INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE SIXTH MEETING OF THE AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP COMMUNICATIONS SUB-GROUP (COM/SG/6)

Nairobi, Kenya 24 – 26 September 2002

The views expressed in this Report should be taken as those of the Sub - Group and not of the Organization. This Report will be submitted to the Fourteenth Meeting of the APIRG and any formal action taken will be published in due course as Supplement to the Report of the APIRG Meeting.

Prepared by the ICAO Western and Central African (WACAF) Office

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Glossary of Terms

ACC	Area Control Centre
ADS	Automatic Dependent Surveillance
AFISNET	AFI Satellite Telecommunication Network
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunication Network
AIC	Aeronautical Information Circular
AIDC	ATS interfacility data communications
AIRAC	Aeronautical information regulation and control
AIS	Aeronautical Information Service
AMCP	Aeronautical Mobile Communications Panel
AMHS	ATS message handling system
AMS(R)S	Aeronautical Mobile-Satellite (R) Service
AMSS	Aeronautical Mobile-Satellite Service
APANPIRG	ASIA/PAC Air Navigation Planning and Implementation Regional Group
AR	Area of Routing
ASECNA	Agency for the Safety 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
BIS	Boundary Intermediate System
BBIS	Backbone Boundary Intermediate System
CIDIN	Common ICAO Data Interchange Network
CNS	Communications, Navigation, and Surveillance
COM/MET/OPS	Communications/Meteorology/Operations
CAFSAT	Central Atlantic FIRs Satellite Telecommunication Network
CPDLC	Controller pilot data link communications
CSP	Communication Service Provider
DGNSS	Differential Global Navigation Satellite System
DME	Distance Measuring Equipment
EGNOS	European Geostationary Navigation Overlay System
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
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
IS	Intermediate System
ISO	International Organization for Standardization
ITU	International Telecommunication Union
JAA	Joint Aviation Authorities
LAAS	Local Area Augmentation system
LEO	Low Earth Orbit
MLS	Microwave Landing System
MODE S	Mode S - SSR Data Link
MSAW	Minimum safe altitude warning system
MTSAT	Multi-Functional Transport Satellite (Japan)
NAFISAT	NorthEast AFI Telecommunication Satellite network
OSI	Open Systems Interconnection
RAIM	Receiver Autonomous Integrity Monitoring
RD	Routing Domain
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
TCP/IP	Transport Control Procol/Internet Protocol
TMA	Terminal Control Area
VDR	VHF Data Radio
VHF	Very High Frequency
VOR	VHF Omnidirectional Radio Range
WAAS	Wide Area Augmentation System
WGS-84	World Geodetic Reference System - 1984
WRC	World Radiocommunication Conference

History of the meeting

1. **Introduction**

1.1 The Sixth Meeting of the AFI Planning and Implementation Regional (APIRG) Communications Sub-Group (COM/SG/6) was held in Nairobi, Kenya from 24 to 26 September 2002.

2. **Attendance**

2.1 The meeting was attended by 38 delegates from 18 contracting States and 2 International Organizations. The list of participants is at **Appendix A** to this part of the Report.

3. Opening of the Meeting

3.1 Mr. Lot Mollel, Regional Director, ICAO Eastern and Southern African Office welcomed all participants to Nairobi and provided an overview of the objectives and the developments that have taken place in the communications field since the Fifth Meeting of the Communications Sub-Group (COM/SG/5). He opened the meeting and highlighted the issues to be addressed by COM/SG/6.

4. **Officers and Secretariat**

4.1 Mr. Prosper Zo'o – Minto'o, Regional Officer Communications, Navigation and Surveillance (RO/CNS) of ICAO Western and Central Office, Dakar was the Secretary of the meeting. He was assisted by Messrs Amadou Sene and Mr. Tharcisse Masabarakiza, Regional Officers Communications, Navigation and Surveillance (RO/CNS) of ICAO Eastern and Southern Office, Nairobi.

5. **Working Languages**

5.1 English and French were used as the meeting working languages and documentation was issued in these languages.

6. **Agenda**

6.1 The Meeting adopted the following Agenda:

Agenda Item 1: Election of Chairman and Vice-Chairman of the Sub-Group

Agenda Item 2: Terms of reference, work programme and composition of the Communications Sub-group as defined by APIRG/13

Agenda Item 3: Follow up of APIRG and COM/SG/5 Conclusions and Decisions

Agenda Item 4: Aeronautical Fixed Service (AFS)

Agenda Item 5: Aeronautical mobile service (AMS)

Agenda Item 6: Aeronautical radio navigation service (ARNS)

Agenda Item 7: Review of ICAO position and preparations for the ITU WRC - 2003

Agenda Item 8: Future work programme and composition of the COM/SG

Agenda Item 9: Any other business

7. **Conclusions and Decisions**

7.1 The Meeting records its action in the form of draft Conclusions and draft Decisions with the following significance:

7.2 **Draft Conclusions**

7.2.1 Draft Conclusions, when approved by APIRG, deal with matters which, in accordance with the Sub-Group's Terms of Reference, directly require the attention of States, or on which further action will be initiated by ICAO in accordance with established procedures.

7.3 **Draft Decisions**

7.3.1 Draft Decisions, when approved by APIRG, relate solely to matters dealing with the internal working arrangements of the APIRG and its contributory bodies.

7.4 Decisions

7.4.1 Decisions relate solely to matters dealing with the internal working arrangements of the Communications Sub-Group only.

7.5 List of Draft Conclusions

7.6 List of Draft Conclusions

Appendices to the Report of the Sixth Meeting of the AFI Planning and Implementation Regional Group (APIRG) Communications Sub - Group (COM/SG/6)

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Agenda Item 1 : Election of the Chairperson Communications Sub - Group

Mr. Hamadi Benkhelifa, Director of Air Navigation, Tunisia was re-elected as Chairman of the Sub-Group and chaired the meeting.

Agenda Item 2: Terms of reference, work programme and composition of the Communications Sub-group as defined by APIRG/13

2.1 Under this Agenda Item, the meeting reviewed the terms of reference (TORs), work programme and composition of the Communications Sub-Group as defined by the AFI Planning and Implementation Regional Group at its 13th meeting (APIRG/13), and shown at **Appendix 2A** to this part of the Report. It noted that the main tasks of the Communications Sub-group are the continuing and coherent development of the AFS plans and the identification, review and monitoring of deficiencies that affect aeronautical communications services in the AFI Region.

TERMS OF REFERENCE AND WORK PROGRAMME FOR THE COM SUB-GROUP

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	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	Analyse and review the report of the ATN Planning Task Force on the transition from the AFTN to the ATN.	B	APIRG/14
8	Review of the survey of HF congestion in the AFI region by IATA	B	APIRG/14
9	Review of VHF coverage survey in the AFI Region	B	APIRG/14
10	Follow-up the upgrading modulation rate for main AFTN circuits.	B	APIRG/14
11	Follow-up the ICAO position for the ITU WRC meetings	B	continuing
12	Follow-up of IFALPA proposals for VHF coverage	B	continuing
13	Address human factors issues in the COM field	B	continuing

Priority:

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

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

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

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Agenda Item 3: Follow up of APIRG Conclusions and Decisions related to aeronautical telecommunications

3.1 Under this Agenda Item, the Communications Sub-group reviewed progress made in the implementation of Conclusions and Decisions adopted by APIRG/13 when reviewing the Report of its last meeting (COM/SG/5). The implementation status of APIRG/13 Conclusions and Decisions related to aeronautical telecommunications is shown at **Appendix 3A** to this part of the Report.

FOLLOW-UP ACTION ON APIRG/13 MEETING CONCLUSIONS AND DECISIONS RELATED TO AERONAUTICAL TELECOMMUNICATIONS

Conc. No.	TITLE &TEXT	Follow-up action
Conc.13/5	**Brazzaville/Nairobi Main AFTN Circuit** 1) Kenya and ASECNA implement the main Brazzaville/Nairobi AFTN circuit as son as possible ; and 2) The concerned parties hold a meeting under the auspices of ICAO with a view to finding a final and lasting solution to the matter	Coordination is still going on for a meeting between the parties. A meeting was convened in February 2002 but did not go through.
Conc.13/15	**Extension of the use of satellite Technology** That a VSAT Network involving Chad, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Somalia, Sudan, and Uganda be established to cater for AFS requirements.	A proposal for a VSAT network (NAFISAT) has been accepted in principle by States. A Working Group has been developing the project and a feasibility study has been conducted. The results are to be presented to States concerned.
Conc. 13/6	**Alger/Niamey main AFTN circuit** That Alger install an AFISNET VSAT Terminal for the main Algiers COM Centre as soon as possible for the purpose of upgrading the reliability of Alger/Niamey main circuit	Not implemented.
Conc.13/7	**Nairobi/Johannesburg Main AFTN Circuit** That : 1) Kenya and South Africa upgrade, as a matter of urgency, the availability of the Nairobi/Johannesburg AFTN main circuit up to a minimum of 97 % ; and 2) Kenya and South Africa agree on a bilateral technical solution, including an increase in the modulation rate to a minimum of 1200 BPS.	No data on availability received from both States by the Regional Office.
Conc.13/8	**Dakar/Johannesburg Circuit** That: a) Senegal and South Africa upgrade, as a matter of urgency, the reliability of the Dakar/Johannesburg main AFTN circuit, and b) South Africa integrate to CAFSAT network.	The circuit is operational, availability is 98%. In progress.

Conc.13/9	**Review of the configuration of the AFI AFTN Plan.** That: 1) Johannesburg AFTN main center be an AFI entry/exit between the AFI and ASIA/PAC Regions. 2) The following AFTN circuit be deleted from the AFI air navigation plan : Mauritius/Asia/Pac, Bujumbura/Dar(es-Salaam, Kigali/Dar-es-Salaam ; 3) The following main and tributary AFTN circuits between Johannesburg and the following centers be included in the AFI Air Navigation plan :; Dakar, Bujumbura, Dar-es-Salaam, Kigali, Kinshasa, Luanda and Mauritius; and 4) The network configuration chart be that shown at Appendix E to the Report	Completed. APANPIRG has been requested to designate the corresponding entry/exit point. Included in FASID. Included in FASID. Included in FASID
Conc.13/10	**Introduction of BIT-oriented Protocols in the AFI Region** That the AFI main AFTN centres introduce, in a gradual manner, but-oriented protocols with a view to upgrading the integrity of data transmission and paving the way to migration to the aeronautical telecommunications network (ATN)	On going
Conc. 13/11	**VSAT networks interoperability/Integration** That a meeting be organized between ICAO, INTELSAT and VSAT service providers and user organizations for international civil aviation in order to find out ways and means of achieving interoperability and integration of VSAT networks in the AFI Region.	On going. A meeting was planned before the ATN/TF/1 Meeting but did not go through.
Conc. 13/12	**Seminars on the Aeronautical Telecommunications Network (ATN)** That ICAO continue to organize seminars on the ATN in the AFI Region	Due to budget constraints no seminars could be organised in 2002.
Conc. 13/13	**Use of SITA Network for AFTN circuits requirements** That States resorting, to temporary SITA circuits on a bilateral basis for AFTN purposes implement as soon as possible the AFTN circuits included in the Air Navigation Plan.	Completed

Conc. 13/14	**Interconnection between VSAT networks - AFTN and ATS/DS connectivity** That ASECNA and (ATNS) South Africa provide, as a matter of urgency, the following VSAT terminals: 1) Antananarivo : a SADC VSAT compatible terminal pointed to INTELSAT 604 ; 2) Brazzaville : an AFISNET VSAT compatible terminal pointed to INTELSAT 707 ; and 3) Johannesburg : an AFISNET VSAT compatible terminal pointed to INTELSAT 707.	On going[1].
Conc. 13/16	**Need for technical cooperation agreements in the implementation of satellite telecommunication facilities with the AFI Region** That , taking into consideration the amount of experience and expertise being progressively gained in the AFI Region from satellite telecommunication technology, States should resort to multiform technical cooperation bilateral or multilateral agreements when implementing aeronautical telecommunication facilities, notably earth stations.	On going
Conc. 13/17	**Improvement of the ATS/DS network** That, as a matter of priority, States implement and improve ATS/DS circuits included in the Air Navigation Plan (ANP) within the context of a step-by-step approach to progressively improve air traffic control service in the region.	On going
Conc. 13/18	**Introduction of 25 kHz VHF channel spacing in the AFI Region** That VHF frequency assignment in the AFI Region be done on the basis of 25 kHz channel spacing of 25 kHz channel spacing.	Completed
Conc. 13/19	**VHF Frequency utilization plan** That the VHF frequency utilization plan for the AFI Region be the plan shown at Appendix F to this report.	Completed
Conc. 13/20	**VHF Frequency Assignments on Worldwide reserved frequencies** That States concerned cease the use of worldwide reserved frequencies (121.5 and 123.5 MHz) for services other than those planned by ICAO in Annex 10.	Completed

[1] Implemented early 2003.

Conc. 13/21	**Congestion of the HF frequencies in the AFI Region** That, in order to reduce congestion, States should : 1) Implement, as a matter of urgency, ATS/DS circuits in the Air Navigation Plan (ANP) ; 2) Refrain from using air-ground HF frequencies for ground-ground communications ; and 3) Request air traffic services personnel to use air-ground VHF frequencies rather than HF frequencies to obtain information such as souls on board, endurance, type of aircraft and registration.	 On going On going On going
Conc. 13/22	**Termination of the use of the band 1559-1610 MHz by fixed Services** Considering that the sharing of the band 1559-1610 MHz allocated to the RNSS (including GNSS) with the fixed services is not feasible, states concerned should coordinate with the corresponding national frequency management authority in order to: 1) Determine if any fixed service stations operate in the band 1559-1610 MHz and, if so, either cease their operation or relocate them to other fixed-service band before GNSS-based operations are approved; 2) Establish plans to avoid any future implementation of fixed service stations to operate in the band 1559-1610 MHz; and 3) Take steps for the deletion of the national footnotes in this band at ITU WRC 2003.	 States concerned advised to implement this Conclusion at ITU-WRC 2003.
Conc. 13/23	**Support to the ICAO's position at ITU-WRC 2003** That AFI States pursue their efforts to promote and defend the ICAO=s position at the ITU world radio conference (WRC) 2003.	 On going

Agenda Item 4: Aeronautical Fixed Service (AFS)

4.1 : Review of the Report of the ATN Planning Task Force

4.1.1 Critical analysis of the current AFTN

4.1.1.1 The Communications Sub-group undertook a critical analysis of the current AFI aeronautical fixed telecommunication network (AFTN) based on ICAO policy for the planning and implementation of AFTN as contained in ICAO Doc 8259, to assess the extent to which ICAO Standards and Recommended Practices (SARPs) on *Aeronautical Telecommunication (Annex 10)* and AFI Air Navigation Plan (AFI ANP) have been implemented, fom the perspective of the migration to the aeronautical telecommunication network (ATN) ground-ground applications (air traffic services (ATS) message handling services (AMHS), inter-centre communications (ICC)). Emphasis was put on the following aspects.

Implementation and operational status of the AFI AFTN

4.1.1.2 The Communications Sub-group identified the following main deficiencies and weaknesses, and proposed remedial actions accordingly :

a) Implementation status

- Full implementation is still not achieved : three (3) main circuits (Algiers/Niamey, Brazzaville/Johannesburg, Brazzaville/Nairobi) and two (2) entry/exit circuits (Johannesburg/SAM and Johannesburg/ASIA-PAC) are not yet implemented, as well as the following tributary circuits: Addis Ababa/Asmara; Addis Ababa/Khartoum; Bissau/Dakar, Brazzaville/Luanda, Brazzaville/Sao Tome, Bujumbura/Johannesburg and Johannesburg/Kigali;
- The inclusion of the AFTN main circuit Dakar/Johannesburg (implemented in 1999) in the AFI Plan was adopted by APIRG/13.

b) Circuit availability

- The requirement of 97% minimum (AFI/7 Rec. 9/3 refers) is not met by many circuits.

c) Transmission speed

- The requirement of a minimum modulation rate of 1200 bauds (APIRG Conclusion 12/13 refers) is not met by some main circuits.
- The following AFTN main circuits do not meet the requirement for a minimum transmission speed of 1200 bits/s :
    1. *Addis Ababa/Nairobi*
    2. *Addis Ababa/Niamey*
    3. *Addis Ababa/Djeddah (AFI/MID)*
    4. *Alger/Casablanca*
    5. *Cairo/Nairobi*
    6. *Cairo/Tunis*
    7. *Casablanca/Dakar*
    8. *Johannesburg/Nairobi*
    9. *Nairobi/Mumbai (AFI/ASIA-PAC)*
- Tributary circuits connected to the main centres of Brazzaville, Dakar, Johannesburg and Niamey have been upgraded to higher transmission speeds, while the outgoing main circuits are operated still at 50 baud.

d) Protocols

- Only 5 out of 10 main centres (50%) and 7[1] out of 20 main circuits are using bit-oriented protocols (X.25 or X.25 CIDIN), in compliance with the APIRG requirement for a progressive implementation of bit-oriented protocols (BOPs) at main AFTN centres in order to improve data integrity and prepare the migration towards ATN.

e) Use of analogue technology

- The level of digitalization is rather low (only 29 out of a total of 65 circuits - 44,3% - are digital circuits), which limits the available bandwidth and data processing possibilities.
- It was noted with appreciation that RTT circuits were no longer in use in the AFI Region for AFTN purpose.

f) Transit times

- The requirements of 5 minutes maximum for high priority messages, and 10 minutes maximum for other messages are not met most of the time.

g) Interconnection of satellite telecommunication networks

- The existing sub-regional satellite telecommunication networks (AFISNET, SADC and CAFSAT networks) utilize different space segments.

h) Human factors

- The meeting recognized that there are no systematic training programmes on technologies relating to aeronautical telecommunication equipment/systems.

Proposed remedial actions

4.1.1.3 Based on the analysis it carried out, the Communications Sub-group was of the view that improvements could be brought to the current AFI AFTN by resorting to the following measures where and when practicable.

Implementation/Upgrading of the AFI AFTN

4.1.1.4 The Communications Sub-group called for an expeditious implementation of a minimum transmission speed of 1200 bits/s and bit-oriented protocols. The following draft Conclusions were formulated:

DRAFT CONCLUSION 6/1: UPGRADING OF THE TRANSMISSION SPEED AND PROTOCOLS OF AFTN MAIN CIRCUITS AND ENTRY/EXIT CIRCUITS

That, in order to improve AFTN efficiency, States concerned :

a) expedite the upgrading of AFTN main circuits and entry/exit circuits to a minimum of 1200 bits/s;

b) implement bit-oriented protocols; and

c) ensure data integrity.

[1] Of which 4 intra-regional circuits (i.e. 20%)

DRAFT CONCLUSION 6/2: ORGANIZATION OF SEMINARS AND WORKSHOPS ON DATA TRANSMISSION CONCEPTS AND TECHNIQUES

That ICAO organize seminars/workshops on data transmission concepts and techniques utilized or to be utilized in the framework of the upgrading of the AFTN and its migration to the ATN.

Use of public data networks (PDNs)/integrated service digital networks (ISDNs)

4.1.1.5 The Communications Sub-group noted that some States had developed public data networks (PDNs) and integrated digital networks (ISDNs). It therefore suggested that recourse to such networks might be considered by States to *a)* overcome temporary disruption of dedicated circuits, *b)* when the traffic does not justify the use of dedicated, and *c)* when PDN performance, availability and cost-effectiveness are demonstrably equivalent or superior. The following Draft Conclusion was formulated accordingly:

DRAFT CONCLUSION 6/3: IMPLEMENTATION/UPGRADING OF AFTN MAIN CIRCUITS

That, for the implementation/upgrading of the links between the following AFTN main centers, States concerned consider the use of public data networks (PDNs) or integrated service data networks (ISDNs), when such networks are available and cost-effective. These are:

To implement:

- **Alger/Niamey**
- **Brazzaville/Nairobi**[2]
- **Brazzaville/Johannesburg**

To upgrade:

- **Addis Ababa/Nairobi**
- **Addis Ababa/Niamey**
- **Bombay/Nairobi**
- **Cairo/Nairobi**
- **Casablanca/Dakar**
- **Johannesburg/Nairobi**

4.1.1.6 In addition, the Communications Sub-group tasked the Secretariat to conduct a survey on the availability and usage costs of such services in the Region so as to ascertain the appropriateness and cost-effectiveness of the proposed PDN/ISDN solutions to improve Addis Ababa/Nairobi, Algiers/Niamey, Bombay/Nairobi, Brazzaville/Nairobi, Cairo/Nairobi and Johannesburg/Nairobi. The following draft Decision was formulated:

DRAFT DECISION 6/4: SURVEY OF AVAILABILITY AND USAGE COST OF PUBLIC DATA NETWORKS (PDNS) AND INTEGRATED SERVICE DIGITAL NETWORKS (ISDNS)

That the Secretariat conduct a survey on the availability and usage costs of public data networks and integrated service digital networks in the Region.

Inclusion of the circuit Cairo/Tripoli in the AFTN configuration

4.1.1.7 The Communications Sub-group agreed to include in the AFI AFTN configuration the existing well performing Cairo/Tripoli implemented on a bilateral basis. The following draft Conclusion was formulated:

[2] A coordination meeting between Kenya and ASECNA was organized on 27 September 2002 in order to find out ways and means of implementing APIRG Conclusion 13/5 on the AFTN main circuit Brazzaville/Nairobi.

DRAFT CONCLUSION 6/5: ADDITION OF CAIRO/TRIPOLI CIRCUIT TO AFI AFTN PLAN

That the AFI AFTN Plan be amended to include the existing circuit between Cairo and Tripoli.

Development of AFTN implementation requirements

4.1.1.8 The Communications Sub-group defined criteria to be taken into account in implementing or assessing AFI rationalized AFTN circuits. These implementation requirements are contained in **Appendix 4A** to this part of the Report. The following draft Conclusions were formulated:

DRAFT CONCLUSION 6/6: IMPLEMENTATION OF AFTN REQUIREMENTS

That:

a) in implementing their AFTN circuits in accordance with the AFI rationalized AFTN Plan, States take due account of requirements contained in Appendix 4A to this part of the Report; and

b) the Secretariat provide States with all necessary indications for a better understanding of the various AFTN circuits implementation requirements referred to in a) here above.

DRAFT CONCLUSION 6/7: AFTN TRANSIT TIME STATISTICS

That in order to permit the assessment of AFTN performance on a regular basis, States establish quarterly transit time statistics for their AFTN centres on 23 January, April, July and October using the reporting format as per Appendix 4B to this part of the Report.

Use of SADIS

4.1.1.9 The Communications Sub-group recognized that SADIS, the satellite distribution system for information relating to air navigation would be used as a supplementary means. In this connection, the Sub-group identified the need to implement SADIS 2-way stations at suitable locations in the AFI Region (e.g. Cairo, Dakar, Johannesburg and Nairobi), in order to avoid transmission delays due to VSAT double hop links for the forwarding of OPMET data directly to WAFC London, and eventually AIS data to European data banks. Close co-ordination between COM, ATS, AIS and MET experts was therefore recommended to finalize the definition of the types of data to be exchanged through SADIS, and accordingly refine its configuration.

Use of Commercial Internet for non time-critical applications

4.1.1.10 The Communications Sub-group acknowledged that some AFTN dedicated circuits that had been specified in the AFI air navigation plan (ANP) had not been implemented for long periods of time mainly due to economical reasons, whilst commercial Internet services (ISPs) were available in States concerned. The Sub-group also took cognizance of an information paper prepared by the Secretariat, providing some background information on the history and principles of the Internet and suggesting a number of ways it can be used for aeronautical ground-ground data communications. It therefore agreed that, when and where their performance are satisfactory, States experiencing difficulties in implementing/maintaining facilities required in the AFI AFTN Plan should consider the use of commercial Internet services for non-time critical messages, subject to appropriate service level agreements to be negotiated with the ISPs. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/8: USE OF THE INTERNET

That States having difficulties to implement or maintain facilities required in the AFI AFTN Plan consider the use of the Internet when available, particularly for the exchange of non time-critical applications (e.g. flight regularity, administrative, etc.).

4.1.2 Description of the AFI ATN topology

Need for performance requirements for leased ATN services

4.1.2.1 The Communications Sub-group acknowledged an increasing desirability of commercial provision of managed network services given unsustainability of ad hoc development by States – which includes concerns relating to interoperability of separate network segments, backward compatibility, accommodation of differences, communications efficiency and flexibility and cost-benefit. Hence the need to define required network performance and quality of service (QoS) in a simple, realistic and achievable set of performance based specifications to be used by ATS providers and aircraft operators when leasing ATN services (at subnetwork or end-to-end levels) from communications service providers. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/9: PERFORMANCE CRITERIA FOR USE BY ATS PROVIDERS AND AIRCRAFT OPERATORS WHEN LEASING ATN SERVICES FROM COMMUNICATION SERVICE PROVIDERS

That ICAO develop performance criteria to be taken into consideration by air traffic services providers and aircraft operators when leasing ATN services (at sub-network or end-to-end levels) from communication service providers.

Draft of ATN routing architecture

4.1.2.2. The Communications Sub-group reviewed a draft of an initial Plan for the ATN routing architecture within the AFI Region, based on a comprehensive paper prepared by the Secretariat.

4.1.2.3 The Communications Sub-group then focused on a proposed representation scheme for the ATN Ground Portion Plan, noting that such a plan is described in terms of formatted tables in the other Regions (e.g. ASIA/PAC and CAR/SAM). Attention was directed to the following basic rules:

Requirements for Plan description

4.1.2.4 The Communications Sub-group acknowledged the need to :

- identify the purpose of the Plan document to provide an appropriate and accurate description of planned and implemented facilities, and a comprehensive view for management of the plan;
- identify the entities to be described (ATN networking topology: *domains* to include *routers* (intermediate systems and end systems), routers to interconnect networks and *interconnections*; and ATN *ground applications* (AMHS, AIDC)) taking into account their different properties (relationship with peer entities); and
- describe the acceptable entities and time order of implementation plan. For instance, at the time any interconnection installed, at both sides of interconnection, there has to be installed at least one router of compatible type; or prior to any ground application installation, there should be one router installed to route their message to other End System.

4.1.2.5 The Communications Sub-group agreed that, though it is hard to capture all these basic rules, it is essential to provide an ATN Implementation Plan as an effective management tool to make the Plan well managed.

Routing architecture and description of the ATN ground-ground network

4.1.2.6 The Communications Sub-group proposed an initial ATN routing architecture composed of a backbone network to concentrate ATN traffic at designated locations, and possibly support air-ground applications operating over the ATN, and ATN routing sub-regions around each backbone BIS connecting the routing domains to the backbone, these being subject to further refinements.

Transition Issues

4.1.2.7 The Communications Sub-group agreed that the implementation of the ATN within the AFI Region may require considerable planning for the transition of the AFTN, and that this area needs further work, which will necessitate accurate information about plans of the States for ATN ground-ground applications (ATS Inter-facility Data Communications and ATS Messages Handling System). The following draft Conclusions were formulated:

DRAFT CONCLUSION 6/10: TIMESCALE FOR THE IMPLEMENTATION OF AIDC

That the APIRG ATS/AIS/SAR Sub-group be requested to provide necessary information on the timescale of implementation of ATS Inter-facility Data Communications (AIDC).

DRAFT CONCLUSION 6/11: INFORMATION ON STATES' PLANS FOR THE IMPLEMENTATION OF AMHS

That the Secretariat conduct a survey on States plans for the implementation of the AMHS application to be supported by the ATN.

Human resources

4.1.2.8 The Communications Sub-group acknowledged that there was lack of or insufficient training on aeronautical equipment and associated technologies. Suitable human resources and training programmes were therefore needed in order to ensure that a sufficient number of personnel is available and remain proficient in the skills necessary to operate and maintain communication facilities. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/12: COMMUNICATIONS HUMAN RESOURCES AND TRAINING – RELATED ISSUES

That human resources and training issues relating to the Communications field be taken into account by an APIRG appropriate body, in order to ensure that a sufficient number of personnel is available and remain proficient in the skills necessary to operate and maintain facilities.

Future work programme and composition of the ATN Planning Task Force

4.1.2.9 The Communications Sub-group adopted the future work programme and composition of the ATN Planning Task Force as reflected in **Appendix 4C** to this part of the Report. The following draft Decision was formulated:

DRAFT DECISION 6/13: FUTURE WORK PROGRAMME AND COMPOSITION OF THE ATN PLANNING TASK FORCE

That the future work programme and composition of the ATN Planning Task Force be as defined at Appendix 4C to this part of the Report.

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

4.2.1 The Communications Sub-group reviewed the performance and implementation status of the AFTN in the AFI Region, and identified deficiencies and remedial measures for their elimination.

Review of AFTN performance

4.2.2 The Secretariat provided the meeting with statistical data on AFI AFTN performance compiled in 2002, showing efforts made or to be made by States in order to maintain or to increase the availability rates of AFTN circuits.

Identification of deficiencies

4.2.3 The Communications Sub-group reviewed and updated the list of deficiencies affecting AFTN circuits in the Region. The updated list is shown at **Appendix 4D** to this part of the Report. It appeared that three (3) main circuits (Algiers/Niamey, Brazzaville/Johannesburg, Brazzaville/Nairobi) and two (2) entry/exit circuit (Johannesburg/SAM) are not yet implemented, as well as some tributary circuits. In total, 17 AFTN circuits in total had yet to be implemented. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/14 : ELIMINATION OF AFTN DEFICIENCIES

That, as a matter of urgency, States/Organizations mentioned in the list of AFTN deficiencies at Appendix 4D to this part of the report should implement available solutions for the elimination of reported deficiencies.

4.3 Review of the implementation and performance of the Air Traffic Services Direct Speech (ATS/DS) network in the AFI Region, identification of deficiencies and remedial action for their elimination

Implementation status

4.3.1 The Communications Sub-group reviewed the implementation efforts since its last meeting (COM/SG/5, Dakar, 3-6 October 2000), and noted that 12 ATS/DS circuits have been implemented by 11 States, whilst 3 States have not implemented any 10 required ATS/DS circuits. Out of a total of 205 ATS/DS circuits required in the AFI air navigation plan (ANP), there are 54 non-implemented circuits, or 26.6% of the required circuits.

Identification of deficiencies

4.3.2 The Communications Sub-group therefore updated the list of ATS/DS deficiencies in the AFI Region as shown in **Appendix 4E** to this part of the Report.

4.3.3 The Sub-group noted that several VSAT solutions are being considered by States to implement AFS requirements using existing or planned VSAT networks (AFISNET, CAFSAT, SADC and NAFISAT), and encouraged States concerned to implement these systems as soon as possible. Meanwhile, it recommended the use of satellite telephone or PSTN to satisfy the requirements in accordance with APIRG Conclusion 12/15.

4.3.4 The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/15 : ELIMINATION OF ATS/DS DEFICIENCIES

That, as a matter of urgency, States mentioned in the list of ATS/DS deficiencies at Appendix 4E to this part of the report should implement available solutions for the elimination of reported deficiencies.

4.4 Use of VSAT technology to cater for AFS requirements

Communications between Accra, Brazzaville, Dakar Oceanic and Luanda FIRs

4.4.1 The Communications Sub-group discussed at length ways of improving or implementing AFS links (AFTN and ATS/DS) between Accra, Brazzaville and Luanda FIRs, by using VSAT technology as called for by APIRG. Views were particularly exchanged on proposals from ASECNA and IATA based on the extension of AFISNET or CAFSAT networks. Due to the absence of Angola, it was agreed that this issue could addressed by the planned ATS/COM coordination meeting to be held under the aegis of ICAO. The following draft Conclusion was formulated accordingly:

DRAFT CONCLUSION 6/16: ATS/COM COORDINATION MEETING BETWEEN ACCRA, BRAZZAVILLE, DAKAR OCEANIC, KINSHASA AND LUANDA FIRS

That:

a) ICAO organize an ATS/COM coordination meeting between Accra, Brazzaville, Dakar Oceanic, Kinshasa and Luanda FIRs with all parts concerned; and
b) This meeting examine all proposed solutions, including those presented to COM/SG/6 meeting, to cater for AFS requirements between these FIRs.

Implementation status and development of VSAT networks

4.4.2 Algeria, South Africa (ATNS), Spain, Tunisia, ASECNA, IATA and the Secretariat presented the Communications Sub-group with updated information on the implementation status and plans for the development of AFISNET, SADC, CAFSAT, NAFISAT and EUROCONTROL VSAT networks.

- AFISNET network: its expansion to Algeria, Angola, France (Aix-en-Provence), Guinea Bissau and Sao Tome and Principe is under consideration or planned, and its digitalization in Ghana and Nigeria was in progress.

- SADC network: future developments include integration of a VSAT terminal to be installed in Bujumbura, technical aspects, institutional and governance issues, expansion of the current VSAT system and integration with other networks.

  ASECNA and ATNS informed the meeting of action undertaken to achieve the interconnection between AFISNET and SADC networks before the end of the year 2002, which includes the implementation of the AFTN main circuit Brazzaville/Johannesburg and a number of AFTN tributary circuits and ATS/DS circuits.

- CAFSAT network: major developments concern :

  - integration of nodes in Brazil, Morocco, Portugal and South Africa. Expansion to Angola has also been suggested;
  - data transmission between the EGNOS reference and integrity monitoring station (RIMS) in Dakar (Senegal) and the central processing unit (CPF) located in Honefoss (Norway) via Las Palmas (Spain);
  - implementation of the AFTN circuit Brasilia (Brazil)/Madrid (Spain);and
  - sharing of surveillance data (ADS/Radar) between Las Palmas (Spain) and Sal (Cape Verde).

- NAFISAT project: following an informal ATM/CNS coordination meeting involving Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda, a working group[3] has established under ICAO coordination and tasked with the drafting of a project document on the NAFISAT network called for by APIRG (Conclusion 13/15 refers). The Communications Sub-group noted that the working group had held two meetings on 22 January and 5 September 2002, and that States identified by APIRG had agreed in principle to participate in this project. A meeting of participating States was planned by end 2002/early 2003.

- EUROCONTROL VSAT network: the Communications Sub-group was informed of the extension of EUROCONTROL VSAT network covering States within the Black Sea Area, including Malta, Tunisia and possibly Libya.

4.4.3 In addition, Algeria and Egypt submitted information papers on their plans for national VSAT networks; and Egypt informed the meeting of the implementation of a bilateral VSAT link between Asmara and Cairo.

ATS/DS VSAT double hop links

4.4.4 The Communications Sub-group was apprised of the results from ATS/DS double hop link trials which were carried out by Las Palmas ACC (Spain) and Sal ACC (Cape Verde) on CAFSAT network, showing propagation times of 387 milliseconds (one hop) and 677 milliseconds (double hops).

4.4.5 Spain and ASECNA indicated that an operational double hop link was planned between Las Palmas (Spain) and Nouakchott (Mauritania) via Dakar (Senegal), using AFISNET and CAFSAT legs.

[3] The working group on NAFISAT is composed of Kenya, ICAO and IATA.

AFI RATIONALIZED AFTN – IMPLEMENTATION REQUIREMENTS/RSFTA RATIONALISE – BESOINS DE MISE EN OEUVRE

Explanation of the table/Explication du tableau

Col. No.	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 (e.g. cable, microwave/*circuit télétype terrestre, numérique (i.e. câble, faisceau hertzien)* LDD/A - landline data circuit, analogue (e.g. cable, microwave/*circuit de données terrestre, analogue (i.e. câble, faisceau hertzien)* LDD/D - landline data circuit, digital (e.g. 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/Rapidité *de modulation 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)/*Code alphabétique* ITA-2: International Telegragh Alphabet No.2/*Alphabet international No.2* IA-5: International Alphabet No.5/*Alphabet international No.5*
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*

AFI AFTN RATIONALIZED PLAN - IMPLEMENTATION REQUIREMENTS

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ADDIS ABABA													Addis centre can accommodate X25
Asmara	T	NIL					SAT/D	1200	X25	ITA-2	AFTN		NAFISAT
Djibouti	T	LTT	50	NONE	ITA-2	AFTN	SAT/D	1200	X25	ITA-2	AFTN		NAFISAT
Khartoum	T	NIL					SAT/D	1200	X25	ITA-2	AFTN		NAFISAT
Nairobi	M	SAT/A	50	NONE	ITA-2	AFTN	SAT/D	1200	X25	IA-5	AFTN		ISDN to explore
Niamey	M	SAT/A	50	TTY	ITA-2	AFTN	SAT/D	1200	X25	IA-5	AFTN		
MID (Jeddah)	M	SAT/A	50	A	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		ISDN to explore
ALGER													
Casablanca	M	SAT/A	50	NONE	ITA-2	AFTN	LTT/A	1200	X.25	IA-5	AFTN		
Niamey	M	NIL				AFTN	LTT	1200	X.25	IA-5	AFTN		
Tunis	M	SAT/A	1200		ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		
EUR (Bordeaux)	M	SAT/A	1200		ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
BRAZZAVILLE													
Bangui	T	SAT/D	1200	X.25	ITA-2	AFTN	SAT/D	1200	X25	ITA-2	AFTN		
Dakar	M	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	X-25	IA-5	AFTN		
Douala	T	SAT/D	1200	X.25	ITA-2	AFTN	SAT/D	1200	X.25	ITA-2	AFTN		
Kinshasa	T	MW/V	50	TTY	ITA-2	AFTN	LTT/D	50	TTY	ITA-2	AFTN		
Johannesburg	M	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		
Libreville	T	SAT/D	2400	X25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Luanda	T	NIL					SAT/D	1200	X.25	ITA-2	AFTN		
Nairobi	M	NIL					SAT/D	1200	X.25	IA-5	AFTN		Nairobi/ Dakar/ Brazzaville
N'Djamena	T	SAT/D	2400	X25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Niamey	M	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Sao Tome	T	NIL				AFTN	SAT/D	1200	X.25	ITA-2	AFTN		
CAIRO													
Khartoum	T	SAT/A	50	TTY	ITA-2	AFTN	SAT/D	300	TTY	ITA-2	AFTN		To coordinate with Khartoum

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
													Khartoum
Nairobi	M	SAT/A	50	TTY	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		9600 bps proposed by Egypt
Tunis	M	SAT/A	100	NONE	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		CIDIN
EUR(Athens)	M	SAT/D	9600	CIDIN	IA-5	AFTN	SAT/D	9600	CIDIN	IA-5	AFTN		
MID(Beirut)	M	SAT/D	9600	CIDIN	IA-5	AFTN	SAT/D	9600	CIDIN	IA-5	AFTN		
MID(Jeddah)	M	SAT/D	9600	CIDIN	IA-5	AFTN	SAT/D	9600	CIDIN	IA-5	AFTN		
CASABLANCA													
Dakar	M	LTT/A	2X75		ITA-2	AFTN	SAT/D	2400	TTY/FR	IA-5	AFTN		
Las Palmas	T	LTT/A	50		ITA-2	AFTN	LTT/A	50	CIDIN	IA-5	AFTN		
EUR(Madrid)	M	SAT/A	4800 50+1X200	CIDIN AFTN	IA-5	AFTN	SAT/D	4800	CIDN	IA-5	AFTN		
DAKAR													
Abidjan	T	SAT/D	2400	X-25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Bamako	T	SAT/D	2400	X-25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Banjul	T	LLT	75	TTY	ITA-2	AFTN	LTT/D	2400	X.25	ITA-2	AFTN		
Bissau	T	NIL					SAT/D	2400	X-25	ITA-2	AFTN		

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Johannesburg	M	LTT	2400	TTY	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Niamey	M	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Nouakchott	T	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Conakry (Robertsfiield)	T	SAT	2400	TTY	IA-5	AFTN	SAT/D	2400	TTY	IA-5	AFTN		
Sal	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	2400	X-25	IA-5	AFTN		
SAM(RIO)	M	SAT	2400	TTY	IA-5	AFTN	SAT/D	2400	TTY	IA-5	AFTN		
JOHANNES-BURG													X25 planned/ IA-5 capable
Antananarivo	T	NIL				AFTN	SAT/D	1200	TTY	IA-5	AFTN		
Beira	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Bujumbura	T	NIL					SAT/D	1200	TTY	ITA-2	AFTN		VSAT planned
Gaborone	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Harare	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Kigali	T	NIL					SAT/D	1200	TTY	ITA-2	AFTN		
Lilongwe	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Lusaka	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Maputo	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Maseru	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Manzini	T	LTT/A	1200	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		
Nairobi	M	LTT/A	50	TTY	ITA-2	AFTN	SAT/D	1200	X.25	ITA-2	AFTN		
Windhoek	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	NONE	ITA-2	AFTN		
ASIA/PAC (Brisbane)	M	NIL					SAT/D	1200	X.25	IA-5	AFTN		
SAM (Buenos Aires)	M	NIL					SAT/D	1200	X.25	IA-5	AFTN		
NAIROBI													
Dar es Salaam	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
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/A	50	TTY	ITA-2	AFTN	SAT/D	2400	X.25	IA-5	AFTN		ACCRA X25 TBC
Kano	T	SAT/D	50	TTY	ITA-2	AFTN	SAT/D	2400	X25	IA-5	AFTN		
N'Djamena	T	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Ouagadougou	T	SAT/D	2400	X25	IA-5	AFTN	SAT/D	2400	X25	IA-5	AFTN		
TUNIS													
Tripoli	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	50	NONE	ITA-2	AFTN		TBC with TUNIS
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	2400	X25	IA-5	AFTN		
Lome	S	LTT/A	50	TTY	ITA-2	AFTN	LTT/A	2400	X25	IA-5	AFTN		
ANTANANARIVO													

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Dzaoudzi	S	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
Mauritius	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	2400	TTY	IA-5	AFTN		
Moroni	S	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	2400	TTY	IA-5	AFTN		
DOUALA													
Malabo	S	SAT/D	1200	X25	IA-5	AFTN	SAT/D	1200	X.25	IA-5	AFTN		
KANO													
Lagos	S	SAT/A	50	NONE	ITA-2	AFTN	SAT/D	2400	X25	IA-5	AFTN		
LAGOS													
Cotonou	S	LTT/A	50	NONE	ITA-2	AFTN	SAT/D	2400	X.25	IA-5	AFTN		
MAURITIUS													
Saint Denis	S	SAT/D	2400	TTY	IA-5	AFTN	SAT/A	2400	TTY	IA-5	AFTN		
ASIA/PAC (Brisbane)	T	SAT/A	50	TTY	ITA-2	AFTN							To maintain until operation of J'Burg /ASIA/PAC
Johannesburg	T	SAT/D	1200	TTY	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		

Terminal I/ Terminal II	Circuit category/ Catégorie de circuit	Current/Existant					Planned/Prévu					Target date of implem.entation/ Date cible de mise en oeuvre	Remarks/ Observations
		Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau	Circuit type/ Type de circuit	Modulation rate/ Rapidité de modulation (bps)	Prot.	Code	Network / Réseau		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Conakry													
Robertsfield	S	SAT/D	1200	X25	IA-5	AFTN	SAT/D	1200	X25	IA-5	AFTN		
Freetown	S	SAT/D	1200	X25	IA-5	AFTN	SAT/D	1200	X25	IA-5	AFTN		

INSTRUCTIONS FOR USE OF THE
AFTN TRANSIT TIME STATISTICS FORM
23 January/April/July/October

Transit time statistics should be computed for the messages received by a station
During the 24-hour period of 230001 - 240001 of the month.

Column 1: Insert the ICAO Location Indicators of the AFTN station where the received message was originally filed for transmission.

Column 2: Show the Location Indicator of the station that actually transmitted the message to your station. In the case of direct circuits, the entry in Col. 2 would, therefore, be identical with the entry in Col. 1. Where traffic originating at a point is received over different routes, e.g. instances where alternate routing has been used, a separate entry should be made for each route.

Columns 3 and 4: In Col. 4 enter the total number of messages received from the Station of Origin during the 24-hour period covered by the Form for each Priority Group. Separate figures are to be shown to indicate the message classifications listed in Col. 3, viz. Priorities FF and higher, and Priority GG.

Column 5: Show the ICAO recommended transit times against each priority classification.

Column 6: The highest actual transit times experienced in respect of each priority classification are to be entered. Each time is found by examining the time interval between time of filing and time of delivery of each message in each priority classification, discarding the 5% having the highest transit time and then recording the highest transit time for the remaining 95% of the messages in each priority classification.

Example: If during the 24-hour period, 100 messages are received in each category (FF and higher, and GG) then for each category reject the five highest transit times. Of the remaining 95 messages, select the highest transit time - this is the figure to be shown in Col. 6 in respect the appropriate priority classification.

Column 7: Following the removal of 5% of messages in each priority classification having the highest transit time, the median time achieved for the remaining 95% of messages in each priority classification is to be recorded in this column.

Median transit time is defined as follows:

When the achieved transit time in any one category of messages are arranged in a sequential descending order, the median transit time for that group is the one achieved by the message which has as many messages above as there are below, after rejecting five percent of highest transit times.

Example: If there are 60 messages in a 24-hur period in any one category, arrange their achieved transit times in a descending order. Reject three (5%) messages with the highest transit times. The median transit time value for that group is the one achieved by the 29th message, which ha 28 messages above and 28 messages below it.

Column 8: Following the removal of 5% of the total messages in each priority classification having the highest relay time, the highest relay time for the remaining 95% of messages in each priority classification be recorded in Col. 7. Relay time of the addressee station is contained in paragraphs 3.1.60 and 3.1.61 of Doc 8259.

Column 9: Enter any appropriate observations noted regarding circuit operations, (for example, peak load periods, circuit failures, etc.), that are of relevance in respect of the Transit Time Statistics recorded in the Form.

AFTN TRANSIT TIME STATISTICS
TRAFFIC (CLASS A) RECEIVED FOR LOCAL DELIVERY

STATION (Location Indicator): ……(Month)…….(Year)

Location indicators		Message Priority Grouping	Total Number of messages for each Priority Group	Transit Time prescribed by ICAO	Highest Transit Time Experienced	Median Transit Time Achieved	Maximum Relay Time Experienced	Remarks
Station of Origin	Last Relay centre Received from							
1	2	3	4	5	6	7	8	9
			FF and higher GG FF and higher GG FF and higher GG					

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE AFI AERONAUTICAL TELECOMMUNICATION NETWORK PLANNING TASK FORCE

(ATN/TF)

TERMS OF REFERENCE

To plan for the implementation of the aeronautical telecommunication network (ATN) in the AFI Region in order to meet CNS/ATM system performance requirements and capacity.

WORK PROGRAMME

TASK No.	SUBJECT	TARGET DATE
1	Refinement of the ATN routing architecture	APIRG/15
2	Description of the ATN ground-ground applications (AMHS, AIDC)	APIRG/15
3	Preparation of an ATN addressing plan	APIRG/15
4	Preparation of an AMHS naming and addressing plan	APIRG/15
5	Preparation of guidance material to assist States, as necessary	APIRG/15
6	Update of the guidelines on ATN in the CNS/ATM Implementation Plan (Doc 003)	APIRG/15
7	Formulation of proposals to achieve the interoperability of existing VSAT networks	APIRG/15

COMPOSITION

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

List of AFTN Deficiencies

StateName	*Requirements*	*Facilities or Services*	*Description of Deficiency*	*Date first reported*	*Comments on Deficiency*	*Description of Corrective action*	*Executing Body*	*Target date for implement*	*Priority*
Algeria									
	AFTN Plan, AFI Rec. 9/7	Algiers AFTN Centre	Main circuit Algiers/Niamey	1998	Unreliable	VSAT being implemented	Algeria, ASECNA	2002	U
Angola									
	AFTN Plan, AFI Rec. 9/7	Luanda AFTN centre	Circuit Luanda/Brazzaville	1998	Not implemented	To implement VSAT	Angola, ASECNA		U
Burundi									
	AFTN Plan, AFI Rec. 9/7	Bujumbura AFTN Centre	Circuit Bujumbura/Johannesburg	2002	Not implemented	VSAT being implemented	Burundi, South	2003	U
Congo									
	AFTN Plan, AFI Rec. 9/7	Brazzaville AFTN centre	Circuit Brazzaville/Luanda	1998	Not implemented	To implement VSAT	ASECNA, Angola		A
	AFTN Plan, AFI Rec. 9/7	Brazzaville AFTN centre	Main circuit Brazzaville/Nairobi	1998	Not implemented	Implementation through public data networks in discussion	ASECNA, Kenya		U
	AFTN Plan, AFI Rec. 9/7	Brazzaville AFTN centre	Circuit Brazzaville/Sao Tome	1998	Not implemented	VSAT to be installed at Sao Tome by Ghana CAA	ASECNA, Sao Tome & Principe, Ghana	2003	U
Equatorial Guinea									
	AFTN Plan, AFI Rec. 9/7	Malabo AFTN centre	Circuit Malabo/Bata	2001	Bata has no AFTN connection	VSAT planned	ASECNA	2003	U
Eritrea									
	AFTN Plan, AFI Rec. 9/7	Asmara AFTN centre	Circuit Asmara/Addis Ababa	1998	The circuit has been disconnected	To be restored	Eritrea, Ethiopia		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Ethiopia									
	AFTN Plan, AFI Rec. 9/7	Addis Ababa AFTN centre	Circuit Addis Ababa/Asmara	1998	This circuit has been disconnected	To be restored	Ethiopia, Eritrea		U
	AFTN Plan, AFI Rec. 9/7	Addis Ababa AFTN centre	Circuit Addis Ababa/Khartoum	1996	Not implemented	VSAT NAFISAT in project	Ethiopia, Sudan		A
Guinea Bissau									
	AFTN Plan, AFI Rec. 9/7	Bissau AFTN centre	Circuit Bissau/Dakar	1998	Not implemented	VSAT planned	ASECNA, Guinea Bissau		U
Kenya									
	AFTN Plan, AFI Rec. 9/7	Nairobi AFTN centre	Main circuit Nairobi/Brazzaville	1998	Not implemented	Implementation through public data networks in discussion	Kenya, ASECNA		U
Niger									
	AFTN Plan, AFI Rec. 9/7	Niamey AFTN centre	Main circuit Niamey/Algiers	1998	Unreliable	VSAT being implemented	ASECNA, Algeria	2002	U
Rwanda									
	AFTN Plan, AFI Rec. 9/7	Kigali AFTN centre	Circuit Kigali/Johannesburg	2002	Not implemented	VSAT being considered	Rwanda, South	June 2003	U
Sao Tome & Principe									
	AFTN Plan, AFI Rec. 9/7	Sao Tome AFTN centre	Circuit Sao Tome/Brazzaville	1998	Not implemented	VSAT to be installed at Sao Tome by Ghana CAA	Sao Tome & Principe, ASECNA, Ghana	2003	U
Senegal									
	AFTN Plan, AFI Rec. 9/7	Dakar AFTN centre	Circuit Dakar/Bissau	1998	Not implemented	VSAT planned	ASECNA, Guinea Bissau		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
South Africa									
	AFTN Plan, AFI Rec. 9/7	Johannesburg AFTN centre	Inter-regional circuit Johannesburg/SAM (Buenos Aires)	1996	Not implemented	CAFSAT VSAT being implemented in Johannesburg	South Africa, Argentina	2003	U
	AFTN Plan, AFI Rec. 9/7	Johannesburg AFTN centre	Inter-regional circuit Johannesburg/ASIA/ PAC (Australia)	2002	Not implemented	Awaiting designation of entry/exit point in ASIA/PAC	South Africa, Australia		U
	AFTN Plan, AFI Rec. 9/7	Johannesburg AFTN centre	Circuit Johannesburg/Bujum bura	2002	Not implemented	VSAT being implemented	South Africa,	2003	U
	AFTN Plan, AFI Rec. 9/7	Johannesburg AFTN centre	Circuit Johannesburg/Kigali	2002	Not implemented	VSAT being considered.	South Africa,		U
Sudan									
	AFTN Plan, AFI Rec. 9/7	Khartoum AFTN centre	Circuit Khartoum/Addis Ababa	1996	Not implemented	VSAT NAFISAT in project	Ethiopia, Sudan		A

List of ATS/DS Deficiencies

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Algeria									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Algiers ACC-FIC	Circuit Algiers/Dakar	1998	PSTN in use	VSAT being implemented	Algeria, ASECNA	2002	A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Algiers ACC-FIC	Circuit	1998	To be improved	VSAT being implemented	Algeria, ASECNA	2002	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Algiers ACC-FIC	Circuit Algiers/Tripoli			Implement LTF circuit	Algeria, Libya		U
Angola									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Luanda FIC	Circuit Luanda/Accra	1998	Inmarsat phone used from Luanda. Inmarsat Phone also available in Accra	VSAT under consideration	Angola, Ghana		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Luanda FIC	Circuit Luanda/Atlantico	1998	Not implemented	Implement circuit	Angola, Brazil		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Luanda FIC	Circuit Luanda/Brazzaville	1998	PSTN used via Inmarsat	To implement LTF circuit	Angola, ASECNA		A
Botswana									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Francistown TWR	Circuit Francistown/Bulawayo	2002	Proposal for deletion with States		Botswana,		A
Burkina Faso									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bobo Dioulasso	Circuit Bobo Dioulasso/Accra	1998	PSTN in use	VSAT planned by ASECNA	ASECNA, Ghana	2002	A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Ouagadougou APP	Circuit Ouagadougou/Accra	1998	PSTN in use	To implement LTF circuit using existing VSATs in Accra and Ougadougou. Digitalization of VSAT in progress at Accra.	ASECNA, Ghana	2003	A

	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Ouagadougou APP	Circuit Ouagadougou/Niamtougou	2002	Not implemented	VSAT planned by Ghana CAA at Niamtougou	ASECNA, Togo, Ghana	B
Burundi								
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bujumbura APP	Circuit Bujumbura/Dar es Salaam	1998	Not implemented	VSAT being implemented at Bujumbura	Burundi, Tanzania 2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bujumbura APP	Circuit Bujumbura/Goma	1998	Not implemented		Burundi, DR Congo	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bujumbura APP	Circuit Bujumbura/Kigali	2002	Not implemented	VSAT under consideratiion	Burundi, Rwanda	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bujumbura APP	Circuit Bujumbura/Kinshasa	1998	Not implemented	VSAT being implemented at Bujumbura	Burundi, DR Congo 2003	U
Cameroon								
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Douala APP	Circuit Douala/Bata	1998	Not implemented	VSAT planned at Bata	ASECNA	A
Central African Republic								
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bangui APP	Circuit Bangui/Gbadolite	1998	Not implemented	Could be implemented via Brazzaville if a circuit Kinshasa/Gbadolite	ASECNA, DR Congo	A
Chad								
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	N'Djamena APP/FIC	Circuit N'Djamena/Khartoum	1998	Not implemented	PSTN proposed by ASECNA.	ASECNA, Sudan	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	N'Djamena APP/FIC	Circuit N'Djamena/Tripoli	1998	Not implemented	PSTN and Satphone proposed by ASECNA	ASECNA, Libya	U
Congo								
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Brazzaville APP/FIC	Circuit Brazzaville/Khartoum	1998	Not implemented	VSAT AFISNET proposed by ASECNA	ASECNA, Sudan	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Brazzaville APP/FIC	Circuit Brazzaville/Luanda	1998	PSTN used via Inmarsat phone	To implement LTF circuit	Angola, ASECNA	U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Brazzaville APP/FIC	Circuit Brazzaville/Sao Tome	1998	Not implemented	VSAT to be installed by Ghana CAA at Sao Tome	ASECNA, Sao Tome & Principe, Ghana	2003	U
Dem. Rep. of Congo									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bukavu TWR	Circuit Bukavu/Kigali	1996	Not implemented		DR Congo, Rwanda		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Gbadolite TWR	Circuit Gbadolite/Bangui	2002	Not implemented	Could be implemented via Brazzaville if a circuit Kinshasa/Gbadolite	DR Congo, ASECNA		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Goma APP	Cicuit Goma/Bujumbura	1998	Not implemented		DR Congo, Burundi		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Goma APP	Circuit Goma/Kigali	1998	Not implemented		DR Congo, Rwanda		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kinshasa FIC	Circuit Kinshasa/Bujumbura	2002	Not implemented	VSAT being implemented in Bujumbura	DR Congo, Burundi	2003	A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kinshasa FIC	Circuit Kinshasa/Entebbe	1996	Not implemented	VSAT NAFISAT in project	DR Congo, Uganda		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kinshasa FIC	Circuit Kinshasa/Khartoum	1996	Inmarsat phone available at Kinshasa	VSAT NAFISAT in project	DR Congo, Sudan		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kinshasa FIC	Circuit Kinshasa/Kigali	1996	Not implemented	VSAT SADC operational in Kinshasa, also in project in Rwanda	DR Congo, Rwanda		U
Djibouti									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Djibouti APP	Circuit Djibouti/Hargeisa	1996	Not implemented	To implement LTF circuit	Djibouti, Somalia		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Djibouti APP	Circuit Djibouti/Dire Dawa	1996	Not implemented	To implement LTF circuit	Djibouti, Ethiopia		A

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Egypt									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Cairo ACC	Circuit Cairo/Khartoum	1996	Not implemented	LTF circuit via PTTs proposed by Egypt until VSAT NAFISAT implemented.	Egypt, Sudan		U
Equatorial Guinea									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bata & Malabo APP	Circuit Bata/Malabo	2002	Not implemented	VSAT planned	ASECNA		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bata APP	Circuit Bata/Douala	1996	Not implemented	VSAT planned	ASECNA		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bata APP	Circuit Bata/Libreville	1996	Not implemented	VSAT planned	ASECNA		U
Eritrea									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Asmara ACC	Circuit Asmara/AddisAbaba	1998	This circuit has been disconnected	To be restored	Eritrea, Ethiopia		U
Ethiopia									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Addis Ababa ACC/FIC	Circuit Addis Ababa/Asmara	1998	This circuit has been disconnected	To be restored	Ethiopia, Eritrea		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Dire Dawa TWR	Circuit Dire Dawa/Djibouti	1996	Not implemented	Implement LTF circuit	Ethiopia, Djibouti		U
Gabon									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Libreville ACC	Circuit Libreville/Bata	1996	Not implemented	VSAT planned at Bata	ASECNA		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Libreville ACC	Circuit Libreville/Sao Tome	1996	Not implemented	VSAT to be installed by Ghana CAA at Sao Tome	ASECNA, Sao Tome & Principe, Ghana	2003	U
Gambia									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Banjul APP	Circuit Banjul/Bissau	1996	Not implemented	VSAT being considered	Gambia/Guinea Bissau		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Ghana									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Accra APP/FIC	Circuit Accra/Bobo Dioulasso	1998	PSTN in use	VSAT planned at Bobo Dioulasso	Ghana, ASECNA		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Accra APP/FIC	Circuit Accra/Lome	2002		VSAT planned	Ghana, ASECNA	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Accra APP/FIC	Circuit Acrra/Luanda	1998	Inmarsat phone used fromLuanda. Inmarsat also available in Accra	VSAT under consideration	Ghana, Angola		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Accra APP/FIC	Circuit Accra/Niamtougou	2002	Not implemented	VSAT planned at Niamtougou by Ghana CAA	Ghana, Togo		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Accra APP/FIC	Circuit Accra/Ougadougou	1998	PSTN in use	Implement LTF circuit using existing VSATs in Accra and Ouagadougou	Ghana, ASECNA	2003	A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Accra APP/FIC	Circuit Accra/Sao Tome	1996	Not implemented	VSAT planned at Sao Tome by Ghana CAA	Ghana, Sao Tome & Principe	2003	U
Guinea									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Conakry APP	Circuit Conakry/Bissau	1996	Not implemented	Implement LTF circuit	Guinea, Guinea Bissau		U
Guinea Bissau									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bissau APP	Circuit Bissau/Banjul	1996	Not implemented	VSAT being considered	Gambia, Guinea Bissau		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bissau APP	Circuit Bissau/Conakry	1996	Not implemented	Implement LTF circuit	Guinea, Guinea Bissau		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bissau APP	Circuit Bissau/Dakar	1996	Not implemented	VSAT being considered	ASECNA, Guinea Bissau		U
Kenya									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Mombasa APP	Circuit Mombasa/Dar es Salaam	1996	Unreliable	Improve the circuit	Kenya, Tanzania		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Mombasa APP	Circuit Mombasa/Kilimanjaro	1996	Not implemented	Implement LTF circuit	Kenya, Tanzania		U
Libya									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Tripoli ACC/FIC	Circuit Tripoli/Algiers	1998	Not implemented	Implement LTF circuit. Algiers to contact PTT Libya.	Libya, Algeria		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Tripoli ACC/FIC	Circuit Tripoli/Khartoum	1998	Not implemented	VSAT NAFISAT in project.	Libya, Sudan	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Tripoli ACC/FIC	Circuit Tripoli/Niamey	1998	Not implemented	Implement LTF circuit.	Libya, ASECNA	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Tripoli ACC/FIC	Circuit Tripoli/N'Djamena	1998	Not implemented	VSAT NAFISAT in project. PSTN and Satphone proposed by ASECNA	Libya, ASECNA	2003	U
Mali									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bamako APP	Circuit Bamako/Gao	1996	Not implemented	Implement LTF circuit	Mali		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bamako APP	Circuit Bamako/Mopti	1996	Not implemented	Implement LTF circuit	Mali		B

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Gao APP	Circuit Gao/Mopti	2002	Not implemented	Implement LTF circuit	Mali		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Gao APP	Circuit Gao/Niamey	1996	Not implemented	Implement LTF circuit	Mali, ASECNA		B
Niger									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Niamey ACC/FIC	Circuit Niamey/Algiers	1998	To be implemented	VSAT being considered at Algiers	ASECNA, Algeria	2002	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	niamey ACC/FIC	Circuit Niamey/Gao	2002	Not implemented	Implement LTF circuit	ASECNA, Mali		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Niamey ACC/FIC	Circuit Niamey/Tripoli	1998	Not implemented	Implement LTF circuit	ASECNA, Libya		U
Rwanda									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kigali APP	Circuit Kigali/Bujumbura	2002	Not implemented	VSAT in consideration	Rwanda, Burundi	June 2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kigali APP	Circuit Kigali/Bukavu	1996	Not implemented		Rwanda, DR Congo		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kigali APP	Circuit Kigali Dar es Salaam	1996	Not implemented	VSAT SADC operational in Dar es Salaam, also being considered in Kigali	Rwanda, Tanzania	June 2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kigali APP	Circuit Kigali/Goma	1996	Not implemented		Rwanda, DR Congo		A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kigali APP	Circuit Kigali/Kinshasa	1996	Not implemented	VSAT SADC operational in Kinshasa, also in project in Kigali	Rwanda, DR Congo		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Sao Tome & Principe									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Sao Tome TWR	Circuit Sao Tome/Accra	1998	Not implemented	VSAT to be installed at Sao Tome by Ghana CAA	Sao Tome & Principe, Ghana	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Sao Tome TWR	Circuit Sao Tome/Brazzaville	1998	Not implemented	VSAT to be installed at Sao Tome by Ghana CAA	Sao Tome & Principe, ASECNA, Ghana	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Sao Tome TWR	Circuit Sao Tome/Libreville	1998	Not implemented	VSAT to be installed at Sao Tome by Ghana CAA	Sao Tome & Principe, ASECNA, Ghana	2003	U
Senegal									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Dakar ACC/FIC	Circuit Dakar/Algiers	1998	PSTN in use	VSAT planned	ASECNA, Algeria	2002	A
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Dakar ACC/FIC	Circuit Dakar/Bissau	1998	Not implemented	VSAT being considered	ASECNA, Guinea Bissau		U
Seychelles									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Seychelles ACC/FIC	Circuit Seychelles/Dar es Salaam	1998	Not implemented	Implement LTF circuit	Seychelles,		U
Somalia									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Hargeisa APP	Circuit Hargeisa/Djibouti	1998	Not implemented	Implement LTF circuit	Somalia, Djibouti		B
South Africa									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Durban APP	Circuit Durban/Manzini	2002	Requirement to be confirmed	South Africa agrees to deletion of circuit from Plan	South Africa, Swaziland		A

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Johannesburg ACC/FIC	Circuit Johannesburg/Brasilia	1998	Not implemented	CAFSAT VSAT to be implemented in Johannesburg	South Africa, Brasil	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Johannesburg ACC/FIC	Circuit Johannesburg/Ezeiza	1998	Not implemented	CAFSAT VSAT to be implemented in Johannesburg. Circuit to be switched through	South Africa, Argentina	2003	U
Sudan									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Khartoum FIC	Circuit Khartoum/Brazzaville	1996	Not implemented	VSAT AFISNET proposed by ASECNA	Sudan, ASECNA		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Khartoum FIC	Circuit Khartoum/Cairo	1996	Not implemented	LTF circuit via PTTs proposed by Egypt until implememtation of VSAT NAFISAT	Egypt, Sudan	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Khartoum FIC	Circuit Khartoum/Jeddah	1996	Not implemented	LTF circuit planned	Sudan, Saudi Arabia	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Khartoum FIC	Circuit Khartoum/Kinshasa	1996	Not implemented	VSAT NAFISAT in project	Sudan, DR Congo		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Khartoum FIC	Circuit Khartoum/N'djamena	1996	Not implemented	VSAT NAFISAT in project. PSTN proposed by ASECNA	Sudan, ASECNA		U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Khartoum FIC	Circuit Khartoum/Tripoli	1996	Not implemented	VSAT NAFISAT in project	Sudan, Libya		U
Swaziland									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Manzini APP	Circuit Manzini/Durban	2002	Requirement to be confirmed	South Africa agrees to deletion of circuit from Plan	Swaziland, South Africa		A

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Tanzania									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Dar es Salaam ACC/FIC	Circuit Dar es Salaam/Bujumbura	1996	Not implemented	VSAT being implemented at Bujumbura	Burundi, Tanzania	Dec 2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Dar es Salaam ACC/FIC	Circuit Dar es Salaam/Kigali	1996	Not implemented	VSAT being considered	Rwanda, Tanzania	Dec 2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Dar es Salaam ACC/FIC	Circuit Dar es Salaam/Seychelles	2002	Not implemented	PSTN used.VSAT being considered.	Tanzania,	Dec 2004	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Kilimanjaro APP	Circuit Kilimanjaro/Mombasa	1996	Coordination through Nairobi	Implement circuit	Kenya, Tanzania	Dec 2003	U
Togo									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Lome APP	Circuit Lome/Accra	2002	Unreliable		ASECNA, Ghana	2003	U
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Lome APP	Circuit Lome/Niamtougou	2002	Not implemented	VSAT planned at Niamtougou by Ghana CAA	Togo, Ghana		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Niamtougou TWR	Circuit Niamtougou/Accra	1996	Not implemented	VSAT planned at Niamtougou by Ghana CAA	Togo, Ghana		B
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Niamtougou TWR	Circuit Niamtougou/Ouagadougou	2002	Not implemented	VSAT planned at Niamtougou by Ghana CAA	Togo, ASECNA, Ghana		B
Uganda									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Entebbe ACC/FIC	Circuit Entebbe/Kinshasa	1996	Not implemented	VSAT NAFISAT in project	DR Congo, Uganda		U
Zimbabwe									
	ATS Direct Speech Circuits Plan, AFI/7 Rec. 9/9	Bulawayo TWR	Circuit Bulawayo Francistown	2002	Proposal for deletion with States		Zimbabwe,		A

Agenda Item 5: Review of the implementation and performance of the Aeronautical mobile service (AMS)

Identification of deficiencies

5.1 The Communications Sub-group reviewed the implementation and performance of the aeronautical mobile service in the AFI Region, and identified deficiencies still to be resolved in this field. The updated list of AMS deficiencies is shown at **Appendix 5A** to this part of the Report. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/17 : ELIMINATION OF AMS DEFICIENCIES

That, as a matter of urgency, States mentioned in the list of AMS deficiencies at Appendix 5A to this part of the report should implement available solutions for the elimination of reported deficiencies.

Extension of VHF coverage

5.2 The Communications Sub-group acknowledged the efforts made by a number of States to extend VHF coverage on ATS routes using remote VHF stations, in accordance with AFI/7 Recommendation 5/12. It particularly noted recent achievements in the following FIRs:

FIR Antananarivo: two (2) remote VHF stations implemented at Antsiranana (12°21'S/049°18'E) and at Toliara (23°23'S/043°44'E), both stations having a range of 200 NM and covering up to FL 460.

FIR Dakar: two (2) relay stations implemented at Tambacounda (14°44'N/013°39'W) and at Atar (Mauritania) (20°30'N/013°03'W), with a range of 240 NM and up to FL460.

FIR Mauritius: four (4) remote stations implemented at Agalega Island (10°22'S/56°36'E), Brandon Atoll, Mauritius (20°26'S/57°41'E) and Rodrigues Island (19°45S/06°321E). The range of each station is 240NM.

FIR Niamey: a VHF station implemented at Bobo Dioulasso (11°10'N/004°19'W) with a range of 240 NM and up to FL460.

5.3 The Communications Sub-group also noted planned VHF relay stations in FIRs Brazzaville, Dakar Oceanic, Dar es Salaam, Entebbe, Luanda, Lusaka, Lilongwe, N'djamena and Niamey, and recognized that significant progress and improved AMS services can be achieved if all projects are implemented.

5.4 The Communications Sub-group was of the view that the Secretariat should monitor the extension of VHF radio coverage in the Region, and coordinate the edition of a map thereof. For that purpose, States not having done so were therefore requested to provide the Secretariat with relevant information concerning their VHF stations, by indicating for each existing/planned station: the FIR, frequency, geographical coordinates, coverage range, implementation date, and FIR sector covered/to be covered. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/18 : EXTENSION OF VHF RADIO COVERAGE

That :

a) States which have not done so, communicate to relevant ICAO Regional Offices exhaustive data on their remote VHF stations implemented/to be implemented in accordance to AFI/7 Recommendation 5/12 (for each station : FIR, frequency, geographical coordinates, coverage range, implementation date, sector covered) ; and

b) The Secretariat coordinate the edition of a map on VHF coverage in the AFI Region.

Investigations on operators deficiency reports

5.5 The Communications Sub-group was informed of deficiency reports which the Secretariat receives at times from users, particularly the Flight Safety Unit of SAA, these being usually copied to the concerned CAA. It therefore encouraged States to investigate diligently and provide feedback to all addressees of such deficiency reports, and designate focal points to reply to users deficiency reports related to communications. States were also invited to issue a NOTAM whenever a given communication facility is not fully operational.

Results from the IFALPA survey on AMS communications

5.6 The Communications Sub-group was presented with the results of a one – year survey carried out by IFALPA on AMS communications (VHF, HF), compiled from 200 'Deficiency Forms'[1] (DFs) over the period from October 2001 to September 2002. All received deficiency forms are processed at IFALPA and original forms are copied and sent to ICAO and IATA regional offices in Dakar and Nairobi, and are thus made available to all interested parties. The Sub-group encouraged and congratulated IFALPA for its initiative, a valuable contribution in monitoring AMS communications in the AFI Region. In substance, the results showed a definite improvement when comparing this year's survey with previous years, especially a relative reduction in the use of HF in certain FIRs, though there still exists a need to use HF for en-route communications.

[1] The use of IFALPA DF by airline crews operating into and over AFI has made it possible to submit to ICAO and States the actual state of affairs when engaged in flying over Africa. The DF survey runs through the overflying phase, looking at serviceability of navigational aids, and whether, in case of unserviceability such unserviceability is NOTAMed, also looking at the quality of communications, to the approach phase taking into account approach and tower communications, approach aids serviceability, etc.

List of AMS Deficiencies

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Angola									
	AMS AFI/7 Rec. 9/12	Luanda ACC	Inadequate VHF coverage of busy ATS routes	1998	Implement remote VHF stations	5 VHF stations to be installed by the end of 2001	ENANA		U
Congo									
	AMS AFI/7 Rec. 9/12	Brazzaville ACC	Inadequate VHF coverage of busy ATS routes	1998		ER VHF installation in progress	ASECNA		U
Dem. Rep. of Congo									
	AMS AFI/7 Rec. 9/12	Kinshasa FIR	Inadequate VHF coverage of busy ATS routes	1998		Extend VHF to all upper routes. Extended VHF coverage planned.	DR Congo		U
	AMS AFI/7 Rec. 9/12	Kinshasa FIR	HF poor quality. Selcal not available	1998		Improve installations	DR Congo		U
Malawi									
	AMS AFI/7 Rec. 9/12	FIR Lilongwe	VHF coverage incomplete	2001	Install additional VHF relay stations	Extend VHF	Malawi		U
Mozambique									
	AMS AFI/7 Rec. 9/12	Beira FIR	VHF coverage incomplete	2002	Install additional VHF relay stations	Extend VHF	Mozambique		U
Nigeria									
	AMS AFI/7 Rec. 9/12	Lagos TWR	No back-up radio	1998		To implement back-up radio	Nigeria	28/11/2002	U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Somalia									
	AMS AFI/7 Rec. 9/12	Mogadishu ACC	Lack of VHF coverage of busy ATS routes	1998		Install VHF relays	Somalia		U
Sudan									
	AMS AFI/7 Rec. 9/12	Khartoum FIR	Inadequate VHF coverage of busy ATS routes	1998		VSAT remote VHF stations in tests	Sudan		U

Agenda Item 6: Aeronautical radio navigation service (ARNS)

6.1 Under this Agenda Item, the Communications Sub-group reviewed progress made in aeronautical radio navigation service (ARNS) since its last meeting (COM/SG/5) and APIRG/13, and updated the list of deficiencies in this field as shown in **Appendix 6A** to this part of the Report.

6.2 The Communications Sub-group noted that 37[1] radio navigational facilities required in the AFI air navigation plan are still to be implemented - most of them being intended for en-route operations. It also pointed out situations where unimplemented or unserviceable ARNS facilities tend to be reported in the list of deficiencies on a nearly permanent basis.

6.3 The following draft Conclusion was formulated accordingly:

Draft Conclusion 6/19 : Elimination of ARNS deficiencies

That, as a matter of urgency:

a) States mentioned in the list of deficiencies in aeronautical radio navigation service (ARNS) at Appendix 6A to this part of the Report should implement available solutions for the elimination of reported deficiencies; and

b) The Secretariat examine with States concerned cases where radio navigation aids required in the AFI ANP have not yet been implemented and tend to permanently be reported in the list of deficiencies.

[1] Not to mention 9 radio navigational aids which have been reported unserviceable for relatively long periods.

Agenda Item 6: Aeronautical radio navigation service (ARNS)

6.1 Under this Agenda Item, the Communications Sub-group reviewed progress made in aeronautical radio navigation service (ARNS) since its last meeting (COM/SG/5) and APIRG/13, and updated the list of deficiencies in this field as shown in **Appendix 6A** to this part of the Report.

6.2 The Communications Sub-group noted that 37[1] radio navigational facilities required in the AFI air navigation plan are still to be implemented - most of them being intended for en-route operations. It also pointed out situations where unimplemented or unserviceable ARNS facilities tend to be reported in the list of deficiencies on a nearly permanent basis.

6.3 The following draft Conclusion was formulated accordingly:

Draft Conclusion 6/19 : Elimination of ARNS deficiencies

That, as a matter of urgency:

a) States mentioned in the list of deficiencies in aeronautical radio navigation service (ARNS) at Appendix 6A to this part of the Report should implement available solutions for the elimination of reported deficiencies; and

b) The Secretariat examine with States concerned cases where radio navigation aids required in the AFI ANP have not yet been implemented and tend to permanently be reported in the list of deficiencies.

[1] Not to mention 9 radio navigational aids which have been reported unserviceable for relatively long periods.

List of Navaids Deficiencies

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Angola									
	Navaids AFI/7, Rec. 10/4	Cuito Cuanavale	VOR/DME	1998		Implement facility	ENANA	2001	U
	Navaids AFI/7, Rec. 10/4	Huambo	VOR/DME	1998		To repair	ENANA	2001	A
	Navaids AFI/7, Rec. 10/4	Kuito	VOR/DME	1998		Implement facility	ENANA	2001	A
	Navaids AFI/7, Rec. 10/4	Luena	VOR/DME	1998		Implement facility	ENANA	2001	U
	Navaids AFI/7, Rec. 10/4	Saurimo	VOR/DME	1998		Implement facility	ENANA	2001	U
Cameroon									
	Navaids AFI/7, Rec. 10/4	Foumban	VOR	1998	Not implemented	Implement facility	Cameroon		U
	Navaids AFI/7, Rec. 10/4	Maroua	VOR	1998	Not implemented	Implement facility	Cameroon		U
Dem. Rep. of Congo									
	Navaids AFI/7, Rec. 10/4	Kalemie	VOR/DME	1998	Unserviceable	To repair	DR Congo		U
	Navaids AFI/7, Rec. 10/4	Kindu	VOR	1998	Unserviceable	To repair	DR Congo		U
	Navaids AFI/7, Rec. 10/4	Kisangani	VOR/DME	1998	Unserviceable	To repair	DR Congo		A
Equatorial Guinea									
	Navaids AFI/7, Rec. 10/4	Malabo	ILS RWY 05	2001	Equipment at site	To implement	ASECNA		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Ethiopia									
	Navaids AFI/7, Rec. 10/4	Mekele	VOR/DME	2002	Not implemented	To implement	Ethiopia		A
Guinea									
	Navaids AFI/7, Rec. 10/4	Kankan	VOR	1998	Not implemented	Implement facility	Guinea		A
	Navaids AFI/7, Rec. 10/4	Labe	VOR	1998	Not implemented	Implement facility	Guinea		A
	Navaids AFI/7, Rec. 10/4	Nzerekore	VOR	1998	Not implemented	Implement facility	Guinea		A
Kenya									
	Navaids AFI/7, Rec. 10/4	Mandera	VOR/DME	1998	Not implemented	Implement facility	Kenya		U
Lesotho									
	Navaids AFI/7, Rec. 10/4	Maseru	VOR/DME	2002	Not implemented	To implement	Lesotho		U
Liberia									
	Navaids AFI/7, Rec. 10/4	Robertsfield	ILS 04	1998	Not implemented	Implement facility	Liberia		A
Libya									
	Navaids AFI/7, Rec. 10/4	Sarir	VOR/DME	1998	Not implemented	Implement facility	Libya		U
Madagascar									
	Navaids AFI/7, Rec. 10/4	Antsiranana	VOR	1998	Unserviceable	To repair	Madagascar		U
	Navaids AFI/7, Rec. 10/4	Maintirano	VOR	2002	Unserviceable	To repair	Madagascar		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
	Navaids AFI/7, Rec. 10/4	Morondava	VOR	1998	Not implemented	Implement facility	Madagascar		U
	Navaids AFI/7, Rec. 10/4	Nosy-Be/Fascene	VOR/DME	1998	Unserviceable	To repair	Madagascar		A
	Navaids AFI/7, Rec. 10/4	Sainte Marie	VOR	1998	Not implemented	Implement facility	Madagascar		A
	Navaids AFI/7, Rec. 10/4	Tolagnaro	VOR/DME	1998	Not implemented	Implement facility	Madagascar		U
	Navaids AFI/7, Rec. 10/4	Toliara	VOR	1998	Not implemented	Implement facility	Madagascar		U
Mali									
	Navaids AFI/7, Rec. 10/4	Kayes	VOR	1998	Not implemented	Implement facility	Mali		U
	Navaids AFI/7, Rec. 10/4	Tessalit	VOR	1998	Not implemented	Implement facility	Mali, ASECNA		U
	Navaids AFI/7, Rec. 10/4	Tombouctou	VOR/DME	2002	Not implemented	Implement facility	Mali		A
Sao Tome & Principe									
	Navaids AFI/7, Rec. 10/4	Sao Tome	ILS 01	1998	Not implemented	Implement facility	Sao Tome & Principe		A
Sierra Leone									
	Navaids AFI/7, Rec. 10/4	Freetown/Lungi	ILS	1999	Unserviceable	To repair	Sierra Leone	28/11/2002	U
	Navaids AFI/7, Rec. 10/4	Freetown/Lungi	VOR/DME	1999	Unserviceable	To repair	Sierra Leone	28/11/2002	U
Somalia									
	Navaids AFI/7, Rec. 10/4	Hargeisa	VOR/DME	1998	Not implemented	Implement facility	Somalia		U
	Navaids AFI/7, Rec. 10/4	Mogadishu	VOR/DME	1998	Not implemented	Implement facility	Somalia		U

StateName	Requirements	Facilities or Services	Description of Deficiency	Date first reported	Comments on Deficiency	Description of Corrective action	Executing Body	Target date for implement	Priority
Sudan									
	Navaids AFI/7, Rec. 10/4	Geneina	VOR	1998	Not implemented	Implement facility	Sudan		U
	Navaids AFI/7, Rec. 10/4	Juba	ILS 13	1998	Not implemented	Implement facility	Sudan		A
	Navaids AFI/7, Rec. 10/4	Karina	VOR/DME	1998	Not implemented	Implement facility	Sudan		U
	Navaids AFI/7, Rec. 10/4	Khartoum	ILS 18	2002	Unserviceable	Repair facility	Sudan		U
Tanzania									
	Navaids AFI/7, Rec. 10/4	Dodoma	VOR/DME	1998	Not implemented	Implement facility	Tanzania	31/12/2005	U
	Navaids AFI/7, Rec. 10/4	Kilimanjaro	ILS 09	1998	Not implemented	Implement facility. Installation started.	Tanzania	June 2003	A
	Navaids AFI/7, Rec. 10/4	Mbeya	VOR/DME	1998	Not implemented	Implement facility	Tanzania	June 2006	U
	Navaids AFI/7, Rec. 10/4	Mwanza	DME	1998	Not implemented	Implement facility	Tanzania	June 2005	U
	Navaids AFI/7, Rec. 10/4	Zanzibar	VOR/DME	1998	Not implemented	Implement facility	Tanzania	June 2004	A
Zambia									
	Navaids AFI/7, Rec. 10/4	Mongu	VOR	1998	Not implemented	Implement facility	Zambia		U
	Navaids AFI/7, Rec. 10/4	Solwezi	VOR	1998	Not implemented	Implement facility	Zambia		U

Agenda Item 7: Review of ICAO position and preparations for the ITU WRC - 2003

ICAO position

7.1 The Communications Sub-group reviewed the ICAO position[1] on critical issues for civil aviation to be discussed at the ITU World Radiocommunication Conference (WRC-2003) that will take place in Geneva (Switzerland), from 9 June to 4 July 2003. It noted that feedback received from States indicates full support the for the ICAO position, in accordance with APIRG Conclusion 13/23.

APIRG

7.2 The Communications Sub-group was informed of action taken by the Secretariat pursuant to APIRG Conclusion 13/22 calling for the termination of the use of the GNSS band 1559-1610 MHz by fixed services. Pursuant to that Conclusion, the twenty-five concerned States in the AFI Region have been approached by the Regional Offices and requested to propose in their national papers for WRC-2003 the deletion of the national footnotes in this band.

ITU Plenipotentiary Conference 2002

7.3 The Communications Sub-group was briefed on ICAO proposals presented to the ITU Plenipotentiary Conference (Marrakech, September/October 2002), aimed at enhancing the role of UN observers at ITU Conferences. All AFI States have been urged to support the ICAO proposals and similar papers presented by regional telecommunications bodies (ATU, CEPT, CITEL).

WRC-2003 focal points

7.4 The Communications Sub-group was apprised of a recommendation from the African Telecommunications Union (ATU) on the establishment of National Conference Preparatory Working Groups for WRC-2003 in States, and accordingly encouraged States to participate in those working groups and to designate focal points of contact for WRC-2003 matters[2].

AFI Regional Preparatory Group (RPG) meeting

7.5 The Communications Sub-group reviewed the Report of the AFI Regional Preparatory Group (RPG) seminar organized by ICAO from 18 to 19 April 2002 on the preparations for WRC-2003. The seminar aimed at familiarizing experts of the AFI Region with the ITU processes, the regional telecommunications organizations (ATU, CEPT, CITEL), the ICAO position, IATA spectrum protection activities, and new challenges facing the aeronautical community in terms of spectrum protection (ultra-wideband devices).

7.6 The following draft Conclusions were adopted:

DRAFT CONCLUSION 6/20 : FOCAL POINTS OF CONTACT FOR ITU-WRC PREPARATION

That States, which have not done so yet, designate ITU WRC preparation focal points in their Administrations.

[1] The ICAO position adopted by the Council was distributed to States and international organizations under State letter E 3/5-01/79 dated 10 August 2001.

[2] A number of States have designated WRC-2003 focal points.

DRAFT CONCLUSION 6/21 : NEED FOR PERMANENT LIAISON WITH TELECOMMUNICATION REGULATORS

That civil aviation Administrations maintain constant liaison with telecommunication regulators to build bridges and facilitate WRC preparation.

DRAFT CONCLUSION 6/22 : SEMINARS ON RADIOFREQUENCY SPECTRUM REGULATIONS AND MANAGEMENT

That ICAO explore ways and means to implement issues addressed in ITU WRC-2000 Resolution 20 regarding training and seminars on spectrum management and regulations.

Agenda Item 8 : Future work programme and composition of the COM/SG

8.1 Under this Agenda Item, the Communications Sub-group reviewed and updated its work programme and composition as per **Appendix 8A** to this part of the Report. The following draft Decision was formulated:

DRAFT DECSION 6/23 : FUTURE WORK PROGRAMME AND COMPOSITION OF THE COMMUNICATIONS SUB-GROUP

That :

a) the future work programme and composition of the Communications Sub-group be as defined at Appendix 8A to this part of the Report ; and

b) Sudan be a member of the Communications Sub-group.

Future work programme and composition of the APIRG Communications (COM) Sub- group

Item	Task description	Priority	Target date
1	Analyse, review and monitor deficiencies in the operation of the aeronautical fixed service, the aeronautical mobile service and the radionavigation service.	A	continuing
2	Monitor the performance and implementation of the AFTN and propose corrective measures, as required	A	continuing
3	Follow-up the implementation of the ATS/DS circuits and propose corrective measures, as required	A	continuing
4	Update the AFI AFTN Routing Directory	A	APIRG/15
5	Follow-up the interconnection of VSAT networks in the AFI Region	A	Continuing
6	Follow up and monitor the implementation of VHF radio coverage in the AFI region in accordance with AFI/7 Rec. 5/12.	A	APIRG/15
7	Analyse and review the report of the ATN Planning Task Force on the transition from the AFTN to the ATN.	B	APIRG/15
8	Follow-up the upgrading of the transmission speed and the implementation of bit-oriented protocols for main AFTN circuits.	A	APIRG/15
9	Define a regional Interface Control Document (ICD) for the interface between AFI AFTN main centres employing X.25 control circuit protocol in accordance with AFI/7 Rec. 9/6.	B	APIRG/15
10	Coordinate and follow-up the ICAO position for the ITU-WRC meetings	B	continuing

Priority:

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

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

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

Agenda Item 9 : Any other business

9.1 Under this Agenda Item, the meeting noted the need for all AFI States to establish their procedures for the assignment of 24-bit aircraft addresses as called for by the Seventh AFI Regional Air Navigation Meeting (AFI/7), particularly in relation with ACAS II implementation requirements. The following draft Conclusion was formulated:

DRAFT CONCLUSION 6/24 : PROCEDURES FOR 24-BIT AIRCRAFT ADDRESS ASSIGNMENT

That those States, which have not already done so, establish, as a matter of urgency, procedures for the assignment of 24-bit aircraft addresses in accordance to AFI/7 Recommendation 11/2.

Note : Procedures for the assignment of 24-bit aircraft addresses are contained in Appendix 11 C to AFI/7 Report (Doc 9702).
