INTERNATIONAL CIVIL AVIATION ORGANIZATION

FIFTH MEETING OF THE APIRG COMMUNICATIONS

SUB-GROUP (COM/SG/5)

(Dakar, 3 - 6 October 2000)

REPORT

Prepared by the ESAF Office

TABLE OF CONTENTS

Glossary of Terms

ACC	Area Control Centre
ADS	Automatic Dependent Surveillance
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunication Network
AIC	Aeronautical Information Circular
AMS(R)S	Aeronautical Mobile-Satellite (R) Service
AMSS	Aeronautical Mobile-Satellite Service
AMSSP	Aeronautical Mobile-Satellite Service Panel
AOC	Aeronautical Operational Control
AR	Area of Routing
ASECNA	Agency for the Security of Aerial Navigation in Africa and Madagascar
ATC	Air Traffic Control
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATNP	Aeronautical Telecommunication Network Panel
ATS	Air Traffic Services
CAFSAT	Central Atlantic FIRs VSAT network
CIDIN	Common ICAO Data Interchange Network
CNS	Communications, Navigation, and Surveillance
COM/MET/OPS	Communications/Meteorology/Operations
CPDLC	Controller pilot data link communications
DGNSS	Differential Global Navigation Satellite System
DME	Distance Measuring Equipment
EGNOS	European Geostationary Navigation Overlay System
ESA	European Space Agency
EUROCONTROL	European Organization for the Safety of Air Navigation
FAA	Federal Aviation Administration
FIR	Flight Information Region
FM	Frequency Modulation
FMC	Flight Management Computer
FMS	Flight Management System
GES	Ground Earth Station
GIC	GNSS Integrity Channel
GLONASS	Global Orbiting Navigation Satellite System (Russian Federation)
GNSS	Global Navigation Satellite System
GPS	Global Positioning System (United States)
HF	High Frequency
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICG	Implementation Coordination Group
IFALPA	International Federation of Air Line Pilots'`Associations
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INS	Inertial Navigation System
IRS	Inertial Reference System
INMARSAT	International Mobile Satellite Organization
INS	Inertial Navigation System
ISO	International Organization for Standardization
ITU	International Telecommunication Union
LAAS	Local Area Augmentation system
LEO	Low Earth Orbit
MLS	Microwave Landing System

MODE S	Mode S - SSR Data Link
MTSAT	Multi-Functional Transport Satellite (Japan)
OSI	Open Systems Interconnection
RAIM	Receiver Autonomous Integrity Monitoring
RNAV	Area Navigation
RNP	Required Navigation Performance
SARPs	Standards and Recommended Practices
SATCOM	Satellite Communication
SITA	Société Internationale de Télécommunications Aéronautiques
SSR	Secondary Surveillance Radar
TMA	Terminal Control Area
VDR	VHF Data Radio
VHF	Very High Frequency
VOR	VHF Omnidirectional Radio Range
WAAS	Wide Area Augmentation System
WGS84	World Geodetic Reference System 1984
WRC-2000	World Radio communications Conference 2000

1. Duration and Site

1.1 The Fifth meeting of the Communications Sub-group (COM/SG) of the AFI Planning and Implementation Regional Group (APIRG) was held in Dakar, Senegal from 3 to 6 October 2000.

2. Officers and Secretariat

2.1 Mr. H. Ben Khelifa of Tunisia, Chairman of the Sub-group, chaired the Meeting.

2.2 Mr.Tharcisse Masabarakiza, RO/CNS, ESAF, was the Secretary of the Meeting. He was assisted by:

Mr. Prosper Zo'o-Minto'o	RO/CNS,WACAF
Mrs. Mary Obeng	RO/CNS, WACAF

2.3 Mr. A. Cheiffou, ICAO Regional Director for Western and Central African Office opened the meeting. In his address he emphasized the expectations of APIRG from the work of the Sub-group, the need to find solutions to the shortcomings and deficiencies in the communications field.

2.4 Mr.A. Cheiffou recommended the necessity to adhere to the planning principles of the rationalized AFTN for continuity and stability and also highlighted the interconnection of the existing sub-regional VSAT networks. Finally, he emphasized the importance of taking into account human factors for implementation and efficiency of CNS/ATM systems.

3. Attendance

3.1 The meeting was attended by 56 delegates from 22 States (13 of which are members of the Sub-group) and 4 International Organizations.

3.2 The list of participants is at page ii-5

4. Working Languages

4.1 The ICAO Council having agreed that interpretation service could be provided to APIRG Sub-groups, English and French were used as working languages and the documentation was issued in both languages.

4.2 Simultaneous interpretation was provided by Mr. J. Belinga, RO/LAN, WACAF Officer assisted by freelance interpreters.

5. Agenda

5.1 The Meeting adopted the following Agenda:

Agenda Item 1: Terms of reference and work programme as defined by APIRG/12

Agenda Item 2: Follow up of COM/SG/4 and APIRG/12 Conclusions and Decisions

Agenda Item 3: Aeronautical Fixed Service

3.1 Review of the performance and implementation of the AFTN circuits of the AFI AFTN Plan, identification of shortcomings and deficiencies and proposal of remedial actions**.**

3.2 Review of the report of COM/SG/AFS/TF/1

3.2.1. Review of the configuration of the AFI AFTN network ;

3.2.2 Review and harmonization of protocols in AFI main AFTN centres;

3.2.3 Formulation of proposals for the migration of the AFI AFTN to the ground element of the ATN.

3.3 Follow-up of upgrading the data rate for main AFTN circuits

3.4 Review of use of SITA network for AFTN traffic and make appropriate recommendations.

3.5 Review of the performance and implementation of the ATS/DS Plan, identification of shortcomings and deficiencies and proposal of remedial actions.

Agenda Item 4: Aeronautical Mobile Service

4.1 Review of shortcomings and deficiencies affecting the operation of the aeronautical mobile service in the AFI Region and proposal of remedial actions.

4.2 Review of the impact of the implementation of 8.33 kHz VHF channel spacing in the EUR Region on the EUR/AFI interface area

4.3 Review and update the VHF frequency utilization plan

4.4 Surveys on HF frequency performance and congestion in the AFI Region

4.5 Review of VHF coverage survey in AFI Region

Agenda Item 5: Radionavigation Aids

5.1 Review of shortcomings and deficiencies affecting the radionavigation aids in the AFI Region and proposal of remedial actions.

5.2 Evaluate results of survey of frequency assignments in the GNSS band (1559 - 1610 MHz)

Agenda item 6: ICAO position for ITU-WRC meetings

6.1 Report on result of the ITU-WRC 2000

6.2 Draft ICAO position for the ITU- WRC 2003

Agenda Item 7: Any other business

7.1 Progress report on the implementation of the SATCOM network in Western and Central Africa and the CAFSAT VSAT network

7.2 SADC VSAT Network Implementation Status Report

7.3 Human factors issues in the COM field

7.4 Future work programme of COM Sub-group.

Draft Conclusions and Decisions

6.1 The Sub-group records its action in the form of Draft Conclusions and Decisions with the following significance:

6.2 **Draft Conclusions**

6.2.1 Draft Conclusions, when approved by APIRG, deal with matters which in accordance with the APIRG terms of reference, directly merit the attention of States, or on which further action will be initiated by ICAO in accordance with established procedures.

6.3 **Draft Decisions**

6.3.1 Draft Decisions, when approved by APIRG, deal with matters of concern to the APIRG and its contributory bodies.

6.4. **List of Draft Conclusions**

LIST OF PARTICIPANTS/LISTE DES PARTICIPANTS

States/Etats	Name/Nom	Official Title/Fonction	Address/Adresse
ANGOLA	Mr.DIAMBOTE MADRIZI	Chef de département Navigation aérienne	P.O. Box 569 Luanda Angola
	Mr. ABILIO PINTO DA CRUZ	Administrateur-Directeur Navigation aérienne	P.O. Box 841 Luanda Angola
	Mr. LUCAS MANUEL DE LIMA	Chief Division of ATS/ENANA EP	Luanda Intl. Airport P.O.B 841 Angola
	Mr. ANDRE SANZU	Chef de Division de Telecommunication	Luanda Intl. Airport BP 841 Angola
	Mr. MANUEL EMILIO MENDES	Planning Coordinator	Luanda Intl. Airport BP 841 Angola
	Mr. FRANCISCO LOURENCO MORGADO	COM Senior	Luanda Intl. Airport BP 841 Angola
ALGERIA	Mr. DAOUD LAKHDAR	Directeur Exploitation Navigation Aérienne	DENA Route de Cherarba Oued SMAR
	Mr. MENNI RABAH	Chef de service exploitation	DENA Route de cherarba Oued SMAR
BENIN	Mr. WILFRID ADJOVI	Chef Division Sûreté	01 BP 305 Cotonou Benin dacbenin@leland.bj
BOTSWANA	Mr. KGOMOTSO KOOBOKILE	Chief Telecommunications Officer	P.O. Box 250 Gaborone Botswana
BURUNDI	Mr. GAMALIEL NDABIRINDE	Chef Service Telecommunications Aéronautiques	BP 694 Bujumbura Burundi
CAMEROON	Mr. JEAN-PIERRE KOUOGUEU	Attaché au DG CCAA	CCAA BP 6998 Yaoundé Cameroun
CONGO	Mr. MONTOLE SYMPHORIEN	Chef de Service Technique	ANAC B.P. 128 Brazzaville Congo
COTE D'IVOIRE	Mr. ELEFTERIOU GEORGES	Conseiller Direction générale SODEXAM	01 BP 6333 Abidjan 01 Côte d'Ivoire
DEMOCRATIC REP. OF CONGO	Mr. YAMBA BIENGE	Chef Bureau Exploitation Technique et Telecommunication	DAC Kinshasa/Ndolo R.D.C
EGYPT	Mr. ISMAIL AHMED HASSAN	Assistant Director	Cairo Air Navigation Center

States/Etats	Name/Nom	Official Title/Fonction	Address/Adresse
	Mr. ELSAYED FAHMY ADB-ELFTAH	Director of Communications office	Egyptian Civil Aviation
	Mr. AHMED AMIN M. AFIA	Director of Radar Dep.	Egyptian Civil Aviation
	Mr. IBRAHIM ELWARDANY ABD EL R.	Assistant Director	Egyptian Civil Aviation
ETHIOPIA	Mr. TESFAYE TSEGAYE	Director Air Operations and Navaids Dep.	Civil Aviation Authority POBox 978 Addis Ababa
GAMBIA	Mr. KARFA O. JABANG	Senior Electronics Engineer	Banjul Intl. Airport PMB 285 Banjul Gambia
GHANA	Mr. PRINCE B. BOATENG	Manager Electronics	GCAA PMB KIA Accra Ghana
	Mr. KENNETH KOFI KWAWUKUME	ATS Training Manager	GCAA PMB Kotoka Intl. Airport, Accra,Ghana
GUINEE BISSAU	Mr. QUINTINO GOMES	Directeur Technique Entreprise National des Aéroports	ENAG-EP BP 777 Guinée Bissau
MADAGASCAR	Mr. RAKOTOARIVELO FREDERIC	Chef Division CNS	BP 4414 Antananarivo Madagascar
MALAWI	Mr. ALFRED GRANT MATIYA	Principal Telecom Engineer	Dept Civil Aviation P.Bag 322 Lilongwe 3 Malawi
	Mr. C. F. NYALUGWE	Chief Communications Officer	Dept Civil Aviation P.Bag 322 Lilongwe 3 Malawi
NIGERIA	Mr. EZE UCHE S.	DGM (SATCOM)	NAMA PMB 21084 Ikeja Lagos Nigeria
	Mr. S.S. USMAN	DGM (COMMS)	NAMA PMB 21084 Ikeja Lagos Nigeria
RWANDA	Mr. MUNEZA MICHEL	Chef de Section Transmissions & Radioguidage	B.P. 1122 Kigali Rwanda
	Mr. KALINDANYI ANANIAS	Chef de Section	BP 1122 Kigali Rwanda
SAO TOME ET PRINCIPE	Mr. LEONEL JOSE DA COSTA CARDOSO	Directeur Adjoint ENASA	ENASA Caixa Postal 703 Sao Tome & Principe
	Mr. ANTERO COSTA	Chef Departement Transport Aérien	INAC Caixa Postal 97 Sao Tome & Principe

States/Etats	Name/Nom	Official Title/Fonction	Address/Adresse
SENEGAL	Mr. MATHIACO BESSANE	Chef de Division Navigation Aérienne	Direction Aviation civile Dakar Sénégal
	Mme SARR SOPHIE	Ingénieur Télécommunication	Direction Aviation civile Dakar Sénégal
	Mr. DIOP MAMADOU	Chef Service Infrastructure Radioélectrique	BP 64 Rufisque Sénégal
SOUTH AFRICA	Mr. KOOS PRETORIUS	Navigation and Communications	PBag x08 Waterkloof 0145 South Africa
	Mr. LEON NEL	Senior Systems Engineer	PBag x15 Johannesburg Int. Airp. South Africa 1627
	Mr. SAMSON KOLOI	Engineer	Pbag x15 Johannesburg Int. Airp.1627 South Africa
TUNISIA	Mr. BENKHELIFA HAMADI	Directeur de la Navigation Aérienne	Aéroport Int. Tunis Carthage BP137 1080 Tunis
	Mr. TLILI TAHAR	Sous-Directeur - Direction Télécommunications	Aeroport Int Tunis Carthage BP137 1080 Tunis
ORGANIZATIONS			
IATA DAKAR	Mr. OTSMANE	Regional Technical Representative	16, Avenue L.S.Senghor DAKAR Sénégal
IATA NAIROBI	Mr. R.J. LUBANGA	Manager AFI	P.O.B 55388 Nairobi Kenya
FAA	Mr. EDWARD JONES	Representative	Dakar Sénégal
ROBERTS FIR	Mr. BANGOURA MARTIN	SATCO	020 BP 507 Conakry Guinée
	Mr. MOHAMED CAMARA	Chef Exploitation COM	020 BP507 Conakry Guinée
	Mr. PHILIP K. LUSENI	Senior Engineer	020 BP507 Conakry Guinée
ASECNA	Mr. TCHICAYA HILAIRE	Chef Service Telecom	ASECNA D.G. BP 3144 DAKAR Sénégal
	Mr. RANDRIANASOLO Patrick	Chef Bureau Normalisation	ASECNA D.G. BP 3144 DAKAR Sénégal
	Mr. MOUMOUNI OUMAROU	Ingénieur Système	ASECNA D.G. (DTT) BP8163 DAKAR Sénégal
	Mr. SANTANNA A.NASSER	Ingénieur Système	ASECNA DTT BP 8163 Dakar Sénégal
	Mr. KANDINE ABOUBACAR	Chef Service Etudes et Réglementations Météo	ASECNA DG BP 3144 Dakar Sénégal

States/Etats	Name/Nom	Official Title/Fonction	Address/Adresse
	Mr. SOUGUE BISSA	Ingénieur Telecom	ASECNA D.G. BP 3144 Dakar Sénégal
	Mr. SALL THIERNO	Chef NAVAIDS	Représentation ASECNA BP 8132 Sénégal
	Mr. RIBEIRO CAMI	Chef Maintenance Energie et Balisage	Représentation ASECNA BP 8132 Sénégal
	Mr. NDIAYE SAMBA DIENG	Chef SENA-AANS	Bureau Exploitation (AANS) BP8412 Dakar Sénégal

---

Agenda Item 1 : Terms of reference and Work Programme as defined by APIRG/12

1.1 Under this Agenda Item, the COM/SG noted its Terms of Reference and Work Programme as defined by APIRG/12 which appear as **Appendix A** to this report.

1.2 Ghana expressed its intention to become a COM/SG member. The request was supported by the meeting.

— — —

1. **Terms of reference**

a) Ensure the continuing and coherent development of the AFI Regional Implementation Plan for COM systems in the light of new developments;

b) Identify, review, and monitor shortcomings and deficiencies that impede or affect the provision of efficient COM services and recommend appropriate corrective action.

2. **Work Programme**

Item	Task description	Priority	Target date
1	Analyze, review and monitor shortcomings and deficiencies in the operation of the aeronautical fixed service, the aeronautical mobile service and the radio navaids.	A	continuing
2	Monitor the performance and implementation of the AFTN and propose corrective measures, as required	A	continuing
3	Follow-up the implementation programme of the ATS/DS circuits and propose corrective measures, as required	A	continuing
4	Update the AFI AFTN Routing Directory	A	continuing
5	Follow-up the interconnection of VSAT networks in the AFI Region	A	APIRG/13
6	Review the application of circuit control protocols between AFTN main centres so as to define a uniform system of interface control (AFI/7 Rec. 9/6)	B	APIRG/13
7	Draft, in co-ordination with the ATS/SAR/AIS Sub-group, a plan for the extension of VHF coverage in the AFI region along all ATS routes shown in Table ATS-1 (AFI/7 Rec. 5/12)	B	APIRG/13
8	Analyse and review the report of the AFS Task Force on the transition from the AFTN to the ATN.	B	APIRG/13
9	Review of the survey of HF congestion in the AFI region by IATA & IFALPA	B	APIRG/13
10	Review and update the VHF frequency utilization plan (AFI/7 Rec. 9/11)	A	APIRG/13
11	Analyse and review the report of the AFS Task Force on the AFTN network configuration	B	APIRG/13
12	Follow-up the upgrading modulation rate for main AFTN circuits.	B	APIRG/13

Item	Task description	Priority	Target date
13	Evaluate results of survey of frequency assignments in the GNSS band (1559-1610 MHz).	B	APIRG/13
14	Follow-up of IFALPA proposals for VHF coverage	B	APIRG/13
15	Review the impact of the implementation of 8.33 kHz VHF channel in the EUR Region on the EUR/AFI interface area	A	APIRG/13
16	Address human factors issues in the COM field	B	Continuous
17	Review use of SITA network for AFTN traffic and make appropriate recommendations	B	APIRG/13

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;

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

Composition: Algeria, Angola, Congo, Côte d'Ivoire, D.R. of Congo, Egypt, Ethiopia, Guinea, Kenya, Malawi, Morocco, Niger, Nigeria, South Africa, Spain, Tunisia, Zambia, ACAC, ASECNA, IATA and IFALPA.

Agenda Item 2: Follow-up of COM/SG/4 and APIRG/12 Conclusions and Decisions

2.1 The meeting noted the action taken for the actual implementation of COM/SG/4 and APIRG/12 Conclusions and Decisions. Participants provided the meeting with additional information on the implementation of those Conclusions and Decisions. The status of implementation of the Conclusions and Decisions appears as **Appendix A** to this report.

In the following review, column 1 indicates the references of COM/SG/4 and APIRG/12 Conclusions; column 2 shows the text; when the text of COM/SG/4 and APIRG/12 are identical, otherwise the APIRG/12 Conclusion is indicated.

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 4/1 **Conclusion 12/8**	**Alger/Niamey main AFTN circuit** That States concerned: a) improve the availability of the Alger/ Niamey main AFTN circuit urgently; and b) agree on a bilateral technical solution including upgrading the modulation rate to a minimum of 1200 bps.	A Task Force for this issue has been set up by Algeria and ASECNA. Availability of this main AFTN circuit is still very low. The meeting was informed that a VSAT/SATCOM station will be installed in Algiers no later than 31 December 2000.
Conclusion 4/2 **Conclusion 12/9**	**Brazzaville/Nairobi main AFTN circuit** That Kenya and ASECNA have agreed to implement by 30 June 1999 a leased satellite AFTN circuit Brazzaville/Nairobi.	Not yet implemented ASECNA and Kenya are in contact. Kenya has proposed and is ready to implement a 50 baud leased satellite circuit.

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 4/3	**Johannesburg/Nairobi main AFTN circuit** That Kenya and South Africa have agreed to implement, as a matter of urgency, a leased satellite AFTN circuit Johannesburg/Nairobi .	A 50 baud AFTN circuit was implemented with effect from 30/12/99 Availability of this main AFTN circuit is low. It should be upgraded to a minimum of 1200 bps with performance of a minimum of 97% This was strongly recommended by the meeting.
Conclusion12/12	**AFI AFTN circuits availability** That States concerned: a) take remedial action as a matter of high priority to overcome deficiencies of main AFTN circuits; b) implement as a matter of priority the remaining circuits by 30 March 2000; c) improve AFTN circuits reliability to over the threshold of 97%; and d) provide Regional Offices with monthly availability data on all main and tributary circuits under their responsibility.	Refer to Draft Conclusion 5/1

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 4/5 **Conclusion 12/13**	**Upgrading the modulation rate for main AFTN circuits** That the modulation rate for all the main AFTN circuits be upgraded to a minimum of 1200 bps as soon as possible.	Refer to draft Conclusion 5/11 The following main circuits have been upgraded to 1200 bps or more: Dakar/Niamey, Dakar/Brazzaville, Alger/Tunis, Niamey/Brazzaville and Johannesburg/Dakar
Decision 4/6	**Survey of Protocols in AFI main AFTN circuits** That the Secretariat carry out a survey of protocols used by the AFI main AFTN centres and report to the next COM/SG meeting.	The survey was carried out and the results submitted to the COM/SG/5. Refer to draft Conclusion 5/8

Concl/Dec No.	Title & Text	Follow-up action
Decision 4/7	**COM/SG Fixed Service Task Force** That: a) A COM/SG Fixed Service Task Force be established with the mandate of: i) reviewing the AFTN network configuration taking into account AFI/7 Recommendation 14/20 and the need to provide each communication centre with at least two routings for AFTN traffic; ii) reviewing and harmonizing AFTN protocols used in the AFI Region; and iii) formulating proposals for the migration of the AFI AFTN to the ground-ground element of the ATN. b) The Task Force be composed of Egypt, Ethiopia, Kenya, Niger, Nigeria, Tunisia, South Africa, ASECNA and IATA.	Has been implemented. The COM/SG/AFS/TF held its first meeting in Nairobi from 3 to 5 May 2000. Senegal was added to the Task Force membership by APIRG/12. The above Task Force was dissolved by the meeting owing to the fact that it has completed the task entrusted to it. It is replaced by the COM/SG/ATN Task Force (COM/SG/ATN/TF). Refer to draft Decision 5/9 and draft Conclusions 5/7 and 5/8.

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 12/15	**Implementation of the ATS/DS Plan** That: a) States concerned implement as a matter of priority the remaining ATS/DS circuits by 30 March 2000; taking into account AFI/7 Recommendation 9/8; b) Alternative satellite telephone dial up systems be provided to ATS units where dedicated ATS/DS circuits are not implemented or operating with deficiency; and; c) communications via portable satellite telephones be systematically recorded.	Refer to Draft Conclusion 5/13.
Conclusion 4/9	**Dakar/Johannesburg temporary AFTN circuit** That ASECNA and South Africa implement, as a matter of urgency, ideally no later than 31January 1999 a leased circuit Dakar/Johannesburg as a temporary AFTN circuit until the AFTN circuit Johannesburg/Brazzaville is implemented.	A 9600 bps AFTN circuit was implemented with effect 17/8/1999. Availability of this main AFTN circuit is low. It should be upgraded in order to reach performance of 97%
Conclusion 4/10 **Conclusion 12/14**	**Bujumbura/Goma AFTN circuit** That Bujumbura/Goma AFTN circuit be included in the rationalized AFTN Plan for the AFI Region.	A proposal for amendment of the AFI Air Navigation Plan has been circulated. The main States concerned “Burundi and D.R of Congo” have not yet replied.

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 4/11	**AFI AFTN Routing Directory** That an Informal meeting be convened to update the AFI AFTN Routing Directory, preferably before the APIRG/12 meeting, using existing circuits.	The third informal meeting was held in Nairobi from 22 to 24 November 1999. The thirteenth Edition of AFTN Routing Directory was published.
Conclusion 12/10	**VSAT networks interconnection: AFTN and ATS/DS connectivity** That ASECNA and South Africa provide, as a matter of urgency a) at Brazzaville: a SADC VSAT compatible terminal pointed to Intelsat satellite 604 b) at Johannesburg: i) a SATCOM ASECNA VSAT terminal pointed to Intelsat satellite 707 ; and ii) a new SADC VSAT terminal for ATS/DS circuits. *Note: 1) With the above, implementation of the following AFS requirements will be facilitated:* *AFTN: Brazzaville/Johannesburg and Antananarivo/Johannesburg:* *ATS/DS:* *1) Brazzaville /Luanda and potentially Brazzaville/Kinshasa.* *2) Connectivity with Indian Ocean Zone : Antananarivo/Beira, Antananarivo/Dar Es Salaam and Antananarivo/Mauritius.*	- New proposals are being considered by ASECNA and South Africa. Conclusion 5/22 refers - The AFTN traffic is routed by the Dakar/Johannesburg circuit

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 4/14	**Seminars on the Aeronautical Telecommunications Network (ATN)** That ICAO organize seminars on the ATN in the AFI Region.	A seminar was held in Nairobi from 24 to 27 October 2000. Another one is planned to be held in Yaoundé (Cameroon) during the first quarter 2001.
Conclusion 12/11	**Interconnectivity between VSAT networks** That entities responsible for the operation of sub-regional VSAT networks be urged to ensure that interconnection between networks are implemented expeditiously so that the benefits of such networks are explored to the fullest and major shortcomings in the provision of fixed service are eliminated.	States have been advised of the Conclusion by the APIRG Secretariat**.**
Conclusion 12/16	**VHF coverage extension in the AFI Region** That States conclude agreements for hosting on their national territory remote VHF facilities operated by adjacent States.	No formal information received from States. The meeting was informed that Togo and Sao Tomé and Principe were supporting Ghana with respect to this Conclusion.

Concl/Dec No.	Title & Text	Follow-up action
Conclusion 12/17	**Availability of en-route VHF facilities** That States collect statistics on availability of en-route VHF facilities in January, April, July and October of each year and communicate the results to the ICAO regional Offices concerned.	Only two States complied with this Conclusion. The meeting noted the difficulties encountered while gathering the necessary information. ***Note:*** IATA/IFALPA made a presentation on a survey relating to HF and VHF coverage and congestion in the AFI Region. The presentation was highly appreciated by the meeting. The Secretariat was recommended to distribute copies of the survey to all AFI States.

Agenda Item 3 : Aeronautical Fixed Service

3.1 **Review of the performance and implementation of AFTN circuits of the AFI AFTN Plan and identification of shortcomings and deficiencies**

3.1.1 Under this Agenda Item, the meeting reviewed the implementation status of the main and tributary circuits in the rationalized AFI AFTN Plan. The meeting acknowledged the efforts made by States for the actual implementation of this plan. COM/SG/5 Meeting also noted that there are still serious shortcomings and deficiencies which call for urgent remedial action.

3.1.2 **Appendix A** to this report gives in detail the implementation status of main and tributary circuits following their updating by the Fifth COM/SG meeting.

3.1.3 After reviewing shortcomings and deficiencies in the AFTN field, the meeting recognized that two main AFTN circuits are not yet implemented. These are: **Brazzaville/Johannesburg and Brazzaville/Nairobi.**

3.1.4 It was also recognized that 2 other main circuits have a low availability rate, namely Algiers/Niamey, Nairobi/Johannesburg. **Appendix B** contains a revised table of shortcomings and deficiencies in the AFTN field.

3.1.5 After analysing the reasons that hamper the implementation and reliability of AFTN circuits in the AFI Region in order to find possible solutions, the meeting adopted the following draft conclusion:

Draft Conclusion 5/1: AFI AFTN circuits availability

That States concerned:

a) take remedial action as a matter of high priority to overcome deficiencies of main AFTN circuits;

b) implement as a matter of priority the remaining circuits by 31 March 2001

c) improve AFTN circuits reliability to over the threshold of 97%; and

d) provide Regional Offices with monthly availability data on all main and tributary circuits under their responsibility.

3.1.6 **Brazzaville/Johannesburg main AFTN circuit**

3.1.6.1 The above circuit was proposed by the COM/SG Aeronautical Fixed Service Task Force (COM/SG/AFS/TF) to be deleted from the AFI Air Navigation Plan due to lack of implementation while the Dakar / Johannesburg AFTN circuit has been implemented. It was of the view of the COM/SG/AFS/TF that the Dakar/Johannesburg AFTN circuit may replace the Brazzaville/Johannesburg circuit.

3.1.6.2 After discussion the COM/SG/5 meeting maintained in the plan the Brazzaville/Johannesburg AFTN circuit.

3.1.6.3 The meeting concluded that the COM/SG will re-examine the eventual removal from the plan of the Brazzaville/ Johannesburg AFTN circuit at its next meeting (COM/SG/6), according to the progress made.

3.1.6.4 The COM/SG/5 meeting urged parties concerned to implement as a matter of high priority the Brazzaville/Johannesburg AFTN circuit and therefore developed the following draft conclusion:

Draft Conclusion 5/2 Brazzaville/Johannesburg main AFTN circuit

That ASECNA and ATNS (South Africa) should take all necessary measures in order to implement the Brazzaville/Johannesburg AFTN main circuit before 31 March 2001.

Note: The COM Sub-group will re-examine the eventual removal of this circuit from the Air navigation plan at the next meeting (COM/SG/6), according to the progress made..

3.1.7 **Brazzaville/ Nairobi main AFTN circuit**

3.1.7.1 The meeting was informed that the Brazzaville main COM centre is operating**.** However, it was noted that the Brazzaville/Nairobi and Brazzaville/Luanda AFTN circuits are still not implemented.

3.1.7.2 The meeting was also informed that Kenya was ready to implement a 50 baud leased circuit. ASECNA made proposals to Kenya in order to implement the Brazzaville/ Nairobi circuit with a minimum of transmission speed of 1200bps. ASECNA has also proposed a co-ordination meeting between ASECNA and Kenya to finalize proposals made by ASECNA. The sub-group recommended the parties concerned to hold the meeting before 31 December 2000.

3.1.7.3 The meeting also urged the parties concerned to implement the Brazzaville/Nairobi main AFTN circuit as a matter of high priority. The COM sub- group therefore adopted the following draft Conclusion:

Draft Conclusion 5/3 Brazzaville/Nairobi main AFTN circuit

That:

a. Kenya and ASECNA implement the main Brazzaville/Nairobi AFTN circuit no later than 31 March 2001;

b. the concerned parties hold a meeting under the auspices of ICAO with a view to finding a final and lasting solution to the matter.

3.1.8 **Johannesburg/SAM (Buenos Aires)**

3.1.8.1 This circuit is not yet implemented. The meeting urged the parties concerned to implement this circuit, as a matter of priority.

3.1.9 **Alger/Niamey main AFTN circuit**

3.1.9.1 This circuit has been implemented but its reliability is still low. The COM sub-group was informed that ASECNA and Algeria have set up a Task Force to address the issue. They therefore agreed to implement a SATCOM VSAT at Alger before the end of Year 2000. The meeting concluded as follows:

Draft Conclusion 5/4 Alger/Niamey main AFTN circuit

That Algeria install a VSAT/SATCOM for the main Algiers COM Centre by 31 December 2000 for the purpose of upgrading the reliability of Alger/Niamey main circuit.

3.1.10 **Alger/Johannesburg AFTN circuit**

3.1.10.1 The meeting was apprised of the request by Algeria for a new AFTN circuit linking Alger to Johannesburg due to difficulties encountered by Algeria to route its traffic to South Africa within the prescribed time. Taking into account of the imminent improvement of the existing AFTN circuits Alger/Niamey and Dakar/Johannesburg, the sub-group did not approve inclusion in the plan of the Alger/Johannesburg circuit. However, the COM sub-group suggested the parties concerned to implement the above circuit on a bilateral agreement.

3.1.11 **Nairobi/Johannesburg main AFTN circuit**

3.1.11.1 The meeting was informed that a 50 baud AFTN circuit was implemented with effect 30 December 1999. Reliability of this main AFTN circuit is still low.

3.1.11.2 The COM sub-group was of the view that the transmission speed should be upgraded to a minimum of 1200 bps with performance of a minimum of 97%. This was strongly recommended by the COM sub-group and therefore adopted the following draft Conclusion:

Draft Conclusion 5/5 Nairobi/Johannesburg main AFTN circuit

That :

a) Kenya and South Africa improve, as a matter of urgency, the availability of the Nairobi/Johannesburg AFTN main circuit;

b) Kenya and South Africa agree on a bilateral technical solution, including an increase in the modulation rate to a minimum of 1200 bps.

3.1.12. **Dakar/Johannesburg temporary AFTN circuit**

3.1.12.1 This circuit was recommended by the Sixth Informal Meeting for the improvement of air traffic services over the South Atlantic (SAT/6) in order to permit the establishment of a more efficient and effective exchange of messages between entry/exit pints in the AFI and SAM Regions.

3.12.2 The meeting was informed that a 9600bps circuit has been implemented with effect August 1999. Reliability of this circuit is still low**.**

3.12.3 The COM/SG was of the view that this circuit should be included in the Air Navigation Plan. Consequently the meeting urged ASECNA and South Africa to upgrade, as a matter of urgency, the availability of the above circuit.

3.12.4 The meeting was informed of the implementation in Senegal of a terminal of the CAFSAT VSAT network before 31 December 2000. The meeting was of the opinion that South Africa should also join the CAFSAT network. The COM/SG was also informed that South Africa is in contact with CAFSAT network providers. The sub-group accordingly developed the following draft Conclusion:

Draft Conclusion 5/6 Dakar/Johannesburg circuit

That:

a) Senegal and South Africa improve, as a matter of urgency, the reliability of the Dakar/Johannesburg main AFTN circuit.

b) South Africa integrate to CAFSAT network.

3.1.13 **Brazzaville/Luanda tributary AFTN circuit**

3.1.13.1 This circuit is not yet implemented. The sub-group noted that implementation of the Brazzaville/Luanda circuit was dependent of the implementation of the interconnection of the SADC and SATCOM VSAT networks.

3.1.14 **Bujumbura/Dar-es- Salaam and Kigali/Dar-salaam**

3.1.14.1 These circuits are not yet implemented. Taking into account of the progress of integration of the 2 States to the SADC VSAT, the COM sub-group approved that Bujumbura and Kigali AFTN centres be linked to Johannesburg main AFTN centre.

3.1.15 **Dakar/Bissau AFTN circuit**

3.1.15.1 This circuit is not yet implemented. The meeting was informed that Guinea Bissau is in contact with ASECNA in order to implement the Dakar/Bissau AFTN circuit.

3.1.16 **Johannesburg/Antananarivo**

3.1.16.1 This circuit is not yet implemented. The meeting noted that implementation of the Johannesburg/Antananarivo is dependent of the interconnection of the SADC and SATCOM networks.

3.2 **Review of the report of COM/SG/AFS/TF**

3.2.1 **Review of the configuration of the AFI AFTN network**

3.2.1.1 The COM/SG/4 Meeting analysed a proposal by one member to modify the present configuration of the main AFTN centres by evolving from the star to a triangle configuration whereby each tributary centre would be provided with at least two routings.

3.2.1.2 After discussions and taking into account of the importance of the proposal, the COM/SG/4 was of the view that this issue should be analysed in detail by a Task Force. The meeting therefore set up a COM/SG Aeronautical Fixed Service Task Force (COM/SG/AFS/TF) which had among other tasks the revision of the current configuration of the AFI AFTN plan.

3.2.1.3 In reviewing this issue, the COM/SG/AFS/TF meeting agreed that modification of the present configuration from the star to a triangle configuration with the view to provide each tributary centre with at least two routings goes against the ICAO policy for planning of the rationalization of the AFTN.

3.2.1.4 Nevertheless, the COM/SG/AFS/TF was of the view that the present AFTN configuration should be modified to include the existing reliable circuits which are not in the plan but which would meet the functionality of some of the circuits not yet implemented. Therefore some of those non-implemented circuits could be withdrawn.

3.2.1.5 The COM/SG adopted the proposal except withdrawal of the Brazzaville/Johannesburg. Consequently the following AFTN circuits were proposed to be deleted from the plan: Bujumbura/Dar-es-Salaam and Kigali/Dar-es-Salaam.

3.2.1.6 The COM/SG/5 meeting was also informed that Johannesburg was proposed to replace Mauritius as an entry/exit point between the AFI and ASIA/PAC Regions.

3.2.1.7 Considering that entry/exit points between adjacent regions should be main centres, the COM sub group agreed with the proposal. Therefore the Mauritius entry/exit point has been proposed to be withdrawn from the plan.

3.2.1.8 Consequently, the COM sub-group adopted the following draft conclusion:

Draft Conclusion 5/7: Review of the configuration of the AFI AFTN plan

That:

a) Johannesburg AFTN main centre be an AFI entry/exit between the AFI and ASIA/PAC Regions;

b) the following AFTN circuit be deleted from the AFI Plan;

- Mauritius/ASIA/PAC
- Bujumbura/Dar-es-Salaam
- Kigali/Dar-es-Salaam

c) the following main and tributary AFTN circuits be included in the AFI Air Navigation Plan:

- main circuit Johannesburg/Dakar

- tributary circuits Johannesburg - Bujumbura
  - Dar-es-Salaam
  - Kigali
  - Kinshasa
  - Luanda; and
  - Mauritius.

d) the network configuration chart be that shown at Appendix C to this report.

3.2.2 **Review and harmonization of protocols in AFI main AFTN centres**

3.2.2.1 Under this Agenda Item, the COM sub-group reviewed the protocols used in the ten AFI AFTN main centres. The results of the survey conducted on this matter are shown below:

Main Centres	User Datagram Protocol (UDP)	Transmission Control Protocol (TCP)
Addis-Ababa	None	
Algiers	None	
Brazzaville	X.25	Frame relay
Cairo	CIDIN (X.25)	
Casablanca	CIDIN (X.25)	
Dakar	X.25	Frame relay
Nairobi	None	
Niamey	X.25	Frame relay
Tunisia	None	
Johannesburg	None	

3.2.2.2 After discussions, the sub-group was of the view that bit-oriented protocols should be adopted for the entire AFI Region. Therefore the COM sub-group formulated the following draft conclusion:

Draft Conclusion 5/8: Introduction of bit-oriented protocols in the AFI Region

That the AFI main AFTN centres introduce in a gradual manner, bit-oriented protocols with a view to upgrading the integrity of data transmission and paving the way to migration to the Aeronautical Telecommunications Network (ATN).

3.2.3 Formulation of proposals for the migration of the AFI AFTN to the ground element of the ATN

3.2.3.1 At its Tenth meeting, APIRG reviewed its past Conclusions and Decisions and decided that the COM/SG would continue with the follow-up of the introduction of the ATN in the AFI Region. This was reaffirmed at APIRG/12 with a target date of APIRG/13.

3.2.3.2 At its fourth meeting, the COM/SG set up a COM/SG Aeronautical Fixed Service Task Force (COM/SG/AFS/TF). Among other tasks assigned to the Task Force was the formulation of proposals for the migration of the AFI AFTN to the ground-ground element of the ATN.

3.2.3.3 At its fifth meeting, the COM sub-group was of the view that the COM/SG/AFS/TF has competed its tasks and therefore agreed to dissolve the AFS Task Force and establish an ATN Planning Task Force, which will develop the AFI ATN implementation Plan. Its terms of reference and work programme are shown at **Appendix D** to this report. In addition the proposed ATN Planning Task Force would be tasked with updating the guidelines on ATN in the AFI CNS/ATM Implementation Plan (Doc 003). It was also agreed that the members of the AFS Task Force would

automatically become members of the ATN. The COM sub-group also agreed, Algeria, Angola, Burundi and Malawi as members of the Task Force. The following draft decision was adopted:

Draft Decision 5/9: Establishment of the AFI ATN Planning Task Force

That:

a) The Task Force on the AFS be dissolved;

b) an AFI ATN Planning Task Force be established. Its membership shall include all the former members of the Task Force on AFS, and Algeria, Angola , Burundi and Malawi;

c) The Terms of Reference and Work Programme of the AFI ATN PlanningTask Force be those shown at Appendix D to this report.

3.2.3.4 The meeting was also of the view that the ATN is a complex system which introduces new notions which are not too familiar. It was therefore agreed that the first step should be an educational process to familiarize AFI specialists with these new notions and systems**.** The meeting was informed that ICAO ESAF Office will hold an ATN/GNSS seminar in Nairobi from 24 to 27 October 2000. Another ATN/GNSS seminar is planed to be held in Yaoundé (Cameroon) during the first quarter of 2001. The sub-group urged ICAO to continue the educational process already started and formulated therefore the following draft conclusion:

Draft conclusion 5/10: Seminars on the Aeronautical Telecommunications Network (ATN)

That ICAO continue to organize seminars on the ATN in the AFI Region.

3.3. **Follow up of upgrading the modulation rate for main AFTN circuits.**

3.3.1 The meeting was informed that only 30 percent of AFI main circuits transmit at 1200bps or more. Out of the remaining 70 percent, 20 percent are not implemented or are deficient. The rest 50 percent are transmitting at a slow speed of 50 bauds.

3.3.2 The COM sub-group was of the view that a higher speed of transmission should be proposed as a first step at the level of the main circuits. The sub-group developed therefore the following draft conclusion:

Draft Conclusion 5/11: Upgrading of the modulation rate to 1200 bps or more on the AFTN main circuits

That AFTN main centres which have not yet done so upgrade the modulation rate to 1200 bits/s or more on the main AFTN circuits as soon as possible, and in any event before 31 March 2001.

3.4 **Review of use of SITA network for AFTN traffic and make appropriate recommendation.**

3.4.1 The COM sub-group was informed that at APIRG/12 (Tunis,21-25 June 1999), discussions were done on such use of SITA since it is now charged to AFTN providers, whilst it was not the case in the past. The meeting was of the view that implementation of actual AFTN plan would resolve this problem. The sub-group developed therefore the following draft conclusion:

Draft Conclusion 5/12: Use of SITA network for AFTN circuits requirements

That States resorting to temporary SITA circuits for AFTN purposes implement as soon as possible the AFTN circuits included in the Air Navigation Plan.

Note: As SITA network is deemed to be effectively used by States as back up system, charging problems should be negotiated through dialogues among the parties concerned.

3.5 **Review of the performance and implementation of the ATS/DS plan, identification of shortcomings and deficiencies and proposals of remedial action.**

3.5.1 Under this Agenda item the meeting made an in- depth analysis of the status of implementation of the ATS/DS plan and the list of shortcomings/deficiencies. The updated status of implementation and list of shortcomings/deficiencies are shown respectively at **Appendix E** and **Appendix F** to this report. The following draft conclusion was adopted:

Draft Conclusion 5/13 : Implementation of the AFI ATS/DS plan

That States concerned implement as a matter of priority the remaining ATS/DS circuits before 31 March 2001.

Status of implementation of the rationalized AFTN circuits/Etat de mise en oeuvre des circuits du RSFTA rationalisé

Explanation of the table
Explication du tableau

Col. N°	Explanations
1	Terminal I and Terminal II. Each circuit appears once in the Table./*Terminal I et Terminal II. Chaque circuit n'apparaît qu'une fois dans le Tableau*
2	Category of circuit/*Catégorie de circuit*: M - main circuit/*circuit principal* T - tributary circuit/*circuit tributaire* S - AFTN station circuit/*circuit de station RSFTA*
3 and 8	Circuit type/*Type de circuit*: NIL - not implemented/*Non mis en oeuvre* LTT/A - landline teletypewriter, analogue (eg cable, microwave/*circuit télétype terrestre, analogue (i.e. câble, faisceau hertzien)* LTT/D - landline teletypewriter, digital (eg cable, microwave/*circuit télétype terrestre, numérique (i.e. câble, faisceau hertzien)* LDD/A - landline data circuit, analogue (eg cable, microwave/*circuit de données terrestre, analogue (i.e. câble, faisceau hertzien)* LDD/D- landline data circuit, digital (eg cable, microwave/*circuit de données terrestre, numérique (i.e. câble, faisceau hertzien)* RTT - radio teletype circuit (HF)/*circuit radiotélétype (HF)* SAT/A/D- satellite circuit /a digital or/d digital/*circuit par satellite /a analogue ou /d numérique*
4 and 9	Circuit signalling speed/ *Vitesse demodulation du circuit*
5 and 10	Circuit protocol / *Protocol de circuit* NONE: No protocol/*Aucun protocol* X.25: ITU X.25 protocol/*Protocol X.25 de l'UIT*
6 and 11	Data transfer code (syntax) ITA-2: International Telegragh Alphabet N°2/*Alphabet international N°2* IA-5: International Alphabet N°5/*Alphabet international N°5* CBI: Code and byte independent (ATN compliant) /*Indépendant des codes et multiplets (compatible ATN)*
7 and 12	Aeronautical network served (AFTN or ATN)/*Réseau aéronautique desservi (RSFTA ou ATN)*
13	Implementation target date/*Date cible pour la mise en oeuvre*

14 Remarks/*Observations*

Status of implementation of the rationalized AFTN circuits

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ADDIS ABABA													
Asmara	T	NIL											
Djibouti	T	RTT	50	NONE	ITA-2	AFTN	MWV	50	NONE	ITA-2	AFTN		
Khartoum	T	NIL					SAT/A	50	NONE	ITA-2	AFTN		
Nairobi	M	SAT/A/A	50	NONE	ITA-2	AFTN	SAT/A	1200	"	ITA-2	AFTN		
Niamey	M	SAT/A	50	"	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
MID(Jeddah)	M	SAT/A	50	"	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
ALGER													
Casablanca	M	SAT/A	50	NONE	ITA-2	AFTN	LTT/A	2400	X.25	ITA-2	AFTN		
Niamey	M	SAT/A	2X50	"	ITA-2	AFTN	LTT	1200	X.25	ITA-2	AFTN		
Tunis	M	SAT/A	1200	"	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
EUR (Bordeaux)	M	SAT/A	1200	"	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
BRAZZAVILLE													
Bangui	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
Dakar	M	SAT/D	2400	X-25	ITA-2	AFTN	SAT/D	2400	X-25	ITA-2	AFTN		
Douala	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50	X.25	ITA-2	AFTN		
Kinshasa	T	MWV	50	NONE	ITA-2	AFTN	LTT/D	50	NONE	ITA-2	AFTN		
Johannesburg	M	NIL					SAT/D	1200	X.25	ITA-2	AFTN	2001	
Libreville	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
Luanda	T	NIL					SAT/D	50	X.25	ITA-2	AFTN	2001	
Nairobi	M	NIL					SAT/D	1200	X.25	ITA-2	AFTN	2001	
N'Djamena	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50	X.25	ITA-2	AFTN		
Niamey	M	SAT/D	2400	X.25	ITA-2	AFTN	SAT/D	2400	X.25	ITA-2	AFTN		
Sao Tome	T	RTT	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
CAIRO													
Khartoum	T	SAT/A	50	NONE	ITA-2	AFTN	SAT/A	50	NONE	ITA-2	AFTN		
Nairobi	M	LTT/A	50	NONE	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
CAIRO ../..													
Tunis	M	SAT/A	100	NONE	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
EUR(Athens)	M	SAT/A	9600	CIDIN	IA-5	AFTN	SAT/A	9600	CIDIN	IA-5	AFTN		
MID(Beirut)	M	SAT/A	50	CIDIN	IA-5	AFTN	SAT/A	1200	CIDIN	IA-5	AFTN		
MID(Jeddah)	M	SAT/A	100	CIDIN	IA-5	AFTN	SAT/A	1200	CIDIN	IA-5	AFTN		
CASABLANCA													
Dakar	M	LTT/A	2X75	CIDIN	IA-5	AFTN	LTT/A	1200	CIDIN	IA-5	AFTN		
Las Palmas	T	LTT/A	50	CIDIN	IA-5	AFTN	LTT/A	50	CIDIN	IA-5	AFTN		
EUR(Madrid)	M	SAT/A	50+1x200	CIDIN	IA-5	AFTN	SAT/A	9000	CIDN	IA-5	AFTN		
DAKAR													
Abidjan	T	SAT/A	2400	X-25	ITA-2	AFTN	SAT/A	19.20K	X.25	ITA-2	AFTN		
Bamako	T	SAT/A	75	NONE	ITA-2	AFTN	LTT/A	19.2 0K	X.25	ITA-2	AFTN		
Banjul	T	SAT/A	75	NONE	ITA-2	AFTN	LTT/A	75	NONE	ITA-2	AFTN		
DAKAR ../..													

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bissau	T	NIL					SAT/A	50	NONE	ITA-2	AFTN		
Niamey	M	SAT/A	2400	X.25	ITA-2	AFTN	SAT/D	32K	X.25	ITA-2	AFTN		
Nouakchott	T	LTT/A	2400	X.25	ITA-2	AFTN	LTT/A	19.2K	X.25	ITA-2	AFTN		
Robertsfilied	T	NIL					SAT/D	19.20K	X-25	ITA-2	AFTN		
Sal	T	SAT/A	50	NONE	ITA-2	AFTN	SAT/A	50	NONE	ITA-2	AFTN		
SAM(Brasilia)	M	LTT/A	50	"	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
JOHANNESBURG													
Antananarivo	T	NIL					SAT/D	19.2K	NONE	ITA-2	AFTN		
Beira	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
Gaborone	T	SAT/D	50	"	ITA-2	AFTN	SAT/D	50	"	ITA-2	AFTN		
Harare	T	SAT/D	1200	"	ITA-2	AFTN	SAT/D	1200	"	ITA-2	AFTN		
Lilongwe	T	SAT/D	50	"	ITA-2	AFTN	SAT/D	50	"	ITA-2	AFTN		
Lusaka	T	SAT/D	1200	"	ITA-2	AFTN	SAT/D	1200	"	ITA-2	AFTN		
Maputo	T	SAT/D	50	"	ITA-2	AFTN	SAT/D	50	"	ITA-2	AFTN		
JOHANNESBURG													
Maseru	T	SAT/D	1200	NONE	ITA-2	AFTN	SAT/D	1200	NONE	ITA-2	AFTN		

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Manzini	T	LTT/A	50	"	ITA-2	AFTN	SAT/D	50	"	ITA-2	AFTN		
Nairobi	M	LTT/A	50	"	ITA-2	AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
Windhoek	T	SAT/D	1200	NONE	ITA-2	AFTN	SAT/D	1200	NONE	ITA-2	AFTN		
SAM (Buenos Aeres)	M	NIL					SAT/D	1200	X.25	ITA-2	AFTN		
NAIROBI													
Dar es Salaam	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		
Entebbe	T	LTT/A	50	"	ITA-2	AFTN	LTT/A	50	"	ITA-2	AFTN		
Mauritius	T	SAT/A	50	"	ITA-2	AFTN	SAT/A	50	"	ITA-2	AFTN		
Mogadishu	T	NIL		"		AFTN	SAT/A	50	"	ITA-2	AFTN		SITA
Seychelles	T	SAT/A	50	"	ITA-2	AFTN	SAT/A	50	NONE	ITA-2	AFTN		
ASIA (Mumbai)	M	LTT/A	50	"	ITA-2	AFTN	LTT/A	1200	X.25	ITA-2	AFTN		
NIAMEY													
Accra	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
Kano	T	SAT/D	50	"	ITA-2	AFTN	SAT/D	50	"	ITA-2	AFTN		
N'Djamena	T	SAT/D	50	X.25	ITA-2	AFTN	SAT/D	32K	X.25	ITA-2	AFTN		

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Ouagadougou	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	19.2K	X25	ITA-2	AFTN		
TUNIS													
Tripoli	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		
EUR(Rome)	M	SAT/A	1200	X-25		AFTN	SAT/A	1200	X.25	ITA-2	AFTN		
ACCRA													
Cotonou	S	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		
Lome	S	LTT/A	50	"	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		
ANTANANARIVO													
Dzaoudzi	S	NIL					SAT/D	50	NONE	ITA-2	AFTN		
Mauritius	T	RTT	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
Moroni	S	RTT	50	"	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		
DAR ES SALAAM													

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bujumbura	S	NIL					SAT/A	50	NONE	ITA-2	AFTN		
Kigali	S	NIL					SAT/A	50	NONE	ITA-2	AFTN		
DOUALA													
Malabo	S	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	19.2K	X.25	ITA-2	AFTN		
KANO													
Lagos	S	SAT/A	50	NONE	ITA-2	AFTN	SAT/D	100	NONE	ITA-2	AFTN		
LAGOS													
Cotonou	S	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		
MAURITIUS													
Saint Denis	S	RTT	50	NONE	ITA-2	AFTN	SAT/A	1200	NONE	ITA-2	AFTN		
ASIA/PAC (Brisbane)	T	SAT/A	50	"	ITA-2	AFTN	SAT/A	50	"	ITA-2	AFTN		
Johannesburg	T	SAT/A	50	NONE	ITA-2	AFTN	SAT/A	1200	NONE	ITA-2	AFTN		

Terminal I/ Terminal II	Circ. Cat./ Caté. de circ.	Current/Existant					Planned/Prévu					Target Implem. date / Date de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Protocol	Code	Network / Réseau	Circuit type/ Type de circuit	Minimum Modulation rate/ Rapidité de modulation bps	Protocol	Code	Network/ Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Robertsfilied													
Conakry	S	SAT/A	19.2K	X25	ITA-2	T	SAT/D	50	NONE	ITA-2	AFTN	SAT/D	50
Freetown	S	RTT	50	NONE	ITA-2	AFTN	SAT/D	50	NONE	ITA-2	AFTN		

Shortcomings and deficiencies in the AFTN field

Identification		Shortcomings and deficiencies				Corrective action			
Requirements	States/ facilities	Description	Date first reported	Implementation Status (S,D)*	Remarks	Description	Executing body	Date of complete	Priority for action**
1	2	3	4	5	6	7	8	9	10

Notes:

* Implementation status; i.e. S = shortcoming
D = deficiency

Priority and classification

** "U" priority = **Urgent** requirements having a **direct** impact on **safety** and requiring i**mmediate** corrective actions.
Urgent requirement consisting of any physical, configuration, material, performance 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.

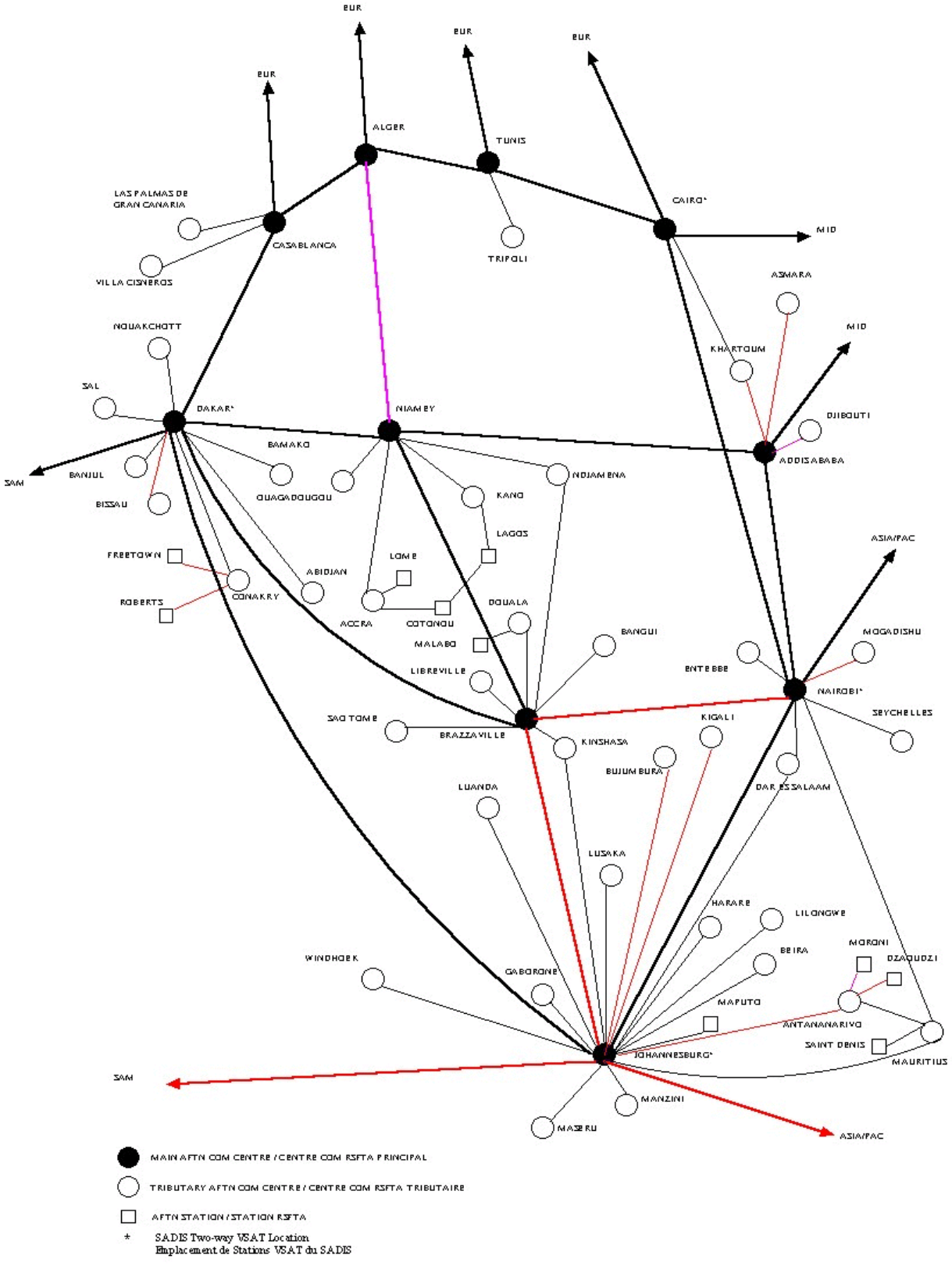
"B" priority = **Intermediate** requirements **necessary** for air navigation **regularity** and efficiency

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.

AFTN Shortcomings and deficiencies

Identification		Shortcomings/deficiencies				Corrective action			
Requirements	States/facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of complete	Priority
1	2	3	4	5	6	7	8	9	10
Rationalized AFTN Plan AFI/7 Rec.9/7	Algeria Niger	Main circuit Alger/ Niamey	10/2/98	D	Unreliable	VSAT being implemented	Algeria ASECNA	31/12/2000	U
	Angola Congo	Circuit Brazzaville/Luanda	10/2/98	S		Implement the circuit	Angola ASECNA		A
	CONGO South Africa	Main circuit Brazzaville/ Johannesburg	10/2/98	S	All traffic to/from Southern Africa is hindered	The two States have agreed to interconnect the ASECNA and SADC VSAT networks	ASECNA South Africa	Satellite circuit OP 9600 bps since July 99 Dakar/Johannesburg	U
	Ethiopia Djibouti	Circuit Addis-Ababa/Djibouti	25/5/97	D	To be improved	To implement LTT circuit	Ethiopia Djibouti	Both States are discussing implementation of an LTT upgrade	A
	Ethiopia Eritrea	Circuit Addis-Ababa/Asmara	25/8/98	S	To be restored	The circuit has been discontinued	Eritrea Ethiopia		
	Ethiopia Sudan	Circuit Addis-Ababa/Khartoum	7/6/96	S			Ethiopia Sudan		A
	Guinea Bissau Senegal	Circuit Dakar/ Bissau	10/2/98	S		To implement LTT circuit	Guinea Bissau ASECNA		A

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of complete	Priority
1	2	3	4	5	6	7	8	9	10
Rationalized AFTN Plan AFI/7 Rec.9/7	Madagascar South Africa	Circuit Antananarivo/ Johannesburg	7/6/96	S	-	VSAT being implemented	ASECNA South Africa	Planned in short term	A
	Madagascar Comoros	Circuit Antananarivo/ Dzaoudzi	7/6/96	S	-	To implement LTT circuit	ASECNA Comoros	Planned in mid term	A
	Burundi Tanzania	Circuit Bujumbura/ Dar-es-salaam	7/6/96	S	VSAT being considered. VSAT OP in Tanzania	VSAT being implemented	Burundi Tanzania		U
	Rwanda Tanzania	Circuit Kigali/ Dar-es-salaam	7/6/96	S	VSAT being considered. VSAT OP in Tanzania	Implement VSAT at Kigali	Rwanda (Tanzania for coordination)		U
	Kenya Congo	Circuit Brazzaville/ Nairobi	25/11/98	S		To implement VSAT	ASECNA Kenya		
	Kenya Somalia	Circuit Nairobi/ Mogadishu	7/6/96	S	SITA OP between FICs		Kenya Somalia	-	A
AFTN Plan, AFI/7 Rec 9/7	South Africa SAM (Argentina)	Circuit Johannesburg/ Buenos Aires	7/6/96	S			South Africa Argentina		A



AMENDED RATIONALIZED AFTN PLAN FOR AFI REGION
PLAN RSFTA RATIONALISE AMENDE DE LA REGION AFI

DRAFT TITLE, TERMS OF REFERENCE AND WORK PROGRAMME

TITLE: AFI ATN Planning Task Force

TERMS OF REFERENCE:

Plan for implementation of the Aeronautical Telecommunication Network (ATN) in the AFI Region to meet performance and capacity requirements of CNS/ATM systems.

WORK PROGRAMME:

1. Critical analysis of the current AFI AFTN

2. Description of the ATN internetwork topology (Target date:.....):

   a) identification of the administrative domains, their routing domains to include routers (Intermediate systems ISs) and End Systems (Ess);

   b) location and type of ISs to interconnect the subnetworks;

   c) define the interconnections.

3. Description of the ATN ground applications (Target date:.....):

   - AMHS (location and type)
   - AIDC (location and inter relations)

4. Preparation of an ATN addressing plan. (Target date:.....)

5. Preparation of an AMHS naming/addressing plan. (Target date:.....)

6. Preparation of guidance material to assist States, as necessary.

7. Update the guidelines on ATN in the AFI CNS/ATM Implementation Plan (Doc 003). (Target date:.....).

COMPOSITION: Algeria, Angola, Burundi, Egypt, Ethiopia, Kenya, Malawi, Niger, Nigeria, Senegal, Tunisia, South Africa, ASECNA and IATA.

TABLE COM 1B - ATS DIRECT SPEECH CIRCUITS PLAN/
TABLEAU COM 1B DES CIRCUITS ATS EN PHONIE DIRECT
EXPLANATION OF THE TABLE

Column 1: Terminal I: State and ATS centres to be considered are sequenced in alphabetical order.

Column 2: Terminal II: Stations to be connected in alphabetical order.

Column 3: Type : "A" indicates a requirements for direct-speech communications capable of establishment in less than 15 seconds (to be used principally for the exchange of updated flight plan data with adjacent units and for co-ordination between air traffic controllers).

"d" indicates that the requirements for communications which effectively provides for immediate access between controllers (to be used principally for transfer of control between radar controllers).

Column 4: Status of implementation:

NI: Not implemented
D: Implemented with deficiency
OP: Implemented

Column 5: Remarks

EXPLICATION DU TABLEAU

Colonne 1 : Terminal I Etats et centres ATS à prendre en considération énumérés en ordre alphabétique.

Colonne 2 : Terminal II: Les stations qui doivent être reliées sont classées, en ordre alphabétique.

Colonne 3 : Type : "A" communications vocales directes pouvant être établies en moins de 15 secondes (ces communications servent principalement à l'échange de données actualisées de plan de vol avec les organes voisins ainsi qu'à la coordination entre contrôleurs de la circulation aérienne).

"d" indique un besoin de communications instantanées, assurant un accès immédiat entre contrôleurs (principalement pour le transfert de contrôle entre contrôleurs radar).

Colonne 4 : Etat de mise en oeuvre:

NI: Non mis en oeuvre
D: Mis en oeuvre mais déficient
OP: Mis en oeuvre

Colonne 5: Remarques

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
ALGERIA	BARCELONA	A	OP	
ALGER	CASABLANCA	A	OP	
ACC-FIC	DAKAR	A	D	To implement VSAT
	MARSEILLE	A	OP	
	NIAMEY	A	D	To be improved
	TRIPOLI	A	NI	To implement LTF
	TUNIS	A	OP	circuit
ANGOLA				
LUANDA	ACCRA	A	NI	Inmarsat phone used
APP-FIC				from Luanda and Accra.
	BRASILIA	A	NI	
	BRAZZAVILLE	A	NI	PSTN used via Inmarsat
	GABORONE	A	OP	
	JOHANNESBURG	A	OP	
	KINSHASA	A	OP	SADC VSAT
	LUSAKA	A	OP	implemented
	WINDHOEK	A	OP	"
BENIN				
COTONOU	ACCRA	A	OP	
	LAGOS	A	OP	
	LOME	A	OP	
BOTSWANA				
GABORONE	FRANCISTOWN	A	OP	
ACC	HARARE	A	OP	
	JOHANNESBURG	A	OP	
	LUANDA	A	OP	
	LUSAKA	A	OP	
	WINDHOEK	A	OP	
FRANCISTOWN	BULAWAYO	A	OP	
TWR	GABORONE	A	OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
BURKINA FASO				
BOBO DIOULASSO	ABIDJAN	A	OP	
	ACCRA	A	NI	
	BAMAKO	A	OP	
	OUAGADOUGOU	A	OP	
OUAGADOUGOU	ABIDJAN	A	OP	
	ACCRA	A	NI	
	BAMAKO	A	OP	
	BOBO	A	OP	
	DIOULASSO	A	OP	
	NIAMEY			
BURUNDI				
BUJUMBURA	DAR-ES-SALAAM	A	NI	VSAT being implemented
APP				
	GOMA	A	NI	
	KIGALI	A	NI	To implement VSAT in Kigali
	KINSHASA	A	NI	To implementVSAT in Bujumbura
CAMEROON				
DOUALA	BATA	A	NI	
APP	BRAZZAVILLE	A	NI	
	KANO	A	NI	
	LAGOS	A	OP	
	LIBREVILLE	A	D	To improve maintenance
	MALABO	A	OP	
	N'DJAMENA	A	OP	
CAPE VERDE				
SAL	DAKAR	A	OP	
ACC	LAS PALMAS	A	OP	
	SANTA MARIA	A	OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
CENTRAL AFRICAN REPUBLIC				
BANGUI	BRAZZAVILLE	A	OP	
APP	GBADOLITE	A	NI	
	N'DJAMENA	A	OP	
CHAD				
N'DJAMENA	BANGUI	A	OP	
APP/FIC	BRAZZAVILLE	A	OP	
	DOUALA	A	OP	
	GAROUA	A	NI	
	KANO	A	D	To improve maintenance
	KHARTOUM	A	NI	To implement LTF
	MAIDUGURI	A	D	circuit
	NIAMEY	A	D	To improve maintenace
	TRIPOLI	A	NI	To improve maintenance To implement LTF circuit
COMOROS				
DZAOUDZI APP	ANTANANARIVO	A	NI	To implement LTF
MORONI APP	ANTANANARIVO	A	OP	PSTN
CONGO				
BRAZZAVILLE	ACCRA	A	NI	
APP-FIC	BANGUI	A	OP	The earth station in
	DOUALA	A	NI	Brazzaville has been
	KANO	A	NI	restored
	KHARTOUM	A	NI	
	KINSHASA	d	OP	
	LIBREVILLE	A	OP	
	LUANDA	A	NI	
	N'DJAMENA	A	OP	"
	SAO TOME	A	NI	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
COTE D'IVOIRE				
ABIDJAN	ACCRA	A	OP	
APP	BAMAKO	A	OP	
	BOBO	A	OP	
	DIOULASSO	A	OP	
	DAKAR	A	OP	
	NIAMEY	A	OP	
	OUAGADOUGOU	A	NI	VSAT implemented but not OP
	ROBERTSFIELD			
DJIBOUTI				
DJIBOUTI	ADDIS ABABA	A	OP	
APP	ADEN	A	OP	
	ASMARA	A	D	To implement LTF circuit
	DIRE DAWA	A	OP	
	HARGHEISA	A	NI	
	MOGADISHU	A	OP	
	SANA'A	A	OP	
D.R of CONGO				
BUKAVU	KIGALI	A	NI	
GBADOLITE	BANGUI	A	NI	
GOMA	BUJUMBURA	A	NI	To implement LTF circuit
	KIGALI	A	NI	
LUBUMBASHI	NDOLA	A	NI	
KINSHASA	BRAZZAVILLE	d	OP	New microwave installed
	BUJUMBURA	A	NI	SADC VSAT being implemented
	DAR-ES-SALAAM	A	OP	VSAT implemented
	ENTEBBE	A	NI	To implement LTF
	KHARTOUM	A	NI	circuit
	KIGALI	A	NI	SADC VSAT being implemented
	LUANDA	A	OP	SADC VSAT implemented
	LUSAKA	A	OP	"

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
EGYPT				
CAIRO	AMMAN	A	OP	
ACC	ATHENS	A	OP	
	BEIRUT	A	OP	
	JEDDAH	A	OP	
	KHARTOUM	A	NI	To implement LTF circuit
	NICOSIA	A	OP	
	TEL AVIV	A	OP	
	TRIPOLI	A	OP	
EQUATORIAL GUINEA				
BATA	DOUALA	A	NI	
APP	LIBREVILLE	A	NI	
	MALABO	A	OP	
MALABO	BATA	A	OP	
APP	DOUALA	A	OP	
	LIBREVILLE	A	NI	To implement LTF circuit
ERITREA				
ASMARA	ADDIS ABABA	A	NI	
ACC	DJIBOUTI	A	D	To implement LTF circuit
	JEDDAH	A	OP	
	KHARTOUM	A	OP	
	SANA'A	A	OP	
ETHIOPIA				
ADDIS ABABA	ASMARA	A	NI	
ACC/FIC	DJIBOUTI	A	OP	
	JEDDAH	A	OP	
	KHARTOUM	A	NI	To implement LTF circuit
	MOGADISHU	A	OP	
	NAIROBI	A	OP	
	SANA'A	A	OP	
DIRE DAWA TWR	DJIBOUTI	A	NI	
FRANCE (REUNION)				
SAINT-DENIS	ANTANANARIVO	A	OP	PSTN
APP	MAURITIUS	A	OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
GABON				
LIBREVILLE	ACCRA	A	OP	
ACC	BATA	A	NI	
	BRAZZAVILLE	A	OP	The earth station in
	DOUALA	A	D	Brazzaville
	KANO	A	OP	has been restored
	LAGOS	A	OP	
	MALABO	A	NI	To implement LTF circuit
	SAO TOME	A	NI	"
GAMBIA				
BANJUL	BISSAU	A	NI	
APP	DAKAR	A	OP	
GHANA				
ACCRA	ABIDJAN	A	OP	
APP/FIC	BOBO	A	NI	
	DIOULASSO	A	NI	
	BRAZZAVILLE	A	OP	
	COTONOU	A	OP	
	KANO	A	OP	
	LAGOS	A	OP	
	LIBREVILLE	A	NI	
	LOME	A	NI	
	LUANDA	A	OP	
	NIAMEY	A	NI	To implement LTF circuit
	OUAGADOUGOU	A	NI	"
	SAO TOME			
GUINEA				
CONAKRY	BISSAU	A	NI	
APP	FREETOWN	A	OP	
	ROBERTSFIELD	A	OP	
GUINEA-BISSAU				
BISSAU	BANJUL	A	NI	
APP	CONAKRY	A	NI	
	DAKAR	A	NI	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
KENYA				
MOMBASA	DAR-ES-SALAAM	d	NI	
APP	KILIMANJARO	A	NI	
	NAIROBI	d	OP	
NAIROBI	ADDIS ABABA	A	OP	
ACC	DAR-ES-SALAAM	A	OP	
	ENTEBBE	A	OP	
	KHARTOUM	A	OP	
	KILIMANJARO	d	OP	
	MOGADISHU	A	OP	
	MOMBASA	d	OP	
	SEYCHELLES	A	OP	
LESOTHO				
MASERU	BLOEMFONTEIN	A	OP	
APP				
LIBERIA				
ROBERTSFIELD	ABIDJAN	A	NI	
ACC/FIC	BAMAKO	A	NI	To implement LTF circuit
	CONAKRY	A	OP	
	DAKAR	A	NI	
	FREETOWN	A	OP	The earth station in Freetown has been restored
LIBYAN ARAB JAMAHIRIA				
BENGHAZI	ATHENS	A	OP	
APP	MALTA	A	OP	
TRIPOLI	ALGIERS	A	NI	
ACC/FIC	CAIRO	A	OP	
	KHARTOUM	A	NI	To implement LTF circuit
	MALTA	A	OP	
	N'DJAMENA	A	NI	
	NIAMEY	A	NI	
	TUNIS	A	OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
MADAGASCAR				
ANTANANARIVO	BEIRA	A	NI	To implement LTF
ACC/FIC	DAR-ES-SALAAM	A	NI	circuit
	DZAOUDZI	A	NI	“
	JOHANNESBURG	A	NI	PSTN
	MAURITIUS	A	OP	VSAT being
	MORONI	A	OP	implemented
	SAINT-DENIS	A	OP	PSTN
	SEYCHELLES	A	OP	“
				“
				“
MALAWI				
LILONGWE	BEIRA	A	OP	VSAT implemented
ACC/FIC	DAR-ES-SALAAM	A	OP	“
	HARARE	A	OP	“
	LUSAKA	A	OP	“
MALI				
BAMAKO	ABIDJAN	A	OP	
APP	BOBO	A	OP	
	DIOULASSO	A	OP	
	DAKAR	A	NI	
	GAO	A	NI	
	MOPTI	A	OP	
	OUAGADOUGOU	A	NI	To implement LTF
	ROBERTSFIELD			circuit
GAO		A	NI	
APP	BAMAKO	A	NI	
	MOPTI	A	NI	
	NIAMEY			
Mopti		A	NI	
(TWR)	GAO	A	NI	
	BABAKO			

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
MAURITANIA				
NOUADHIBOU	DAKAR	A	OP	
APP	LAS PALMAS	A	NI	VSAT being considered
	NOUAKCHOTT	A	OP	
NOUAKCHOTT	DAKAR	A	OP	
APP	NOUADHIBOU	A	OP	
MAURITIUS				
MAURITIUS	ANTANANARIVO	A	OP	
ACC/FIR	BOMBAY	A	OP	
	COCOS	A	OP	
	JOHANNESBURG	A	OP	
	PERTH	A	OP	
	SAINT-DENIS	A	OP	
	SEYCHELLES	A	OP	
MOROCCO				
CASABLANCA	ALGER	A	OP	
ACC/FIC	DAKAR	A	OP	
	LAS PALMAS	A	OP	
	LISBOA	A	OP	
	SEVILLA	A	OP	
	VILLA CISNEROS	A	OP	
MOZAMBIQUE				
BEIRA	ANTANANARIVO	A	NI	VSAT being
ACC/FIC	DAR-ES-SALAAM	A	OP	implemented
	HARARE	A	OP	VSAT implemented
	LILONGWE	A	OP	
	LUSAKA	A	OP	
	MAPUTO	A	OP	
	BEIRA	A	OP	
MAPUTO	DURBAN	A	OP	
APP	JOHANNESBURG	A	OP	
	MANZINI	A	OP	

ATS requirements for speech communications Besoins en communications vocales			Status of implementation	Remarks Observations
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
NAMIBIA				
WINDHOEK	BLOEMFONTEIN	A	OP	
ACC/FIC	CAPETOWN	A	OP	
	GABORONE	A	OP	
	JOHANNESBURG	A	OP	
	LUANDA	A	OP	
NIGER				
NIAMEY	ABIDJAN	A	OP	
ACC/FIC	ACCRA	A	OP	
	ALGER	A	D	
	DAKAR	A	OP	
	GAO	A	NI	
	KANO	A	OP	
	N'DJAMENA	A	D	
	OUAGADOUGOU	A	OP	
	TRIPOLI	A	NI	
NIGERIA				
KANO	ACCRA	A	OP	
ACC/FIC	BRAZZAVILLE	A	NI	
	DOUALA	A	NI	
	LAGOS	A	OP	
	LIBREVILLE	A	OP	
	MAIDUGURI	A	OP	
	N'DJAMENA	A	OP	
	NIAMEY	A	OP	
LAGOS	ACCRA	A	OP	
ACC/FIC	COTONOU	A	OP	
	DOUALA	A	OP	
	KANO	A	OP	
	LIBREVILLE	A	NI	
MAIDUGURI	KANO	A	OP	
APP	N'DJAMENA	A	D	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
RWANDA				
KIGALI	BUJUMBURA	A	D	
APP	BUKAVU	A	NI	
	DAR-ES-SALAAM	A	NI	To implement VSAT
	ENTEBBE	A	NI	To implement LTF
	GOMA	A	NI	Circuit
	KINSHASA	A	NI	To be improved To implement VSAT
SAO TOME AND PRINCIPE				
SAO TOME	ACCRA	A	NI	
TWR	BRAZZAVILLE	A	NI	
	LIBREVILLE	A	NI	
SENEGAL				
DAKAR	ABIDJAN	A	OP	
ACC/FIC	ALGER	A	NI	
	BAMAKO	A	OP	
	BANJUL	A	OP	
	BISSAU	A	NI	
	CASABLANCA	A	OP	
	FREETOWN	A	OP	
	LAS PALMAS	A	OP	
	NIAMEY	A	OP	
	NOUADHIBOU	A	OP	
	NOUAKCHOTT	A	OP	
	RECIFE	A	OP	
	ROBERTSFIELD	A	NI	
	ROCHAMBEAU	A	OP	
	SAL	A	OP	
SEYCHELLES				
SEYCHELLES	ANTANANARIVO	A	OP	
APP	BOMBAY	A	OP	
	DAR-ES-SALAAM	A	NI	To implement LTF
	MAURITIUS	A	OP	circuit
	MOGADISHU	A	OP	
	NAIROBI	A	OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
SIERRA LEONE				
FREETOWN	DAKAR	A	OP	
APP	CONAKRY	d	OP	
	ROBERTSFIELD	d	OP	
SOMALIA				
MOGADISHU	ADDIS ABABA	A	OP	
ACC/FIC	BOMBAY	A	OP	
	DJIBOUTI	A	NI	
	NAIROBI	A	OP	
	SANA'A	A	OP	
	SEYCHELLES	A	OP	
HARGEISA	DJIBOUTI	A	NI	
APP				

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
SOUTH AFRICA				
BLOEMFONTEIN	CAPETOWN	A	OP	
	DURBAN	A	OP	
	JOHANNESBURG	A	OP	
	MASERU	A	OP	
	PORT ELIZABETH	A	OP	
	WINDHOEK	A	OP	
CAPETOWN	BLOEMFONTEIN	A	OP	
	JOHANNESBURG	A	OP	
	PORT ELIZABETH	A	OP	
	WINDHOEK	A	OP	
DURBAN	BLOEMFONTEIN	A	OP	
	JOHANNESBURG	A	OP	
	MANZINI	A	OP	
	MAPUTO	A	OP	
	PORT ELIZABETH	A	OP	
JOHANNESBURG	ANTANANARIVO	A	NI	VSAT planned in short term
	BEIRA	A	OP	
	BLOEMFONTEIN	A	OP	
	BRASILIA	A	NI	
	CAPETOWN	A	OP	
	DURBAN	A	OP	
	EZEIZA	A	NI	
	GABORONE	A	OP	
	HARARE	A	OP	
	LUANDA	A	OP	
	MANZINI	A	OP	
	MAPUTO	A	OP	
	MAURITIUS	A	OP	
	PERTH	A	OP	
	PORT ELIZABETH	A	OP	
	WINDHOEK	A	OP	
PORT ELIZABETH	BLOEMFONTEIN	A	OP	
	CAPETOWN	A	OP	
	DURBAN	A	OP	
	JOHANNESBURG		OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
PORT ELIZABETH	DURBAN JOHANNESBURG	A A	OP OP	
SPAIN				
LAS PALMAS	CASABLANCA DAKAR LISBOA NOUADHIBOU SAL SANTA MARIA	A A A A A A	OP OP OP NI OP OP	
SUDAN				
KHARTOUM	ADDIS ABABA ASMARA BRAZZAVILLE CAIRO ENTEBBE JEDDAH KINSHASA NAIROBI N'DJAMENA TRIPOLI	A A A A A A A A A A	NI OP NI NI NI NI NI OP NI NI	VSAT being considered To implement LTF circuit
SWAZILAND				
MANZINI	DURBAN JOHANNESBURG MAPUTO	A A A	OP OP OP	
TOGO				
LOME	ACCRA COTONOU NIAMTOUGOU	A A A	OP OP OP	
NIAMTOUGOU	ACCRA LOME OUAGADOUGOU	A A A	NI OP NI	

ATS requirements for speech communications Besoins en communications vocales			Status of implementation	Remarks Observations
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
TUNISIA				
TUNIS	ALGER	A	OP	
	MALTA	A	OP	
	MARSEILLE	A	OP	
	ROMA	A	OP	
	TRIPOLI	A	OP	
UGANDA				
ENTEBBE	DAR-ES-SALAAM	A	OP	
	KHARTOUM	A	NI	To ipmlement LTF
	KIGALI	A	NI	circuit
	KINSHASA	A	NI	"
	NAIROBI	A	OP	"
UNITED REPUBLIC OF TANZANIA	ANTANANARIVO	A	NI	Awaiting interconnectonASECNA/ SADC VSAT
DAR-ES-SALAAM				
ACC/FIC	BEIRA	A	OP	VSAT implemented
	BUJUMBURA	A	NI	VSAT being
	ENTEBBE	A	OP	implemented
	KIGALI	A	NI	VSAT being
	KILIMANJARO	A	OP	implemented
	KINSHASA	A	OP	
	LILONGWE	d	OP	VSAT implemented
	LUSAKA	A	OP	
	MOMBASA	A	NI	
	NAIROBI	A	OP	
	SEYCHELLES		NI	To implement LTF
	ZANZIBAR	A	D	
		A		
KILIMANJARO	DAR-ES-SALAAM	A	OP	
APP	MOMBASA		NI	
	NAIROBI	A	NI	
ZANZIBAR	DAR-ES-SALAAM		D	
WESTERN SAHARA				
EL AIOUN	LAS PALMAS	A	OP	
DAKHLA	NOUADHIBOU	A	OP	

ATS requirements for speech communications **Besoins en communications vocales**			**Status of implementation**	**Remarks** **Observations**
Terminal I **Terminal I**	**Terminal II** **Terminal II**	**Type** **Type**		
1	2	3	4	5
ZAMBIA				
LUSAKA	BEIRA	A	OP	
	DAR-ES-SALAAM	A	OP	SADC VSAT implemented
	GABORONE	A	OP	
	HARARE	A	OP	“
	KINSHASA	A	OP	“
	LILONGWE	A	OP	“
	LUANDA	A	OP	“
	NDOLA	A	OP	“
				“
NDOLA	LUBUMBASHI	A	NI	
	LUSAKA	A	OP	
ZIMBABWE				
BULAWAYO	FRANCISTOWN	A	OP	
	HARARE	A	OP	
HARARE	BEIRA	A	OP	SADC VSAT implemented
	BULAWAYO	A	OP	
	GABORONE	A	OP	“
	JOHANNESBURG	A	OP	“
	LILONGWE	A	OP	“
	LUSAKA	A	OP	“

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
ATS Direct Speech Circuits Plan, AFI/7 Rec 9/9	Algeria Libya	Circuit Algiers/Tripoli	10/2/98	S		To implement LTF circuit	Algeria Libya		
	Algeria Niger	Circuit Algiers/Niamey	10/2/98	D	To be improved	To be improved	Algeria Niger	VSAT planned	U
	Algeria Senegal	Circuit Algiers/Dakar	1/4/98	D	To be improved	Project VSAT planned	Algeria ASECNA	VSAT to be implemented	A
	Angola Brasilia	Circuit Luanda/ Brasilia	"	S		To implement the circuit.	Angola Brazilia		
	Angola Congo	Circuit Luanda/Brazzaville	"	S	PSTN used via INMARSAT	To implement LTF circuit	Angola ASECNA	"	U
	Angola Ghana	Circuit Luanda/Accra	"	S	Inmarsat phone used from Luanda. Inmarsat also available in Accra.	To implement LTF circuit.	Angola Ghana	"	U
	Burkina Faso/ Ghana	Circuit Ouagadougou/ Accra Bobodioulasso/Accra	"	S S	PSTN in use		Ghana ASECNA Ghana Burkina Faso		A A
	Burundi Tanzania	Circuit Bujumbura/Da-es-salaam	"	S	"	VSAT being implemented.	Burundi Tanzania Kenya	"	U

Identification		Shortcomings/deficiencies				Corrective action			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Burundi D.R of Congo	Circuit Bujumbura/ Goma	1/4/98	S		To implement LTF circuit	Burundi D.R of Congo		U
	Cameroon/ Congo	Circuit Douala/ Brazzaville	"	S		To implement a VSAT	ASECNA		U
	Cameroon Equatorial Guinea	Circuit Douala/Bata	"	S		To implement LTF circuit	ASECNA Equatorial Guinea		U
	Cameroon/ Gabon	Circuit Douala/ Libreville	"	D		To be improved	ASECNA		U
	Cameroon/ Nigeria	Circuit Douala/ Kano	"	S		To implement LTF circuit	ASECNA		U
	Cameroon/ Chad	Circuit Garoua/ N'Djamena	"	S		To implement LTF circuit	ASECNA		U
	Central African Republic	Circuit Bangui/ Gbadolite	"	S		To implement LTF circuit	R.C.A D.R.C		U
	Chad/Niger	Circuit N'Djamena/ Niamey	"	D		To be improved	ASECNA		U
	Chad/Nigeria	Circuit N'Djamena/ Maidouguri	"	D		To be improved	ASECNA		U
	Chad Sudan	Circuit N'Djamena/ Khartoum	"	S		To implement LTF	ASECNA Sudan		U

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Congo Ghana	Circuit Brazzaville Accra	10/2/98	S			ASECNA Ghana		U
	Congo/Nigeria	Circuit Brazzaville/ Kano	"	S			ASECNA Nigeria		U
	Congo Sao Tome	Circuit Brazzaville/ Sao Tome	10/2/98	S		VSAT to be installed	ASECNA Sao Tome		U
	Congo / Sudan	Circuit Brazzaville/ Khartoum	"	S		VSAT to be installed	Brazzaville Sudan		U
	Côte d'Ivoire Libéria	Circuit Abidjan/ Robertsfield	"	S			ASECNA Libéria		U
	Djibouti Eritrea	Circuit Djibouti/Asmara	7/6/96	D	To be improved	To implement LTF circuit	Djibouti Eritrea		U
	Djibouti Somalia	Circuit Djibouti/ Hargheisa	"	S		To implement LTF circuit	Djibouti Somalia		U
	D.R of Congo Zambia	Circuit: Lubumbashi/Ndola	23/5/97	S	- _	" "	D.R of Congo Zambia		U
	Egypt Sudan	Circuit Cairo/Khartoum	7/6/96	S	-	To implement LTF circuit	Egypt Sudan		U
	Equatorial Guinea Gabon	Circuit Bata/Libreville Circuit Malabo/Libreville	 " "	S S		" "	ASECNA Equatorial Guinea		U

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Eritrea Ethiopia	Asmara/Addis Ababa		S	The circuit has been disconnected	To restore the circuit	Eritrea Ethiopia		A
	Djibouti/ Sudan	Circuit Djibouti/ Khartoum	"	S		To implement LTF circuit	Djibouti/ Somalia		U
	Ethiopia Djibouti	Circuit Dire Dawa/ Djibouti	"	S		To implement LTF circuit	Ethiopia Djibouti		U
	Kenya Tanzania	Circuit Mombasa/ Dar-es-salaam Mombasa/ Kilimanjaro	7/6/96 "	S S		To implement the circuits.	Kenya Tanzania		U U
	Ghana Togo	Accra/Lome Accra/Niamtougou	" "	S S		Inmarsat phone in use	Ghana ASECNA		A
	Ghana Sao Tome	Circuit Accra/ Sao Tome	"	S	VSAT planned	To implement LTF circuit	Ghana Sao Tome		U
	Gabon Sao Tome	Circuit Libreville/ Sao Tome	"	S		To implement the circuit	Gabon Sao Tome		U
	Guinea-Bissau Gambia	Circuit Bissau/ Banjul	"	S		To implement the circuit	Bissau Gambia		
	Guinea-Bissau Guiea-Conakry	Circuit Bissau/ Conakry	"	S		To implement the circuit	Guinea-Bissau Guiea-Conakry		U

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Guinea-Bissau Senegal	Circuit Bissau/ Dakar	"	S		To implement the circuit	Guinea-Bissau Guiea-Conakry		
	Guinea Senegal	Circuit Roberts FIR/Dakar	20/11/98	D		VSAT operational since 1999			A
	Libya Sudan	Circuit Tripoli/Khartoum	"	S		To implement LTF circuit	Libya Sudan	"	U
	Madagascar Mozambique	Circuit Antananarivo/Beira	"	S	VSAT to be implemented	Interconnection VSAT SADC&ASECNA	ASECNA Mozambique	Planned in mid term	U
	Libya Niger	Tripoli/Niamey	35069	S			ASECNA Libya		A
	Libya Chad	Tripoli/N'Djhamena	35069	S			ASECNA Libya		A
	Madagascar Tanzania	Circuit Antananarivo/ Dar-es-Salaam	7/6/96	S		Interconnection ASECNA & SADC	ASECNA Tanzania	Planned in mid term	U

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
ATS Direct Speech circuits Plan, AFI/7 Rec 9/9	Mali/Mali Mali/Niger	Circuit Bamako/Gao Circuit Gao/ Niamey Circuit Bamako/Mopti	“ “ “	S S S		To implement these circuits			
	Mauritania Spain	Circuit Nouadhibou/ Las Palmas	7/6/96	S		VSAT being considered	ASECNA Spain		U
	Nigeria/Gabon	Circuit Lagos Libreville	“	S		VSAT being considered	ASECNA		U
	Rwanda D.R. Congo	Circuit Kigali/Bukavu Kigali/Goma Kigali/Kinshasa	7/6/96 “ “	S S S		" VSAT SADC being considered in Rwanda. It is already operatioal in D.R.Congo	D.R. Congo Rwanda		U
	Rwanda Tanzania	Circuit Kigali/ Dar-es-Salaam	7/6/96	S		To implement VSAT	Rwanda Tanzania and Uganda		U
	Rwanda Uganda	Circuit Kigali/Entebbe	"	S		To implement VSAT	Rwanda Uganda		U
	Seychelles Tanzania	Circuit Seychelles/Dar-es-Salaam	"	S		To implement LTF circuit	Seychelles Tanzania		U
	South Africa Madagascar	Circuit Johannesburg/ Antananarivo	7/6/96	S		Interconnection VSAT SADC & ASECNA	South Africa ASECNA	Planned in short term	U

Identification		**Shortcomings/deficiencies**				**Corrective action**			
Requirements	States/facilities	Description	Date first reported	Imple-mentation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Sudan Uganda	Circuit Khartoum/Entebbe	7/6/96	S		VSAT being considered	Sudan Uganda		U
	Sudan Saudia Arabia	Circuit Khartoum/Jeddah	7/6/96	S		To implement LTF circuit	Sudan Saudia Arabia		U
	Sudan D.R of Congo	Circuit Khartoum/Kinshasa	7/6/96	S		To implement LTF circuit	Sudan D.R of Congo		U
	Uganda D.R. Congo	Circuit Entebbe/Kinshasa	"	S		VSAT being considered	D.R. Congo Uganda		U

Agenda Item 4: Aeronautical Mobile Service

4.1 **Review of shortcomings and deficiencies affecting the operation of the aeronautical mobile service in the AFI Region and proposal of remedial actions.**

4.1.1 Under this Agenda item, the Meeting reviewed the list of shortcomings /deficiencies affecting the operation of the aeronautical mobile service in the AFI Region as drawn up by APIRG/12 and proposed remedial actions. The updated list is at **Appendix A** to this report. After consideration of the updated list of shortcomings / deficiencies, the Meeting was of the view that the major shortcomings affect not only the States concerned but entire regions. It was therefore requested that the COM/SG Secretariat should circulate the list of shortcomings / deficiencies to States concerned with a target date of corrective actions to eliminate these shortcomings. Accordingly, the following draft conclusions were adopted:

Draft Conclusion 5/14: Shortcomings and deficiencies in the Mobile Aeronautical Service

That States as much as possible should provide adequate VHF coverage along ATS routes used by international air transport in accordance with AFI/7 Recommendation 5/12.

4.2 **Review of the impact of the implementation of 8.33 kHz VHF channel spacing in the EUR Region**

4.2.1 APIRG/12 meeting, when reviewing the future work programme of the Communications Sub-Group (COM/SG) assigned to the sub-group to review the impact on the EUR/AFI interface area of the implementation of 8.33 KHz VHF channel spacing in the EUR Region. which had become mandatory on 7 October 1999 for flights above FL 245 generally and for flights above 195 over France.

4.2.3 The COM Sub-group was informed that the Secretariat carried out a survey on a possible impact of the implementation of 8.33 kHz VHF channel spacing in EUR Region on VHF air-ground communications in the EUR/AFI interface area (Algeria, Libya, Morocco and Tunisia). All of these States did not reply to the survey. However, Tunisia presented a working paper on the subject. No problems have been recorded by Tunisia. The following draft conclusion was adopted:

Draft Conclusion 5/15 Impact of the 8.33 kHz spacing implementation of VHF channels in EUR Region on EUR/AFI interface area.

That States concerned respond to the survey no latter than 30 November 2000.

4.3 **Review and update the VHF utilization Plan**

4.3.1 The COM sub-group noted that the AFI/7RAN , when reviewing the aeronautical mobile service (AMS), noted that the VHF frequency utilization plan was being overtaken by

frequency assignments done by States and recognized that extensive work was needed to reconcile and update the current frequency utilization plan. It therefore adopted Recommendation 9/11 - *Actualization of the VHF frequency utilization plan* and assigned the task to APIRG. The VHF frequency utilization plan adopted by AFI is shown at **Appendix B** to this report.

4.3.2 The AFI/7 RAN meeting also introduced in the VHF Aeronautical Mobile Service Plan 5 new services requiring frequency allotments: ACC-L, ACC-U, APP-H, FIS-L and FIS-U.

4.3.3 The Secretariat presented the status of VHF frequency usage in the AFI Region which appears at **Appendix C** to this report. It was recognized that frequency assignments do not adhere to the existing VHF frequency utilization plan. The sub-group also noted that assignments have been done using frequencies which are reserved and therefore developed the following draft conclusion:

Draft Conclusion 5/16: VHF frequency assignments in the AFI Region

That states concerned replace VHF frequency assignments done on reserved frequencies.

4.3.4 The Secretariat also presented to the meeting an updated VHF utilization Plan based on 25 kHz VHF channel spacing. The draft VHF utilization plan is shown at **Appendix D** to this report**.**

4.3.5 The COM sub-group adopted the draft VHF utilization plan on condition that all States in the AFI Region be ready to implement 25 KHz VHF channel spacing. It agreed therefore that the draft VHF utilization plan be presented to APIRG/13 with the status of readiness in implementation of 25 kHz VHF channel spacing of the AFI States.

4.4 Introduction of 25 KHz spacing of VHF channels in the AFI Region

4.4.1 The AFI/6 RAN Meeting recommended that the ground and/or aircraft VHF stations should meet Annex 10 specifications for frequency stability and selectivity in order to accommodate the many aircraft in the AFI Region equipped to operate within a 25 kHz VHF Channel spacing environment.

4.4.2 In this regard, the COM Sub-group was informed that the secretariat circulated a letter to the AFI States in order to ensure that their VHF AMS facilities could meet Annex 10 specifications for frequency stability and selectivity appropriate to 25 kHz VHF channel spacing.

4.4.3 Among the13 AFI States which have replied to the survey some of them have already implemented the 25 kHz VHF Channel Spacing while the others are ready to do so.

4.4.4 The Sub-group urged the remaining States to reply to the survey as a matter of priority. The COM/SG formulated therefore the following draft conclusion:

Draft Conclusion 5/17: Introduction of 25 kHz spacing of VHF channels in the AFI Region

That States which have not done so as yet respond to the survey no later than 30 November 2000.

4.5 **Survey on HF frequency congestion and VHF coverage in the AFI Region by IATA**

4.5.1 IATA made a presentation on a report of the survey on HF frequency congestion and VHF coverage in the AFI Region carried out by IATA in coordination with IFALPA for the period from 20 April to 30 May 2000. It was recommended by the Fourth meeting of the COM sub-group (COM/SG/4). The last survey was carried out in 1994.

4.5.2 The objectives of the survey were as follows:

- to establish status of implementation of mobile communications throughout the AFI Region;
- to monitor progress in extension of VHF;
- to identify deficiencies in mobile coverage;
- to assess problems of congestion on mobile frequencies and to extent to which they are used for ground/ground coordination;
- to provide information to the COM/SG which will be useful in planning the improvement of air/ground communications.

4.5.3 The report is a collection of data from more than 1140 pilot reports giving an indication on the usage, strength, clarity and congestion of VHF and HF frequencies in the AFI Region.

4.5.4 The following ATS reporting points and locations were reported to have poor coverage for both HF and VHF:

Côte d'Ivoire	**Abidjan FIR :-**		MISLA		
Ghana	**Accra FIR:**	-	SENOR		
		-	TENTU		
Algeria	**Alger FIR:**	-	ATAFA	- MOKAT	- RAZEL
		-	DJANET	- NSL	- ROFFER
Sudan	**Khartoum FIR:-**		ALVOR		
		-	ME		
		-	MALKA		

D.R. of Congo Kinshasa FIR:-		KIBRO	- SOBTO	- USDUP
		- MERON	- TALAC	- ZEGA
Chad	**N'djamena FIR** -	MERON		
Libya	**Tripoli FIR:** -	KUFRA		
		- NALUT		
		- SEB		

4.5.5 The main conclusions were as follows:

- Higher proportion of calls are being made on VHF compared to 1994;
- HF still the only means available in significant portions of the AFI Region;
- Noticeable improvement in average quality of communications, in line with increased availability of VHF;
- Some reduction in congestion on AFI- 4 family of frequencies but severe congestion persists on AFI- 3 (11300 kHz);
- Congestion directly associated to lack of VHF cover and non availability of ATS/DS.

4.5.6 After discussions, the meeting was of the view that mobile communications have been significantly improved. It was also recognized that shortcomings/deficiencies are still exist in some areas of the AFI Region. The COM/SG, therefore formulated the following draft conclusion.

Draft Conclusion 5/18: Congestion of HF frequencies in AFI Region

That States:

- refrain from using air-ground HF frequencies for ground-ground communications;

- implement, as a matter of urgency, ATS/DS circuits in the Air Navigation Plan (ANP).

4.5.7 The presentation was highly appreciated by the meeting . The COM/SG therefore recommended the Secretariat to forward a copy of the report to all AFI States.

Shortcomings/Deficiencies in the Aeronautical Mobile Service

Identification		Shortcomings and deficiencies				Corrective action			
Requirements	States/ facilities	Description	Date first reported	Implementation Status S,D*	Comments	Description	Executing body	Date of complete	Priority for action**
1	2	3	4	5	6	7	8	9	10

Notes:

* implementation status; i.e. S = shortcoming
D = deficiency

** Priority for action to remedy the shortcoming is based on the following safety assessments:

"U" priority = **Urgent** requirements having a **direct** impact on **safety** and requiring i**mmediate** 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.

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
AFI/7, Rec. 9/12	**ANGOLA** Luanda ACC	Inadequate VHF coverage of busy ATS routes	02/02/98	S		Implement remote VHF	ENANA		U
	CENTRAL AFR. REP. Bangui/Mpoko	FIS/L	02/02/98	S		Implement remote VHF	ASECNA		A
	CONGO Brazzaville ACC	ACC/F/NW	02/02/98	S		ER VHF installation in progress	ASECNA		U
	Brazzaville	ACC/F/NE	02/02/98	S		"	"		U
	D.R. OF CONGO Kinshasa FIR	Inadequate VHF coverage of busy ATS routes	1/4/98	S	Install remote VHF	Extend VHF to all upper routes	RVA		
	Kinshasa FIR	HF poor quality Selcal not available	1/4/98	D S		Improve Install	RVA		
	ETHIOPA	Poor VHF	1/9/99	D		Improve or extend VHF	Ethiopia		
	KENYA	Poor reception	1/9/99	D	No back-up radio	Tower and approach	Kenya		
	LIBERIA	Inadequate VHF	1/9/99	D	Only tower frequency operation		Liberia		
	NAMIBIA Windhoek FIR	Inadequate VHF coverage	1/4/98	D	Addditional VHF relay stations	Extend VHF coverage	Namibia		U
	NIGERIA Kano ACC	VHF coverage not adequate	02/02/98	S		VHF extension in progress	Nigeria		U

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	NIGERIA Lagos/Mutala Muhamed	Tower VHF; Approach VHF	1/9/99	D	No back-up radio Congestion	VHF extension in progress	Nigeria		U
	SENEGAL Dakar ACC	VHF extension incomplete	1/4/98	D		Remote VHF in test	ASECNA		A
	SOMALIA/SOMALIE Mogadishu ACC	ACC/U	02/02/98	S			Somalia		U
	SUDAN Khartoum FIR	Inadequate VHF coverage of busy routes	1/4/98	D		VSAT remotes envisaged	Sudan		U
	ZIMBABWE Harare	VHF not adequate	1/9/99	D	Low power		Zimbabwe		

CURRENT VHF FREQUENCY UTILIZATION PLAN/ PLAN D'UTILISATION DES FREQUENCES VHF ACTUEL

Function/fonction	**Frequencies (MHz) Fréquences (MHz)**						
TWR	118.1	118.3	118.4	118.6	118.7	118.9	
SMC	121.7	121.9					
APP-L	119.0	119.1	119.2	119.4	119.6	119.7	120.0
APP-I	120.3	120.7	121.1	121.2	121.3	123.9	124.3
APP-U	124.5 126.9	124.9 126.9	125.3 127.2	125.5	125.7	125.9	126.0
APP-PAR	119.5	119.9	120.1				
ACC-FIS	118.5 124.7 127.3 129.3	119.3 125.1 128.7	119.8 125.4 128.8	120.5 126.1 128.9	120.6 126.5 129.5	120.8 126.7 128.1	124.6 127.1 129.1
OPC	131.4 - 131.9						
GP	AFI-1 AFI-2 AFI-3 AFI-4 AFI-5	131.3 126.3 129.3 128.7 128.9					
IGA	Aerodrome control Service/ Contrôle d'aérodome			118.2			
	Approach Control Service/ Contrôle d'aérodome			119.6			
VOLMET/ATIS	126.2	126.4	126.6	126.8	127.0	127.6	
AIR-TO-AIR/ COMMUNICATION AIR-ENTRE PILOTES	123.45						

					VHF Frequency Usage in the AFI Région /Utilisation des fréquences VHF dans la Region AFI									
	TWR	SMC	APP-L	APP-I	APP-H	APP-U	ACC-L	ACC-U	FIS-L	FIS-U	GP	AFIS	PAR	
118.000			1											
118.100	105		1									44		
118.150	2													
118.200	9		1									1		
118.300	50											27		
118.400	10				1							2		
118.500	10							7				4		
118.600	5											2		
118.700	40											21	1	
118.800	1											4		
118.900	26		1									14		
119.000	3			1					1					
119.100	2		3	9		2								
119.200			2	4		1						1		
119.300	2			1		1		6						
119.400			1			1								
119.500	2		1										1	
119.600	2		1	2		1								
119.700	15		5	12	1	4	1	1				1		
119.800	1		2						1					
119.900	1		3	1			1						1	
120.000			1	3		1								
120.100	1	1	2	1										
120.150	1													
120.200				1				1						
120.300			2	7	1	2		1					1	
120.400				1										
120.500				1		1		6						
120.600	2			1				1	1					
120.700	4			5		2								
120.800	3													
120.900		1		1			1	2	2			2		
121.000	1		1	1										
121.100	1		3	4		1		2						
121.200			2	1					1					
121.300	3		3	4		3		2				1		
121.400				1										
121.500				**1**										Emergency frequency, should not be assigned for APP/I

					VHF Frequency Usage in the AFI Région /Utilisation des fréquences VHF dans la Region AFI									
	TWR	SMC	APP-L	APP-I	APP-H	APP-U	ACC-L	ACC-U	FIS-L	FIS-U	GP	AFIS	PAR	Remarks
121.600		2												
121.650		2												
121.700		25	1	1							1			
121.750		3												
121.800	3	3												
121.825		1												
121.850		2												
121.900	3	53												
122.000			1									3		Reserved for National assignments
122.100	4											3	1	
122.200	1											5		
122.250						1								
122.300	2		1									4		
122.400												3		
122.500	6		2									2		
122.600	1			1								1		
122.650		3												
122.700	2		1									4		
122.800	2		1									1		
122.900				1										
123.000	3													
123.100	**2**			**1**								**1**		SAR Aux.
123.150														National assignments
123.200	1													
123.250										1				
123.300	2		1					4				1	1	
123.400														
123.450					World-wide air-to-air frequency									
123.500	1								1			6		National
123.600												1		
123.700				2				1						
123.800	1						1		1					
123.900			1			2						1	1	
124.000	1			1										
124.100	2			1				1		1	2	2		
124.200														
124.300	3		1	5		3								
124.400			1											
124.500	2		1	3		1		2						
124.600							1	2						
124.700	1		2	2	1	1	1	7	1	2				
124.800	1										1	4		
124.900			2	2		1	1	1						
125.000											1			
125.100							1	4	1	1				
125.150					1									
125.200									1					

					VHF Frequency Usage in the AFI Région /Utilisation des fréquences VHF dans la Region AFI								
	TWR	SMC	APP-L	APP-I	APP-H	APP-U	ACC-L	ACC-U	FIS-L	FIS-U	GP	AFIS	PAR
125.300			3		1			1		1			
125.400							1						
125.500				1				2	1			1	
125.600	1							1				2	
125.700			1	1	1		1						
125.800									1		1		
125.900		5		1				1		1	1		
126.000			1										
126.100							1	4	1	1			
126.200													
126.300	1							1					
126.400	1												
126.500							1	3					
126.600								1					
126.700				1			1	7					
126.800													
126.900										1			
126.950								1					
127.000													
127.100				1				5					
127.200					1								
127.300	1						1	2		1		1	
127.400										1			
127.500	2												1
127.600													
127.700								1					
127.800													
127.900		1		1									
128.000	2					1							
128.100								3		1			
128.200				1	1								
128.300				1				2					
128.400							1						
128.500			1					2					
128.600													
128.700								1					
128.800	1							2					
128.900							1	2	1	2			
129.000													

					VHF Frequency Usage in the AFI Région /Utilisation des fréquences VHF dans la Region AFI								
	TWR	SMC	APP-L	APP-I	APP-H	APP-U	ACC-L	ACC-U	FIS-L	FIS-U	GP	AFIS	PAR
129.100	1						1	3		1		1	
129.200								1					
129.300								6					
129.400	1							1					
129.500			1					3			2		
129.600													
129.700	1												1
129.800													
129.900													
130.000												1	
130.100													
130.200													
130.300				National assignments only / Assignations nationales uniquement									
130.400												1	
130.500													
130.600													
130.700													
130.800													
130.900							1	3		1	1		
131.000	1											2	
131.100			1										
131.200													
131.300								3		1			
131.400													
131.500									**1**				
131.600													
131.700				**OPC**								**1**	
131.800													
131.900													
132.000								2					
132.100								1					
132.200													
132.275								1					
132.300													
132.325								1					
132.375								1					
132.400													
132.450								1					
132.500	2							1				3	
132.550								1					
132.600													
132.700													
132.750								1					

					VHF Frequency Usage in the AFI Région /Utilisation des fréquences VHF dans la Region AFI								
	TWR	SMC	APP-L	APP-I	APP-H	APP-U	ACC-L	ACC-U	FIS-L	FIS-U	GP	AFIS	PAR
132.800								1					
132.900													
133.000								1					
133.100													
133.200													
133.300													
133.400								1					
133.500								1					
133.600								1					
133.700													
133.800								1					
133.900													
134.000													
134.100													
134.200													
134.300													
134.400				1									
134.500								1					
134.600													
134.700													
134.800													
134.900													
135.000													
135.100													
135.200													
135.300													
135.400													
135.500								1					
135.600													
135.700													
135.800													
135.900													
136.000	1		1					2					
136.100	1		1										
136.150	1		1										
136.175				1									
136.200	2		1										
136.225	1												
136.250	1						1						
136.275			1										
136.300	1		1										
136.350	2						1						
136.400													
136.500	1												
136.600			1										
136.700													
136.800													
136.900													
137.000													

DRAFT VHF FREQUENCY UTILIZATION PLAN/*PROJET DE PLAN D'UTILISATION DES FREQUENCES VHF*

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
TWR	118.000	118.025	118.050	118.075
	118.100	118.125	118.150	118.175
	118.200	118.225	118.250	118.275
	118.300	118.325	118.350	118.375
	118.400	118.425	118.450	118.475
	118.600	118.625	118.650	118.675
	118.700	118.725	118.750	118.775
	118.800	118.825	118.850	118.875
	118.900	118.925	118.950	118.975
	120.800	120.825	120.850	120.875
SMC	121.600	121.625	121.650	121.675
	121.700	121.725	121.750	121.775
	121.800	121.825	121.850	121.875
	121.900	121.925	121.950	121.975
APP-PAR	119.500	119.525	119.550	119.575
	119.900	119.925	119.950	119.975
	120.100	120.125	120.150	120.175
APP-L	119.000	119.025	119.050	119.075
	119.100	119.125	119.150	119.175
	119.200	119.225	119.250	119.275

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
APP-L (../..)	119.400	119.425	119.450	119.475
	119.600	119.625	119.650	119.675
	119.700	119.725	119.750	119.775
	119.800	119.825	119.850	119.875
	126.000	126.025	126.050	126.075
APP-I, APP/SR/I	120.000	120.025	120.050	120.075
	120.300	120.325	120.350	120.375
	120.400	120.425	120.450	120.475
	120.700	120.725	120.750	120.775
	121.100	121.125	121.150	121.175
	121.200	121.225	121.250	121.275
	121.300	121.325	121.350	121.375
	121.400	121.425	121.450	121.475
	123.700	123.725	123.750	123.775
	124.000	124.025	124.050	124.075
	124.300	124.325	124.350	124.375
	125.300	125.325	125.350	125.375
APP-H	125.700	125.725	125.750	125.775
	127.200	127.225	127.250	127.275
	128.200	128.225	128.250	128.275
	128.600	128.625	128.650	128.675
APP-U	123.900	123.925	123.950	123.975

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
APP-U (../..)	124.400	124.425	124.450	124.475
	124.500	124.525	124.550	124.575
	124.900	124.925	124.950	124.975
	127.800	127.825	127.850	127.875
	128.000	128.025	128.050	128.075
ACC-L	123.800	123.825	123.850	123.875
	125.400	125.425	125.450	125.475
	128.400	128.425	128.450	128.475
	129.000	129.025	129.050	129.075
	129.600	129.625	129.650	129.675
	131.200	131.225	131.250	131.275
ACC-U	118.500	118.525	118.550	118.575
	119.300	119.325	119.350	119.375
	120.500	120.525	120.550	120.575
	120.600	120.625	120.650	120.675
	120.900	120.925	120.950	120.975
	124.600	124.625	124.650	124.675
	124.700	124.725	124.750	124.775
	125.100	125.125	125.150	125.175
	125.500	125.525	125.550	125.575
	125.600	125.625	125.650	125.675
	125.900	125.925	125.950	125.975
	126.100	126.125	126.150	126.175

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
	126.500	126.525	126.550	126.575

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
ACC-U (../..)	126.700	126.725	126.750	126.775
	127.100	127.125	127.150	127.175
	127.300	127.325	127.350	127.375
	127.700	127.725	127.750	127.775
	128.100	128.125	128.150	128.175
	128.300	128.325	128.350	128.375
	128.500	128.525	128.550	128.575
	128.700	128.725	128.750	128.775
	128.800	128.825	128.850	128.875
	128.900	128.925	128.950	128.975
	129.100	129.125	129.150	129.175
	129.200	129.225	129.250	129.275
	129.300	129.325	129.350	129.375
	129.400	129.425	129.450	129.475
	129.500	129.525	129.550	129.575
	130.900	130.925	130.950	130.975
	132.100	132.125	132.150	132.175
FIS-L	124.200	124.225	124.250	124.275
	125.200	125.225	125.250	125.275
	127.500	127.525	127.550	127.575
	131.100	131.125	131.150	131.175
FIS-U, GP	124.800	124.825	124.850	124.875
	125.800	125.825	125.850	125.875

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
	126.300	126.325	126.350	126.375

Function/Fonction	Frequencies/Bands (MHz) - Fréquences/Bandes (MHz)			
	A	C	B	D
FIS-U, GP (../..)	126.900	126.925	126.950	126.975
	127.400	127.425	127.450	127.475
	131.300	131.325	131.350	131.375
	132.300	132.325	132.350	132.375
OPC	131.400-131.900			
VOLMET, ATIS	126.200	126.225	126.250	126.275
	126.400	126.425	126.450	126.475
	126.600	126.625	126.650	126.675
	126.800	126.825	126.850	126.875
	127.000	127.025	127.050	127.075
	127.600	127.625	127.650	127.675
DATA LINK	136.900 - 136.975			
EMERGENCY	121.500			
AUXILIARY SAR	123.100			
AIR-TO-AIR	123.450			

A: First choice / Premier choix
B: Second choice/Deuxième choix
C : Third choice/Troisième choix
D : Third choice/Troisième choix

Agenda Item 5: Radio Navigation Aids

5.1 **Review of shortcomings and deficiencies affecting the radionavigation aids in the AFI Region**

5.1.1 Under this agenda item, the meeting reviewed the list of shortcomings/deficiencies affecting the operation of the radionavigation aids. The updated list of shortcomings/deficiencies is shown at **Appendix A** to this report.

5.1.2 It was noticed that most of shortcomings/deficiencies have been identified since 1998.

5.1.3 Taking into account that ILS and VORs will be kept operational respectively until 2010 and 2005 at least, the meeting recommended States to take into account of the initial strategy for the introduction of GNSS in the AFI Region as endorsed by APIRG/12 meeting. The following draft conclusion was developed:

Draft Conclusion 5/19: Shortcomings and deficiencies in Radionavigation service

That:

a) States concerned take remedial action as a matter of high priority to overcome shortcomings and deficiencies affecting radionavigation service by 31 December 2001 shown at Appendix A to the report on Agenda Item 5; and

b) when eliminating shortcomings and deficiencies affecting radionavigation service States take into account of the initial strategy for the implementation of GNSS in the AFI Region.

5.2 **Review of frequency assignments in the GNSS band (1559-1610 MHz)**

5.2.1 The Meeting also reviewed the extent of fixed service assignments in the GNSS frequency band 1 559 - 1 610 MHz in some parts of the AFI Region. The meeting was informed that the Secretariat requested States in the AFI Region which may authorize fixed service assignments to provide information on fixed service assignments in the band 1559-1610 MHz for the COM/SG consideration. Of the 25 States concerned only 12 States replied to the questionnaire of the Secretariat. . The Meeting urged remaining States to reply urgently to the survey of the Secretariat by 30 November 2000. Consequently, the Sub-Group adopted the following draft Conclusion:

Draft Conclusion 5/20: Frequency assignments in the GNSS band (1559 - 1610 MHz)

That States which have not yet done so, reply to the ICAO letter on a survey of fixed service assignments in the band ofm1559-1610 MHz by 30 November 2000.

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Angola/Cuito Cuanavale	VOR/DME	15/01/98	S		Implement facility	Angola		U
	Angola/Huambo	VOR/DME	15/01/98	D		To repair	"		A
	Angola/Kuito	VOR/DME	15/01/98	S		Implement facility	"		A
	Angola/Luena	VOR/DME	15/01/98	S		Implement	"		U
	Angola/Saurimo	VOR/DME	15/01/98	S		"	"		U
	Cameroon/Foumban	VOR	15/01/98	S		Implement facility	Cameroon		U
	Cameroon/Maroua	VOR	15/01/98	S		"	Cameroon		A
	Côte d'Ivoire/Bouake	ILS 21	1/1/97	D		To repair	Côte d'Ivoire		A
	Dem. Rep. of Congo/Kalemie	VOR/DME	15/1/98	D		To repair	D.R. Congo		U
	Dem. Rep. of Congo/Kindu	VOR	15/01/98	S		Implement facility	"		U
	Dem. Rep. of Congo/Kinshasa	DME	15/1/98	D		To repair	"		A
	Dem. Rep. of Congo/Kisangani	VOR/DME	15/01/98	D		"	"		A

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Dem. Rep. of Congo/Lubumbashi	DME	15/1/98	D	Flight calibration not done	"	D.R. Congo		A
	Gambia/Banjul	DME	15/01/98	D	GS u/s	To repair	Gambia		U
	Guinea/Kankan	VOR	15/01/98	S		Implement facility	Guinea		A
	Guinea/Labe	VOR	15/01/98	S		Implement facility	"		A
	Guinea/Nzerekore	VOR	15/01/98	S		"	"		A
	Guinea Bissau	ILS	1/10/99	D	Intermittent		Guinea Bissau		A
	Kenya/Mandera	VOR/DME	15/01/98	S		Implement facility	Kenya		U
	Kenya/Nairobi	All navaids frequently not available VOR/DME*	1/4/98	D D	VOR MV, GV, TV Not calibrated	Improve maintenance and power supply	Kenya		U
	Kenya/Mombasa	VOR/DME unreliable	1/4/98	D		"	Kenya		U
	Lesotho/Maseru	VOR/DME	15/01/98	D	OP on one unit	To repair	Lesotho		A

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
		ILS unreliable	15/01/98	D		"	"		A
	Liberia/Robertsfield	ILS 04	15/01/98	S		Implement facility	Liberia		A
	Libya/Benghazi	ILS 33L	15/01/98	S		Implement facility	Libya		A
	Libya/Sarir	VOR/DME	15/01/98	S		"	"		U
	Libya/Tripoli	ILS 09	15/01/98	S		"	"		A
	Madagascar/Antsiranana	VOR	15/1/98	D		To repair	Madagascar		U
	Madagascar/Morondava	VOR	15/01/98	S		Implement facility	Madagascar		A
	Madagascar/Nosy-Be/Fascene	ILS 23	15/01/98	S		"	"		A
	Madagascar/Nosy-Be/Fascene	VOR/DME	15/01/98	D		To repair	Madagascar		A
	Madagascar/Sainte Marie	VOR	15/01/98	S		Implement facility	"		A
	Madagascar/Tolagnaro	VOR/DME	15/01/98	S		"	"		U
	Madagascar/Toliara	VOR	15/01/98	S		"	"		U
	Mali/Kayes	VOR	15/01/98	S		Implement facility	Mali		U

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Mali/Kidal	VOR	15/01/98	S		"	"		A
	Mali/Nioro	VOR	15/01/98	S		"	"		A
	Mali/Tessalit	VOR	15/01/98	S		"	"		U
	Mali/Tombouctou	ILS 07	15/01/98	S		"	"		A
	Nigeria/Ilorin	ILS 05	15/01/98	S		Implement facility	Nigeria	2001	A
	Nigeria/Kano	ILS/DME VORDME	01/02/00	D	facilities not calibrated			2001	A
	Nigeria/Port Harcourt	ILS	01/10/99	D	Unserviceable		Nigeria	2000	A
	Sao Tome/Sao Tome	ILS 01	15/01/98	S		Implement facility	Sao Tome		A
	SierraLeone Freetown/Lungi	ILS VOR/DME	01/01/99 01/01/99	D D	Unserviceable		Sierra Leone		A A
	Somalia/Hargeisa	VOR/DME	15/01/98	S		Implement facility	Somalia		U
	Somalia/Mogadishu	VOR/DME	15/01/98	S		"	"		U
	Sudan/Juba	ILS 13	15/01/98	S		Implement facility	Sudan		A
	Sudan/Juba	VOR/DME	15/01/98	S		"	"		U

Identification		Shortcomings/Deficiencies				Corrective action			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Sudan/Malakal	VOR/DME	15/01/98	S		"	"		U
	Sudan/Port Sudan	ILS 36	15/01/98	S		"	"		A
	Tanzania/Dar es Salaam	VOR/DME ILS RW 905	09/99	D	6° error	Repair in progress. DME being replaced. DVOR/DME contract signed	Tanzania	1999	U
	Tanzania/Dodoma	VOR/DME	15/01/98	S		Implement facility	Tanzania		U
	Tanzania/Kilimanjaro	ILS 09	15/01/98	S		"	"		A
	Tanzania/Kilimanjaro	VOR/DME	01/10/99	D	No flight check	"	"		
	Dar-Es-Salaam	DME	01/09/99	D	Unserviceable		Tanzania		A
	Tanzania/Mbeya	VOR/DME	15/01/98	S		"	"		U
	Tanzania/Mwanza	DME	15/01/98	S		DME being installed	"	1998	U
	Tanzania/Zanzibar	VOR/DME	15/01/98	S		Implement facility	Tanzania		A

Identification		**Shortcomings/Deficiencies**				**Corrective action**			
Requirements	States/Facilities	Description	Date first reported	Implementation status	Comments	Description	Executing body	Date of completion	Priority
1	2	3	4	5	6	7	8	9	10
	Zambia/Kaoma	VOR	15/01/98	S		Implement facility	Zambia		U
	Zambia/Livingstone	ILS 10	15/01/98	S		"	"		A
	Zambia/Ndola	ILS 10L	15/01/98	S		Implement facility	Zambia		A
	Zambia/West Two	VOR	15/01/98	S		"	"		U

Agenda Item 6: ICAO position for ITU-WRCs

6.1 Report on the results of the International Telecommunications Union (ITU) World Radiocommunication Conference 2000 (WRC-2000)

6.1.1 Under this Agenda Item, the meeting was apprised of the results of the ITU World Radiocommunication Conference (2000) (WRC-2000), which was held from 8 May to 2 June 2000 in Istanbul, Turkey. A brief overview of the results, in tabular form, is contained in **Appendix A** to this report.

6.1.2 In summary, the main results for civil aviation are:

a) with regard to the future use of the GNSS frequency band 1 559 - 1 567 MHz, the conference agreed that no allocation should be made to the mobile satellite service in this band. Furthermore, Resolution 220, which called for further studies on the compatibility between the radionavigation satellite service and the mobile satellite service (space-to-Earth), was suppressed. With these steps, one of the most controversial discussions in ITU, initiated at WRC-97, was concluded in a fully satisfactory manner for civil aviation. The conference also agreed to downgrade the fixed service, which operates in the GNSS band in a number of countries, to a secondary status after 1 January 2005 (except in some countries, which could only agree to this downgrading with effect from 1 January 2010);

b) the conference agreed to amend the provisions of the Radio Regulations to improve civil aviation access to the satellite frequency bands that WRC-97 had allocated on a generic basis to the mobile satellite service. In a Resolution, States agreed to ensure that mobile satellite service operators carrying non-safety related traffic yield capacity (spectrum) as and when necessary, to accommodate the spectrum requirements of the aeronautical mobile satellite (R) service;

c) proposals to introduce a new allocation to the (terrestrial) mobile service in the band 2 700 - 2 900 MHz were not accepted. This band is heavily used for primary radar systems. Due to the broad opposition from aviation to this proposal, further review was deferred to a future conference;

d) new allocations were made to the radionavigation satellite service in various bands. These provisions enable the introduction of GPS L5 and of the Galileo system. Since the allocations were made in bands used by the aeronautical radionavigation service (DME, radar and MLS), regulatory provisions were incorporated in the Radio Regulations to ensure protection of these services.

6.1.3 In general, the conference results fully satisfied the ICAO position. A significant element in the ICAO preparatory activities for this conference was the early awareness and involvement of Contracting States in the development of the ICAO position. Major factors contributing to this achievement included:

a) the early development and dissemination of the draft ICAO position by the Air Navigation Commission, assisted by AMCP Working Group F and GNSSP;

b) the active participation by ICAO experts in the preparatory work of the ITU, including the relevant meetings of the ITU-R (e.g. Working Parties 4A, 8B and 8D; Study Groups 4 and 8; Conference Preparatory Meeting (CPM));

c) the increased participation by ICAO experts in the meetings of the regional telecommunication organizations (APT, CEPT, CITEL, African group). The involvement of the regional offices, with the assistance from Headquarters when required, proved important in supporting the development of regional proposals to the conference that were satisfactory for civil aviation;

d) higher profile of spectrum management issues in ICAO through the actions of the governing bodies and personal actions by the President of the Council and the Secretary General (letters to Ministers and CAA's) and participation in WRC-2000 work; support given by the Secretary General to ANB's activities described in a) through c) above; and

e) the implementation of Assembly Resolution A32-13.

6.2: **Draft ICAO position for the ITU-WRC- 2003**

6.2.1 The meeting was informed that the working group F of the Aeronautical Mobile Communications Panel has already developed an initial draft of the ICAO position for the WRC-2003. A final review by the ANC of the ICAO position, and its approval by the Council, is foreseen before mid-2001.

6.2.2 The ITU-WRC-2000 developed the agenda for the WRC-2003. Several items in the agenda concern civil aviation. The following highlights some of the important issues on the agenda.

a) **general agenda items which can affect civil aviation:**

1.1 deletion of country names from footnotes;
4. review of Resolutions/Recommendations of previous conferences;
7.2 draft agenda for next WRC, foreseen for 2006;

b) **specific agenda items of major interest to civil aviation:**

1.4 the use of the band 5 091 - 5 150 MHz by the MLS;
1.5 use of the bands 5 150 - 5 725 MHz by mobile, fixed, Earth exploration satellite and space service;
1.6 protection of feeder links in the band 5 150 - 5 250 MHz;
1.14 measures related to harmful interference in the HF bands;
1.15 review the results of studies on the compatibility between the radionavigation satellite service and the aeronautical radionavigation service in the band 960 - 1 215 MHz (DME, SSR), 1 215 - 1 350 MHz (radar) and 5 000 -150 MHz (MLS above 5 030 MHz)
1.17 upgrading of the radiolocation service in the band 2 900 - 3 300 MHz;
1.28 use of the band 108 - 117.975 MHz for GBAS;
1.30 additional allocations to MSS between 1 - 3 GHz; and

c) **other items of interest to aviation:**

1.8. issues related to unwanted emissions;
1.11 use of the band 14 - 14.5 GHz by the aeronautical mobile satellite service;
1.16 allocations for feeder links in bands around 1.4 GHz;
1.20 additional allocations for non-GSO MSS below 1 GHz; and
1.22 spectrum for systems beyond IMT-2000.

6.2.3 Considering the major factors contributed to the success of the ICAO position at the ITU-WRC2000, the COM Sub-group urged states to support the ICAO position at the next ITU-WRC20003. The meeting therefore formulated the following draft Conclusion:

Draft Conclusion 5/21: Support for the ICAO position at ITU-WRC 2003

That in view of the above, AFI States continue their effort to promote and defend the ICAO position at the ITU World Radio Conference (WRC) 2003.

OVERVIEW OF THE WRC-2000 RESULTS

Agenda item No.	Agenda item	ICAO position	Results	Conclusion
1.1	Suppression of national footnotes	Suppress S5.181, S5.197 and S5.259 (ILS bands)	Most countries deleted their name from these footnotes; Egypt (S5.181 and S5.259 only), Israel, Japan and Syria remain	In line with ICAO position
"	"	Suppress S5.355 and S5.359 (GNSS bands)	Footnote S5.359 secondary after 1 January 2005 (2010 in some countries); all footnotes to be suppressed after 1 January 2015.	In line with ICAO position
1.2.	Spurious emission requirements Appendix S3 (radar stations)	Exempt radar from requirements App. S3	Radar stations exempted until 1 January 2012	Satisfies ICAO position
1.6.1.	Spectrum for IMT 2000	No change to allocation in band 2 700 - 2 900 MHz; support studies on sharing	Allocation in 2 700 - 2 900 MHz was not changed; subject not on agenda WRC-2003; AMS(R)S has priority over IMT-2000; further studies ongoing in ITU-R	Satisfies ICAO position
1.7.	Review use of HF band	Removal of unauthorized use of HF bands	Improved provisions for protection of HF bands agreed; further studies necessary on use of mitigation techniques; no review of App. S27	Satisfies ICAO position
1.9.	MSS allocation in band 1 559 - 1 567 MHz (GNSS band)	No allocation to MSS; suppress Resolution 220	No allocation to MSS was made in this band; Resolution 220 suppressed	Satisfies ICAO position
1.1	Result of studies on Res. 218 (generic allocation to MSS)	Improve aviation access to satcom spectrum	Access of aviation to satellite bands for AMS(R)S significantly improved; Res. 218 replaced with Res. COM5/22.	Satisfies ICAO position
1.14	MSS feeder links in 15.43 - 15.63 MHz	No further restrictions on aeronautical radionavigation	Allocation to MSS space-to Earth was removed; no new restrictions were placed on aeronautical	Satisfies ICAO position

Agenda item No.	Agenda item	ICAO position	Results	Conclusion
		acceptable	radionavigation	
1.15.1.	New allocation to radionavigation satellite service between 1 - 6 GHz	Support new allocations; protect current systems (DME, radar, MLS)	New allocations with provisional protection criteria; further studies on final protection of current systems	Satisfies ICAO position
4	Review Resolutions/ Recommendations	Maintain Resolution 20	Resolution 20 was maintained and updated	Satisfies ICAO position
7.2.	Agenda for WRC 2003 and 2006	No position	Many items on agenda WRC-2003 that affect civil aviation	Preparation for WRC-2003 to start immediately

------ END ------

Agenda Item 7: Any Other Business

7.1: Implementation of the SATCOM network in WACAF Region and the CAFSAT network.

SATCOM network implementation

7.1.1 Under this Agenda Item, the COM/SG was informed that recommendations encouraging the use of VSAT technology are already or are being implemented in some parts in the AFI Region. The SATCOM Network is deployed in Western and Central African Region (SATCOM Network).

7.1.2 The SATCOM network was designed in order to improve the Aeronautical Fixed Service (AFS) communications by progressively introducing satellite technology in the AFI Region, depending on the initial network performance. At the beginning, participating States were Cameroon, Central African Republic, Chad, Congo, Gabon, Ghana, Niger and Nigeria. It is now being expanded so as to include nearly all ASECNA States in West Africa and Sao Tome & Principe.

7.1.3 The network came into operation since 1995 with analogue circuits and is now in the process of being digitized in order to optimize its potential, and thus achieve a high performance communication system. Some X.25 circuits are already operational. It also serves for the extension of VHF coverage in FIRs using remote VSAT stations.

CAFSAT VSAT network Implementation

7.1.4 It was noted that the main objective of the CAFSAT Network is to expand, modernize and improve AFS communications for the current air navigation services through the implementation of cost-effective, fast, reliable and high performance communications in the EUR/SAM corridor (oceanic routes), and at the same time to establish the digital platform to support the development of the Aeronautical Telecommunication Network (ATN) included in the ICAO CNS/ATM systems. CAFSAT participating States are Brazil, Cape Verde, Morocco, Portugal, Senegal and Spain. South Africa has been invited to join the network.

7.1.5 The progress of implementation of the CAFSAT network was as follows in October 2000

- Spain (Las Palmas) node was fully tested and was ready to operate;
- Senegal (Dakar) and Cape Verde (Sal) nodes were in the process of implementation and were expected to be operational before the end of the year 2000.
- Brazil (Brazilia) and Morocco (Casablanca) were in “Call for Tenders”process; and
- Portugal is planning to incorporate two (2) nodes to the network at Lisbon and Santa Maria.

7.2 SADC VSAT network implementation status report

7.2.1 In the beginning it was planned to deploy the network in SADC participating States only, except Seychelles (14 States) (Angola, Botswana, D.R. of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Beira and Maputo, Namibia, Swaziland, Tanzania, Zambia and Zimbabwe.

7.2.2 Actually some non SADC participating States have shown interest in joining the SADC network. These States are Burundi and Rwanda.

7.2.3 The installation progress is shown in tables A, B, and C below:

TABLE A

	Location	Country	Installation	Agreement	Commissioned
	Phase I				
1	Gabarone	Botswana	Completed	Draft submitted	Yes
2	Maputo	Mozambique	Completed	Government approval outstanding	Yes
3	Beira	Mozambique	Completed	Draft submitted	Yes
4	Lilongwe	Malawi	Completed	Draft submitted	Yes
5	Lusaka	Zambia	Completed	Final draft submitted	Yes
6	Luanda	Angola	Completed	Signed	Yes

TABLE B

	Phase II				
7	Port Louis	Mauritius	Completed	Draft submitted	Yes
8	Dar es Salaam	Tanzania	Completed	Signed	Yes
9	Kinshasa	DRC	Completed	Draft submitted	Yes
10	Windhoek	Namibia	Completed	Signed	Yes
11	Maseru	Lesotho	Completed	Signed	Yes
12	Masapha	Swaziland	Completed	Signed	Yes
13	Harare	Zimbabwe	Completed	Signed	Yes
14	Antananarivo	Madagascar	Outstanding	Draft submitted	No

TABLE C

	Phase III				
15	Bujumbura	Burundi	Outstanding	Draft submitted	No
16	Kigali	Rwanda	Outstanding	Draft submitted	No

7.2.4 With the exception of Antananarivo installation of all phases I and II VSAT facilities have been completed. The meeting noted that only 6 ut of the 14 SADC participating States have signed the bilateral agreements.

7.2.5 **Interconnection between ASECNA and SADC VSAT networks**

7.2.5.1 The meeting noted that the interconnection of the ASECNA and SADC networks was still unresolved. A Committee to analyse a new proposal was set up by the COM/SG meeting. The Committee was mandated to propose to the COM Sub-group the appropriate solutions to implement the following circuits:

AFTN Circuits:

- Antananarivo/Johannesburg
- Brazzaville/Kinshasa
- Brazzaville/Luanda

ATS/DS Circuits:

- Accra/Luanda
- Antananarivo/Beira
- Antananarivo/Dar es Salaam
- Antananarivo/Johannesburg
- Antananarivo/Mauritius
- Brazzaville/Luanda
- Brazzaville/Kinshasa

7.2.5.2 After discussions the Committee agreed on a new proposal which was adopted by the COM/SG. The new proposal is as follows:

Draft Conclusion 5/22: Interconnection between VSAT networks - AFTN and ATS/DS connection

That South Africa (ATNS), Angola, Democratic Republic of Congo and Madagascar provide, before 31 March 2001, the following VSAT terminals:

- Antananarivo: a SADC VSAT compatible terminal pointed to INTELSAT 604;
- Luanda: a SATCOM VSAT compatible terminal pointed to INTELSAT 601;
- Kinshasa: a SATCOM VSAT compatible terminal pointed to INTELSAT 601.

7.2.5.3 The COM Subgroup was of the view that a meeting between parties concerned was imperative to implement the above conclusion. South Africa agreed to host the meeting.

7.3 **Human factors in the COM field**

7.3.1 The COM Sub-group was of the view that there is a need for human resources planning to ensure that the COM field has the right number of people with the right skills, in the

right positions and at the right time. The need for training and course development will be especially high between now and through the transition to the CNS/ATM systems.

7.3.2 Not only a large number of personnel have to be trained on new technology equipment and procedures, but a sufficient number of qualified in the skills necessary to operate and maintain the new systems.

7.3.3 Due to the amount of training needed, it will be advantageous to have coordinated and cooperative approach towards CNS training development. There is a need also for well formulated human resource programme.

7.3.4 Taking into account the above; the meeting was of the view that a Task Force on human resources was necessary. The COM Subgroup formulated the following decision:

Draft Decision 5/23: Establishment of a Task Force on Human factors in the COM field

That a Task Force on Human Factors be established with the following mandate and work programme:

Mandate

To examine all human factors related problems, including transition to CNS/ATM systems, and to make concrete recommendations concerning CNS personnel in order to improve quality of air navigation services.

Work programme

. Establish criteria for different levels of standards for CNS personnel

• Establish basic entry criteria on training for CNS personnel

. Outline training procedures for existing and new CNS equipment, including automation

. Catalogue the potential or the existing training centres and CNS courses available

. Develop guidelines for human resources planning and development

. Develop material for maintenance system computerization.

7.4 **Future work Programme of COM Sub-group.**

Under this Agenda Item, the COM/SG reviewed its future work programme as it is reflected in **Appendix A** to this report.

Future work programme of the COM Sub- group

Item	Task description	Priority	Target date
1	Analyse, review and monitor shortcomings and deficiencies in the operation of the aeronautical fixed service, the aeronautical mobile service and the radio navaids.	A	continuing
2	Monitor the performance and implementation of the AFTN and propose corrective measures, as required	A	continuing
3	Follow-up the implementation programme of the ATS/DS circuits and propose corrective measures, as required	A	continuing
4	Update the AFI AFTN Routing Directory	A	continuing
5	Follow-up the interconnection of VSAT networks in the AFI Region	A	Continuing
6	Draft, in co-ordination with the ATS/SAR/AIS Sub-group, a plan for the extension of VHF coverage in the AFI region along all ATS routes shown in Table ATS-1 (AFI/7 Rec. 5/12)	B	APIRG/14
7	Review and update the VHF frequency utilization plan (AFI/7 Rec. 9/11)	A	APIRG/13
8	Analyse and review the report of the ATN Planning Task Force on the transition from the AFTN to the ATN.	B	APIRG/14
9	Review of the survey on AFTN circuits performance in the AFI Region by IATA.	B	APIRG/14
10	Review of VHF coverage survey in the AFI Region	B	APIRG/14
11	Follow-up the upgrading modulation rate for main AFTN circuits.	B	APIRG/14
12	Follow-up the ICAO position for the ITU-WRC meetings	B	continuing
13	Follow-up of IFALPA proposals for VHF coverage	B	Continuing
14	Address human factors issues in the COM field	B	Continuous

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;

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

Composition: Algeria, Angola, Congo, Côte d'Ivoire, D.R. of Congo, Egypt, Ethiopia, Guinea, Kenya, Malawi, Morocco, Niger, Nigeria, South Africa, Spain, Tunisia, Zambia, ACAC, ASECNA, IATA and IFALPA
