



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**  
**AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP**  
**THIRTEENTH MEETING**

(APIRG/13)

(Sal, Cape Verde, 25 - 29 June 2001)

**Agenda Item 4 : Air Navigation Issues**

**4.2 : Review of the Report of the Fifth Meeting of the Communications Sub-group  
(COM/SG/5)**

(Presented by the Secretariat)

SUMMARY
The report of the Fifth Meeting of the Communications Sub-group is presented for review by AFI Planning and Implementation Regional Group.
Action by the Meeting is at paragraph 3.
References :  - APIRG/12 Report  -COM/SG/5 Report.

**1. Introduction**

- 1.1 The Fifth Meeting of the Communications Sub-Group of the AFI Planning and Implementation Regional Group (COM/SG) was held in Dakar, Senegal from 3 to 6 October 2000. It was attended by 56 delegates from 22 States (13 of which are members of the Sub-group) and 4 International Organizations.

**2. Discussion**

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

- 2.1.1 Under this agenda item, the Communications Sub-group noted its terms of reference and work programme as adopted by APIRG/12. Ghana expressed its intention to become a COM/SG member, and the request was supported by the meeting..

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

- 2.2.1 The meeting noted the action taken for the actual implementation of COM/SG/4 and APIRG/12 Conclusions and Decisions. Participants provided the meeting with additional information on the implementation of those Conclusions and Decisions. It was noted that most of them were in the process of being implemented.

**2.3 Agenda Item 3: Aeronautical Fixed Service**

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

2.3.1.1 The meeting reviewed the implementation status of the main and tributary circuits in the rationalized AFI AFTN Plan, as shown in **Appendix A** to this paper. The meeting acknowledged the efforts made by States for the actual implementation of this plan. The meeting also noted that there are still serious shortcomings and deficiencies which call for urgent remedial action. After analyzing the reasons that hamper the implementation and reliability of AFTN circuits in the AFI Region in order to find possible solutions, the meeting adopted the following draft conclusion:

**Draft Conclusion 5/1: AFI AFTN circuits availability**

**That States concerned:**

- a) **take remedial action as a matter of high priority to overcome deficiencies of main AFTN circuits;**
- b) **implement as a matter of priority the remaining circuits by 31 March 2001**
- c) **improve AFTN circuits reliability to over the threshold of 97%; and**
- d) **provide Regional Offices with monthly availability data on all main and tributary circuits under their responsibility.**

2.3.1.2 The meeting considered the AFTN main circuit between Brazzaville and Johannesburg, which was proposed by the COM/SG Aeronautical Fixed Service Task Force (COM/SG/AFS/TF) to be deleted from the AFI Air Navigation Plan due to lack of implementation, while the Dakar/Johannesburg AFTN circuit has been implemented. After discussion, the COM/SG/5 meeting maintained in the plan the Brazzaville/Johannesburg AFTN circuit, and urged parties concerned to implement it as a matter of high priority. The following draft conclusion was therefore developed:

**Draft Conclusion 5/2 Brazzaville/Johannesburg main AFTN circuit**

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

Note: The Communications Sub-group could re-consider the eventual removal of this circuit from the Air navigation plan at its next meeting (COM/SG/6), according to the progress achieved.

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

2.3.1.4 The meeting was also informed of proposals aiming at implementing the **Brazzaville/Nairobi** main circuit with an adequate transmission speed. The sub-group recommended the parties concerned to hold the meeting before 31 December 2000 in order to agree on a common solution, and urged them to proceed with its implementation as a matter of high priority. The following draft conclusion was adopted accordingly:

**Draft Conclusion 5/3 Brazzaville/Nairobi main AFTN circuit**

**That:**

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

(Note: The Meeting was held in Nairobi on 27 February 2001. It did not reach any definite conclusion.)

2.3.1.5 The meeting noted that **Johannesburg/SAM (Buenos Aires)** was not yet implemented, and also urged the parties concerned to implement this circuit, as a matter of priority.

2.3.1.6 Regarding **Algiers/Niamey** main circuit, the meeting was informed that Algeria and ASECNA have set up a Task Force in order to improve its reliability, and that they have agreed to implement a SATCOM VSAT at Alger before the end of Year 2000. The meeting adopted the following draft conclusion:

**Draft Conclusion 5/4 Alger/Niamey main AFTN circuit**

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

2.3.1.7 The meeting was informed that an AFTN circuit was implemented between **Johannesburg and Nairobi**, with effect 30 December 1999. Reliability of this main AFTN circuit is still low. The COM sub-group therefore adopted the following draft Conclusion:

**Draft Conclusion 5/5 Nairobi/Johannesburg main AFTN circuit**

**That :**

**S Kenya and South Africa upgrade, as a matter of urgency, the availability of the Nairobi/Johannesburg AFTN main circuit;**

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

2.3.1.8 Regarding Dakar/Johannesburg temporary AFTN circuit, the COM Sub-group was recalled that this circuit was recommended by the Sixth Informal Meeting for the improvement of air traffic services over the South Atlantic (SAT/6) in order to permit the establishment of a more efficient and effective exchange of messages between entry/exit points in the AFI and SAM Regions. The meeting was informed that a 9600bps circuit has been implemented with effect August 1999, but reliability of this circuit is still very low. The COM/SG was of the view that this circuit should be included in the Air Navigation Plan, and consequently urged Senegal (ASECNA) and South Africa to upgrade its availability as a matter of urgency. The meeting was informed of actions underway for the implementation of a CAFSAT node in Senegal before 31 December 2000 and contacts between South Africa and CAFSAT network providers. The sub-group accordingly developed the following draft Conclusion :

**Draft Conclusion 5/6 Dakar/Johannesburg circuit**

**That a) Senegal and South Africa upgrade, as a matter of urgency, the reliability of the Dakar/Johannesburg main AFTN circuit, and b) South Africa integrate to CAFSAT network.**

2.3.1.9 The COM Sub-group noted that a number of tributary AFTN circuits are not yet implemented, such as Brazzaville/Luanda, Bujumbura/Dar-es-Salaam, Kigali/Dar-es-Salaam, Dakar/Bissau, Johannesburg/Antananarivo, and urged States and organizations concerned to implement them.

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

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

2.3.2.1.1 The meeting was recalled that COM/SG/4 analysed a proposal aimed to modify the present configuration of

the main AFTN centres by evolving from the star to a triangle configuration whereby each tributary centre would be provided with at least two routings, and set up a Task Force on Aeronautical Fixed Service Task Force (COM/SG/AFS/TF) which had - inter alia - the revision of the current configuration of the AFI AFTN plan.

2.3.2.1.2 In reviewing this issue, the COM/SG/AFS/TF meeting agreed that modification of the present configuration from the star to a triangle configuration with the view to provide each tributary centre with at least two routings goes against the ICAO policy for planning of the rationalization of the AFTN. Nevertheless, the Task Force was of the view that the present AFTN configuration should be modified to include the existing reliable bilateral circuits which are not in the plan but which would meet the functionality of some of the circuits not yet implemented. Therefore some of those non-implemented circuits could be withdrawn.

2.3.2.1.3 The Sub-group adopted the above proposal (except withdrawal of the Brazzaville/Johannesburg). Consequently the following AFTN circuits were proposed to be deleted from the plan: Bujumbura/Dar-es-Salaam and Kigali/Dar-es-Salaam, and to be replaced respectively by Bujumbura/Johannesburg and Kigali/Johannesburg. The COM/SG/5 meeting also agreed that Johannesburg which is an AFTN main centre should replace Mauritius as an entry/exit point between the AFI and ASIA/PAC Regions. Consequently, the COM sub-group adopted the following draft conclusion:

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

**That:**

- a) **Johannesburg AFTN main centre be an AFI entry/exit between the AFI and ASIA/PAC Regions;**
- b) **the following AFTN circuit be deleted from the AFI Plan : Mauritius/ASIA/PAC, Bujumbura/Dar-es-Salaam, Kigali/Dar-es-Salaam;**
- c) **the following main and tributary AFTN circuits be included in the AFI Air Navigation Plan: Circuits between Johannesburg and Dakar, Bujumbura, Dar-es-Salaam, Kigali, Kinshasa, Luanda and Mauritius;**
- d) **the network configuration chart be that shown at Appendix B to this paper.**

Note: The circuit Mauritius/ASIA/PAC should be kept operational until the implementation of the circuit Johannesburg/ASIA/PAC.

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

2.3.2.2.1 Under this Agenda Item, the COM sub-group reviewed the protocols used in the ten AFI AFTN main centres. Based on the results of the survey conducted on this matter, the Sub-group concluded that bit-oriented protocols should be adopted for the entire AFI Region, and therefore formulated the following draft conclusion:

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

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

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

2.3.2.3.1 The meeting was recalled that APIRG/10 decided that the COM/SG would continue with the follow-up of the introduction of the ATN in the AFI Region. This was re-affirmed at APIRG/12 with a target date of

APIRG/13. The Aeronautical Fixed Service Task Force established by COM/SG/4 was assigned among other tasks the formulation of proposals for the migration of the AFI AFTN to the ground-ground element of the ATN.

2.3.2.3.2 The Task Force developed guiding principles for the migration from the AFI AFTN to the ground element of the ATN. It also identified sub-tasks to be achieved in the planning for the ground portion of the ATN. The COM Sub-group was of the view that the COM/SG/AFS/TF has completed its tasks and therefore agreed to dissolve the AFS Task Force and establish an ATN Planning Task Force, which will develop the AFI ATN implementation Plan. Its terms of reference and work programme are shown at **Appendix C** to this paper. In addition the proposed ATN Planning Task Force would be tasked with updating the guidelines on ATN in the AFI CNS/ATM Implementation Plan (Doc 003). It was also agreed that the members of the AFS Task Force would automatically become members of the ATN Task Force. The COM sub-group also agreed, Algeria, Angola, Burundi and Malawi as members of the Task Force. The following draft decision was adopted:

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

**That:**

- a) **The Task Force on the AFS be dissolved;**
- b) **an AFI ATN Planning Task Force be established. Its membership shall include all the former members of the Task Force on AFS, and Algeria, Angola, Burundi and Malawi;**
- c) **The Terms of Reference and Work Programme of the AFI ATN Planning Task Force be those shown at Appendix D to this report.**

2.3.2.3.3 The meeting was also of the view that the ATN is a complex system which introduces new notions which are not too familiar. The Sub-group therefore agreed that the first step should be an educational process to familiarize AFI specialists with these new notions and systems, and urged ICAO to continue the educational process already started. The following draft conclusion was formulated:

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

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

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

2.3.2.4.1 The meeting was informed that only 30% of AFI main circuits transmit at a minimum of 1200 bps. Out of the remaining 70%, 20% are not implemented or are deficient, while the remaining 50% are transmitting at a slow speed of 50 baud. The COM sub-group therefore re-iterated the APIRG Conclusion 12/13 on the upgrading of data transmission rate to a minimum of 1200 bps for main AFTN circuits as soon as possible. The following draft conclusion was developed accordingly:

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

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

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

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

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

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

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

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

2.3.2.6.1 The meeting made an in-depth analysis of the status of implementation of the ATS/DS plan and updated the list of shortcomings/deficiencies. The following draft conclusion was adopted:

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

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

**2.4 Agenda Item 4:Aeronautical Mobile Service**

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

2.4.1.1 The Meeting reviewed the list of shortcomings /deficiencies affecting the operation of the aeronautical mobile service (AMS) in the AFI Region. It was therefore requested that the COM/SG Secretariat should circulate the list of shortcomings /deficiencies to States concerned with a target date of corrective actions to eliminate these shortcomings. Accordingly, the following draft conclusions were adopted:

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

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

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

2.4.2.1 The meeting was recalled that APIRG/12 had assigned to the Communications Sub-Group to review the impact on the EUR/AFI interface area of the implementation of 8.33 KHz VHF channel spacing in the EUR Region. The COM Sub-group was informed that the Secretariat consequently carried out a survey in the EUR/AFI interface area (Algeria, Libya, Morocco and Tunisia ), but no response was received from States concerned. Nevertheless, during the meeting, one of them indicated that no problems have been recorded thus far. The following draft conclusion was adopted:

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

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

#### **2.4.3 Review and update the VHF utilization Plan**

2.4.3.1 The COM sub-group noted that the AFI/7RAN adopted Recommendation 9/11 - Actualization of the VHF frequency utilization plan and assigned the task to APIRG. The AFI/7 RAN meeting also introduced in the VHF Aeronautical Mobile Service Plan five (5) new services requiring frequency allotments: ACC-L, ACC-U, APP-H, FIS-L and FIS-U. The Secretariat presented the status of VHF frequency usage in the AFI Region where it appears that assignments have been done using frequencies which are reserved.

2.4.3.2 The Secretariat also presented to the meeting an updated VHF utilization Plan based on 25 kHz VHF channel spacing, which was adopted by COM/SG/5 on condition that all States in the AFI region be ready for its implementation. The draft VHF utilization plan is shown at **Appendix D** to this paper. It was agreed therefore that the draft VHF utilization plan be presented to APIRG/13 with the status of readiness in implementation of 25 kHz VHF channel spacing of the AFI States.

2.4.3.3 The following draft conclusions were formulated :

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

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

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

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

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

2.4.4.1 The meeting was presented with a report of the survey on HF frequency congestion and VHF coverage in the AFI Region, which was carried out by IATA in coordination with IFALPA for the period 20 April/30 May 2000, as recommended by COM/SG/4. The last survey was carried out in 1994. The report which was highly appreciated by the meeting consists of a collection of data from more than 1140 pilot reports, giving an indication on the usage, strength, clarity and congestion of VHF and HF frequencies in the AFI Region.

2.4.4.2 After discussions, the meeting was of the view that mobile communications have been significantly improved, though it was also recognized that shortcomings/deficiencies still exist in some areas of the AFI Region. The COM Sub-group therefore formulated the following draft conclusion:

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

**That States:**

- a) refrain from using air-ground HF frequencies for ground-ground communications;
- b) implement, as a matter of urgency, ATS/DS circuits in the Air Navigation Plan (ANP).

#### **2.5 Agenda Item 5: Radio Navigation Aids**

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

2.5.1.1 The meeting reviewed and updated the list of shortcomings/deficiencies affecting the operation of the

radionavigation aids, most of them having been identified since 1998. Based on the assumption that ILS and VORs will be kept operational respectively until 2010 and 2005 at least, the meeting recommended States to take into account of the initial strategy for the introduction of GNSS in the AFI Region as endorsed by APIRG/12 meeting. The following draft conclusion was developed:

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

**That:**

- a) States concerned take remedial action as a matter of high priority to overcome shortcomings and deficiencies affecting radionavigation service by 31 December 2001 shown at Appendix A to the report on Agenda Item 5; and
- b) when eliminating shortcomings and deficiencies affecting radionavigation service, States take account of the initial strategy for the implementation of GNSS in the AFI Region.

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

2.5.2.1 The Meeting reviewed the extent of fixed service assignments in the GNSS frequency band 1 559-1 610 MHz in some parts of the AFI Region. It noted that only twelve (12) out of the twenty-five (25) States concerned replied to the Secretariat, indicating that they do not assign frequencies in the 1559-1610 MHz band. The Meeting therefore urged remaining States to reply by 30 November 2000.

2.5.2.2 The APIRG is invited to note that, following the ITU WRC-2000, the national footnotes regarding GNSS in the Radio Regulations will, in a first stage, become secondary after 1 January 2005 (2010 in some countries), and that all footnotes should be suppressed after 1 January 2012. The Meeting may wish to urge concerned States to take action for the early deletion of their footnotes, for instance at the ITU WRC-2003.

**2.6 Agenda Item 6: ICAO position for ITU-WRCs**

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

2.6.1.1 The meeting was apprised of the results of the ITU World Radiocommunication Conference (2000) (WRC-2000), which was held from 8 May to 2 June 2000 in Istanbul, Turkey. A brief overview of the results, in tabular form, is contained in **Appendix E** to this paper. In general, the Conference results fully satisfied the ICAO position. A significant element in the ICAO preparatory activities for this conference was the early awareness and involvement of Contracting States in the development of the ICAO position.

**2.6.2 Draft ICAO position for the ITU-WRC- 2003**

2.6.2.1 The meeting was informed that the Working Group F of the Aeronautical Mobile Communications Panel (AMCP/GF) has already developed an initial draft of the ICAO position for the WRC-2003. A final review by the ANC of the ICAO position, and its approval by the Council, are foreseen before mid-2001.

2.6.2.2 The ITU-WRC-2000 developed the agenda for the WRC-2003. Several items in the agenda concern civil aviation. Considering the major factors that contributed to the success of the ICAO position at the ITU-WRC-2000, the COM Sub-group urged States to support the ICAO position at the next ITU-WRC-2003. The following draft Conclusion was formulated:

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

**That in view of the above, AFI States continue their effort to promote and defend the ICAO position at the**

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**ITU World Radio Conference (WRC) 2003.**

**2.7 Agenda Item 7: Any Other Business**

**2.7.1 Implementation of VSAT networks in the Region**

2.7.1.1 The COM/SG was informed of the following developments in the use of VSAT technology being implemented in some parts in the AFI Region.

2.7.1.1.2 In **Western and Central African Region**, the **SATCOM Network** which was initially composed of eight (8) member States came into operation since 1995, with analogue circuits. Participating States are: Cameroon, Central African Republic, Chad, Congo, Gabon, Ghana, Niger and Nigeria. It is now being expanded so as to include nearly all ASECNA States in West Africa (Burkina Faso, Benin, Côte d'Ivoire, Equatorial Guinea, Mali, Senegal, Togo) and Sao Tome & Principe. The network is in the process of being digitized in order to optimize its potential, and thus achieve a high performance communication system. Some X.25 circuits are already operational. It also serves for the extension of VHF coverage in FIRs using remote VSAT stations.

2.7.1.1.3 In the **EUR/SAM Corridor**, the **CAFSAT network** is being deployed with the objectives to expand, modernize and improve AFS communications for the current air navigation services through the implementation of cost-effective, fast, reliable and high performance communications, and at the same time to establish the digital platform to support the development of the Aeronautical Telecommunication Network (ATN) included in the ICAO CNS/ATM systems. CAFSAT participating States are Brazil, Cape Verde, Mauritania, Morocco, Portugal, Senegal and Spain. South Africa has been invited to join the network. CAFSAT nodes in Senegal and Spain are now operational, and the implementation process is underway for other nodes which are expected to be operational between 2001 and 2002.

2.7.1.1.4 In Southern and Eastern Africa, the SADC Network was initially planned so as to include only SADC participating States (except Seychelles). The network covers the following States: Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Tanzania, Zambia and Zimbabwe, and Madagascar which is not a SADC member. Some non- SADC States such as Burundi and Rwanda have shown interest in joining the network. With the exception of Madagascar (Antananarivo), all VSAT facilities planned in implementation phases I and II have been installed. Only six (6) out of the fourteen (14) SADC participating States have signed the bilateral agreements.

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

2.7.2.1 The meeting noted that the interconnection of the ASECNA and SADC networks as recommended by APIRG (Conclusion 12/10 refers) was still unresolved. The meeting then discussed appropriate solutions to implement AFTN circuits (Antananarivo/Johannesburg, Brazzaville/Kinshasa, Brazzaville/Luanda) and ATS/DS circuits (Accra/Luanda, Antananarivo/Beira, Antananarivo/Dar es Salaam, Antananarivo/Johannesburg, Antananarivo/Mauritius, Brazzaville/Luanda, Brazzaville/Kinshasa) that could be achieved through the interconnection between the two (2) networks. The Sub-group finally adopted a new proposal agreed by States/organisations concerned, and the following draft conclusion (5/22) was formulated:

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

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

- a) **Antananarivo: a SADC VSAT compatible terminal pointed to INTELSAT 604;**
- b) **Luanda: a SATCOM VSAT compatible terminal pointed to INTELSAT 601;**

c) **Kinshasa: a SATCOM VSAT compatible terminal pointed to INTELSAT 601.**

**2.7.3 Human factors in the CNS field**

2.7.3.1 The COM Sub-group was of the view that there is a need for human resources planning to ensure that the COM field has the right number of people with the right skills, in the right positions and at the right time. The need for training and course development will be especially high between now and through the transition to the CNS/ATM systems. The meeting was of the view that, due to the amount of training needed, it will be advantageous to have co-ordinated and cooperative approach towards CNS training development, and well formulated human resources programme. The COM Sub-group agreed that a Task Force on human resources was necessary, and therefore formulated the following draft decision:

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

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

**Mandate**

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

**Work programme**

- **Establish criteria for different levels of standards for CNS personnel**
  - **Establish basic entry criteria on training for CNS personnel**
  - **Outline training procedures for existing and new CNS equipment, including automation**
  - **Catalogue the potential or the existing training centres and CNS courses available**
  - **Develop guidelines for human resources planning and development**
  - **Develop material for maintenance system computerization.**

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

2.7.4.1 The COM Sub-group reviewed its future work programme as it is reflected in **Appendix F** to the this paper.

**3. Action by the APIRG**

3.1 The APIRG is invited to:

- 1) note the report of the Fifth meeting of the COM Sub-group;
- 2) note that follow up action has already been initiated with States concerning Conclusions 5/1, 5/2, 5/3, 5/4, 5/5, 5/6, 5/10, 5/11, 5/13, 5/14, 5/15, 5/16, 5/17, 5/18, 5/19, 5/20, 5/21 and 5/22;
- 3) review and adopt **Draft Conclusions** 5/1, 5/2, 5/3, 5/4, 5/5, 5/6, 5/7, 5/8, 5/10, 5/11, 5/12, 5/13, 5/14, 5/15, 5/16,5/17, 5/18, 5/19,5/21 and 5/22, and **Draft Decisions** 5/9 and 5/23; and
- 4) review and adopt the COM Sub-group future work programme.

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