
- k) Existing ICAO guidance material

Membership (Provisional to be consolidated after the planned AMHS Training Workshop)

Core members:

- CNS operation specialist and systems engineering experts from AFI States and ANSPs with existing and planned AMHS plan processing systems
- ATNS, ASECNA, IFATSEA

APPENDIX B

**DRAFT TERMS OF REFERENCE AND WORK PROGRAMME OF AFI
FREQUENCY MANAGEMENT GROUP (AFI/FMG)**

1. Terms of reference

The FMG works within the terms of reference of the APIRG, on the matters related to the aviation radio frequency spectrum which included the following task list in co-ordination with other relevant international organizations.

2. Task List

Task No.	Global Plan Initiative Ref.	Title/Brief description	Deliverables	Action by	Target date
1.	GPI 23	Aviation Spectrum requirements	Monitor and report to APIRG the status of available capacity in the various aviation bands.	FMG	On-going
2.	GPI 23	Frequency Planning	Ensure the effective operation of the coordination process for the necessary agreement to make new frequency assignments.	FMG	On-going
3.	GPI 23	Coordination with other agencies to protect aviation spectrum	Coordinate activities for the conduct of the 'block planning' process to provide for new frequency requirements which can only be satisfied by the relocation of existing assignments.	FMG	On-going
4.	GPI 23	Maintenance of Table COM 3	Maintain a parallel draft Table COM 3 until merging with the ICAO table is completed with refinement of COM3 Tables at the next stage.	Study Group ICAO	On-going
5.	GPI 23	Support for ICAO Position at ITU WRC	Ensure AFI States support ICAO at ITU meetings.	FMG	On-going

APPENDIX C

DRAFT TERMS OF REFERENCE, FUTURE WORK PROGRAMME AND COMPOSITION OF THE COMMUNICATIONS, NAVIGATION AND SURVEILLANCE SUB-GROUP (CNS/SG)

1. TERMS OF REFERENCE

- a) Ensure the continuing and coherent development of the AFI Regional Air Navigation Plan in the fields of aeronautical communications, navigation and surveillance (CNS), including the development of CNS elements of the AFI CNS/ATM Implementation Plan in the light of new developments, in harmony with the ICAO Global Air Navigation Plan (Doc 9750) and the plans for adjacent regions;
- b) Identify, review and monitor deficiencies that impede or affect the provision of efficient aeronautical telecommunications and recommend appropriate corrective action;
- c) Prepare, as necessary, CNS/ATM cost/benefit analyses for the implementation options of C, N and S elements; and
- d) Study, as necessary, institutional arrangements for the implementation of C, N and S systems in the AFI Region.

2. WORK PROGRAMME

Item	Global Plan Initiatives	Task description	Priority	Target date
Communications				
1.	GPI-22	Follow up and monitor the implementation of VHF coverage in the AFI region in accordance with AFI/7 Rec. 5/12.	A	APIRG/18
2.	GPI-22	Update the AFI AFTN routing directory	A	APIRG/18
3.	GPI-22	In coordination with the ATS/AIS/SAR Sub-group, participate in the development of a communication infrastructure to support an AFI Central AIS Database (AFI CAD)	A	Continuing
4.	GPI-17 GPI-22	Follow-up the implementation of suitable communication bit-oriented protocols to improve AFTN performance and to facilitate the introduction of ATN applications.	A	APIRG/18
5.	GPI-17	Monitor the development, and coordinate the implementation of guidance material for service level agreements between air navigations service providers and ATN service providers	A	APIRG/18
6.	GPI-17	Review and update, if needed, the ICAO Register of AMHS managing domains and addressing information pertaining to AFI.	A	Continuing
Navigation				
7.	GPI-21	Analyze and review the Report of the AFI GNSS Implementation Task Force.	A	Continuing
8.	GPI-21	Follow up and monitor the implementation of Phase 1 of the AFI GNSS Strategy.	A	Continuing

Item	Global Plan Initiatives	Task description	Priority	Target date
		Surveillance		
9.	GPI -9	Analyze and review CNS aspects of the report of the ADS-B Implementation Task Force.	A	APIRG/17
		Communications, Navigation and Surveillance – General matters		
10.	GPI -9 GPI-17 GPI-21 GPI-22	Analyze, review and monitor the implementation and operation of aeronautical communications, navigation and surveillance (CNS) systems, identify CNS deficiencies and propose measures for their elimination, as required	A	Continuing
11.	GPI -9 GPI-17 GPI-21 GPI-22	Give further consideration, as necessary, to the concept of multinational ICAO AFI air navigation facility/service addressed in the AFI/7 Report under Agenda Item 14 (AFI/7, Conclusion 10/6c).	C	Continuing
12.	GPI -9 GPI-17 GPI-21 GPI-22	In co-ordination with the ATS/AIS/SAR Sub-group, continue the evolutionary and harmonized development of the AFI CNS/ATM Systems Implementation Plan (AFI/7 Concl. 13/1).	A	Continuing
15.	GPI -9 GPI-17 GPI-21 GPI-22	In co-ordination with the ATS/AIS/SAR Sub-group, develop, as necessary, comprehensive business cases for competing CNS/ATM elements implementation options for the routing areas.	B	Continuing
16.	GPI -9 GPI-17 GPI-21 GPI-22	Co-ordinate plans developed by States, international organizations, airlines and industry for the implementation of the regional CNS/ATM systems implementation plan; and monitor CNS/ATM systems research and development, trials and demonstrations within the AFI Region and information from other regions.	B	Continuing
17.	GPI -9 GPI-17 GPI-21 GPI-22	Maintain current the database on CNS elements of CNS/ATM planning and implementation in the AFI Region.	B	Continuing
18.	GPI -9 GPI-17 GPI-21 GPI-22	Coordinate the implementation of ICAO Global Plan Initiatives pertaining to CNS and develop associated regional performance objectives.	A	Continuous
		Aeronautical Spectrum		
19.	GPI-23	Coordinate regional activities aimed at promoting ICAO position for ITU-WRC meetings, and improving aeronautical spectrum management and control in the Region.	A	Continuing

Priority:

A: High priority tasks on which work should be speeded up;

B: Medium priority tasks, on which work should be undertaken as soon as possible, but without detriment to priority A tasks; and

C: Lesser priority tasks, on which work should be undertaken as time and resources permit, but without detriment to priority A and B tasks.

3. COMPOSITION:

Algeria, Angola, Cameroon, Congo, Côte d'Ivoire, D.R. of Congo, Egypt, Eritrea, Ethiopia, Gambia, Ghana, Guinea, Kenya, Malawi, Mali, Mauritius, Morocco, Niger, Nigeria, Senegal, South Africa, Spain, Sudan, Tanzania, Tunisia, Zambia, ACAC, ASECNA, IATA, and IFALPA.

APPENDIX D
CNS PERFORMANCE OBJECTIVES

CORRECTION OF DEFICIENCIES AND ENHANCEMENT OF AERONAUTICAL TELECOMMUNICATIONS				
Benefits				
Safety	<ul style="list-style-type: none"> • Implementation of AFI ANP • Enhanced safety in flight operations 			
	<ul style="list-style-type: none"> • Uniform implementation of CNS/ATM systems (AFI ANP, Doc 003) and relevant ICAO SARPs 			
Efficiency	<ul style="list-style-type: none"> • Improved flight planning and coordination 			
Environment	<ul style="list-style-type: none"> • Reduction in fuel consumption 			
<i>Strategy</i>				
Short term (2010)				
<i>Medium term (2011 - 2015)</i>				
ATM OPERATIONAL CONCEPT COMPONENTS	TASKS	TIMEFRAME START-END	RESPONSIBILITY	STATUS
Communications				
Aeronautical mobile service (AMS)	<ul style="list-style-type: none"> • provision of VHF in FIRs (Angola, Chad Congo, DR Congo, Sudan, Somalia) 	2008–2012	States	Ongoing Implemented in DRC
	<ul style="list-style-type: none"> • provision of controller-pilot data link communications (CPDLC) procedures 	2010-2015	States	On-going
	<ul style="list-style-type: none"> • establishment of a regional central reporting agency (CRA) 	2010-2012	APIRG	Not started
	<ul style="list-style-type: none"> • development of regional guidance for required communication performance (RCP) 	2010-2011	APIRG	On-going FANS 1/A Operations Manual (to be replaced with Global Operational Data Link Document (GOLD) under development
	<ul style="list-style-type: none"> • implementation of RCP 	2010-2015	States	Not started
Aeronautical fixed service (AFS)	<ul style="list-style-type: none"> • implementation of bit-oriented protocol (BOP) between AFTN main centres 	2010-2012	States	In progress
	<ul style="list-style-type: none"> • implementation of Aeronautical Message Handling System (AMHS) 	2010-2012	States	In progress
	<ul style="list-style-type: none"> • implementation of ATS Inter-facility Data Communications (AIDC) 	2010-2012	States	In progress
	<ul style="list-style-type: none"> • activation of Addis Ababa/Asmara, Kinshasa/Kigali and Bujumbura/Kinshasa 	2009-2012	States	

CORRECTION OF DEFICIENCIES AND ENHANCEMENT OF AERONAUTICAL TELECOMMUNICATIONS				
	circuits			
	<ul style="list-style-type: none"> improvement of Accra/Kano, Accra/Libreville and Accra/Brazzaville circuits 	2009-2012	States	
	<ul style="list-style-type: none"> implementation of Algiers/Tripoli, Atlantico/Luanda, Bujumbura/Goma and Bukavu/Kigali 	2009-2012	States	
Navigation	<ul style="list-style-type: none"> implementation of navigational aids to increase safety at terminal areas 	2008 – 2011	States	Ongoing
	<ul style="list-style-type: none"> implementation of GNSS – carry out survey to determine the implementation status and identify the specific assistance needed if any 	2009-2015	States	Ongoing
Surveillance	<ul style="list-style-type: none"> update of AFI surveillance plan for en-route operations 	2008 – 2010	APIRG	In progress
	<ul style="list-style-type: none"> implementation of AFI surveillance plan for en-route operations, including provision of automatic dependent surveillance (ADS-C) procedures 	2008-2015	States	In progress
	<ul style="list-style-type: none"> development of AFI surveillance plan for TMA and aerodromes 	2009-2012	APIRG	In progress
	<ul style="list-style-type: none"> development of State implementation action plan based on AFI surveillance plan 	2009 – 2012	States	Not started
Aeronautical spectrum	<ul style="list-style-type: none"> implementation of automation support tools to enhance frequency management 	July 2008 – 2009		Ongoing
	<ul style="list-style-type: none"> AFI to join ICARD 	August 2008 – March 2009		
Performance measurement	<ul style="list-style-type: none"> Development of performance measurement plan for CNS services 	2010-2012	APIRG	Not started
Linkage to Global Plan Initiatives (GPIs)	<i>GPI/9: Situational awareness; GPI/10: Terminal area design and management; GPI/17: Implementation of data link applications; - GPI/21: Navigation systems; GPI/22: Communication network infrastructure; GPI/23 – Aeronautical spectrum</i>			