INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF

THE FIFTEENTH MEETING OF

THE AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP (APIRG)

(Nairobi, Kenya, 26 – 30 September 2005)

PREPARED BY THE SECRETARY OF APIRG SEPTEMBER 2005

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PART I — HISTORY OF THE MEETING

1. VENUE AND DATE

1.1 The fifteenth meeting of the AFI Planning and Implementation Regional Group (APIRG/15) was held in Nairobi, Kenya, from 26 to 30 September 2005, at the invitation of the Kenya Civil Aviation Authority (KCAA).

2. OFFICERS AND SECRETARIAT

2.1 The meeting re-elected Mr. Mohamed Chérif of Tunisia as Chairman; Mr. Fidèle Manga Fouda of Cameroon, as First Vice-Chairman; and Mr. M. R. Alloo of Tanzania, as Second Vice- Chairman. Mr. M. Chérif chaired all the sessions of the meeting. Paragraph 1.1, under Agenda Item 1 of this report, also refers.

2.2 Mr. Lot Mollel, ICAO Regional Director, Nairobi, served as the Secretary of APIRG. He was assisted by Mr. A. Mensah, Acting ICAO Regional Director, Dakar Office; Mr. V. D. Zubkov, Chief, Regional Affairs Office and Mr. H. P. Pretorius, Regional Affairs Officer, both from ICAO Headquarters; and by the following Officers from the Dakar and Nairobi Regional Offices of ICAO:

Mr. H. H. Cissé	Regional Officer, Meteorology (MET), Dakar
Mr. A. J. Kharuga	Regional Officer, Air Traffic Management (ATM), Nairobi
Mr. B. M. Sekwati	Regional Officer, MET, Nairobi
Mr. L. W. Ndiwaita	Regional Officer, Aerodromes, Air Routes and Ground Aids Section (AGA), Nairobi
Mr. A. Sene	Regional Officer, Communications, Navigation and Surveillance Section (CNS), Nairobi
Mr. J. C. Waffo	Regional Officer, AGA, Dakar
Mr. P. Zo'o Minto'o	Regional Officer, CNS, Dakar
Mr. I. Auyo	Regional Officer, ATM, Dakar
Mr. K. Brou	Regional Officer, ATM, Nairobi
Mr. N. Kumelachew	Regional Officer, Safety Oversight (SO), Nairobi

2.3 The discussions were conducted in English and French, and the meeting documentation was issued in both languages. Translation and simultaneous interpretation services were provided.

2.4 The meeting was opened by the Honourable Minister of Transport and Communications of the Republic of Kenya, Dr. Chris Murungaru, who, on behalf of the Government, welcomed the participants to the meeting and expressed appreciation for the large turn out of delegates. He also thanked ICAO for choosing Kenya to host APIRG/15.

2.5 Dr. Murungaru mentioned the contribution of the aviation sector in the economic growth of the countries, but highlighted challenges like terrorism, high fuel price, Severe Acute Respiratory Syndrome (SARS) and the Bird Flu epidemics that the industry faced. He emphasized the importance of

air transport to the AFI States as being the most reliable mode of transport between countries and stressed the necessity of renewing the aging air navigation system infrastructure.

2.6 The Minister mentioned the commitment of the Kenyan Government to the aviation industry by creating the Kenya Civil Aviation Authority, developing of a Master Plan for the Kenya airspace and modernizing and expanding the Jomo Kenyatta International Airport.

2.7 The Minister also emphasized the need for regional cooperation to make the industry sustainable. To this end, he mentioned the good cooperation between the East African Partner Community States and asked the participants to find ways and means to enhance safety and security.

2.8 Mr. Chris Kuto, the Director General of the Kenya Civil Aviation Authority, welcomed the participants and expressed his appreciation for the opportunity to host APIRG/15.

2.9 Mr. Kuto highlighted the significant developments since the formation of the KCAA in 2003. These include the establishment of a security section, the development of human resources and the rehabilitation of facilities and infrastructure.

2.10 Regarding regional cooperation, he informed the meeting that Kenya, together with Tanzania and Uganda, are currently working on a Unified Upper Airspace project and a Regional Safety Oversight Agency project.

2.11 Mr. Lot Mollel, Regional Director in Nairobi and Secretary of APIRG, welcomed the participants. He pointed out the important role of Kenya in the development of international civil aviation in Africa. He also emphasized the role played by APIRG in planning and implementing air navigation systems in the AFI Region.

2.12 Mr. Mollel then reviewed the progress in the fields of aerodromes, air routes and ground aids aerodromes, air routes and ground aids section (AGA), aeronautical information service (AIS), air traffic services (ATS), communications, navigation, and surveillance (CNS), meteorology (MET), search and rescue (SAR) since the APIRG/14 Meeting. He concluded by emphasizing the need to develop aggressive strategies to resolve deficiencies in air navigation.

2.13 Mr. Mollel informed the meeting about the ICAO Universal Safety Oversight Audit Programme (USOAP), initiated in 1999, which has helped States in identifying oversight deficiencies as regards Annexes 1, 6 and 8 (*Personnel Licensing;* Annex 6 — *Operation of Aircraft* and *Airworthiness of Aircraft*, respectively). He mentioned, however, that there were States that experienced difficulties in implementing the action plans, which included amongst others, the lack of financial resources and trained personnel.

2.14 Mr. Mollel further informed the meeting of the adoption of a comprehensive systems approach for the conduct of safety oversight audits covering all Annexes on matters related to safety. He stressed that, regardless of the level of aviation operation, States need to pool their resources to establish regional safety oversight organizations.

2.15 To this end, Mr. Mollel informed the meeting of efforts that have been made to establish such programmes in the East African Community (EAC), Southern African Development Community (SADC) and in West Africa (the Banjul Accord, Economic and Monetary Union of West Africa (UEMOA), and the Central African Economic and Monetary Community (CEMAC).

2.16 Mr. V. D. Zubkov, Chief of Regional Affairs, conveyed greetings and best wishes from the President of the ICAO Council, Dr. Assad Kotaite, as well as from the Secretary General of ICAO, Dr. Taïeb Chérif.

2.17 Mr. Zubkov informed the meeting that, although, the ICAO budget was reduced by 10 per cent in the last Assembly, ICAO has developed a Business Plan, including the Strategic Objectives, as a means to increase the efficiency and effectiveness of the Organization. The Strategic Objectives deal with safety, security, environmental protection, efficiency, continuity, and rule of law.

2.18 He reminded the meeting that both the Business Plan and the Strategic Objectives were now theirs, as well as all participating States, and that everyone should strive to achieve efficiency and effectiveness, as reflected the Business Plan and the Strategic Objectives of ICAO. The meeting was further informed that the recent spate of accidents in the AFI Region, specifically in the month of August 2005, was a major concern to ICAO and that action needs to be taken to reduce the accident rates.

2.19 Mr. Mohamed Chérif expressed his appreciation to the Kenyan Authorities for their kind hospitality. He stressed the importance of civil aviation in the economic and social development of African States and the role of APIRG in the planning and implementation of air navigation facilities and services.

2.20 The meeting noted with appreciation that all the available working papers, information papers, reference documents and reports of APIRG contributory bodies, had been posted, well in advance of the meeting, on the ICAO website of the Regional Offices concerned, in accordance with established procedures, and that this had facilitated the good conduct of the meeting.

3. ATTENDANCE

3.1 The meeting was attended by 204 participants from 36 States, including 25 States and 3 international organization and 9 other States located in the AFI Region, Sweden and United States of America as well as Observers from African Airlines Association (AFRAA), European Organisation for the Safety of Air Navigation (EUROCONTROL); International Federation of Air Traffic Controllers' Associations (IFATCA); Roberts flight information region (FIR); Société internationale de télécommunications aéronautiques (SITA); Economic and Monetary Union of West Africa (UEMOA); and World Meteorological Organization (WMO).

3.2 The list of participants is provided in Appendix A, attached hereto.

4. AGENDA

4.1 The meeting adopted the following Agenda:

1. Election of Chairperson and Vice-Chairpersons

2. Action on Report of the APIRG/14 Meeting by the Air Navigation Commission (ANC) and the Council

3. Review and follow-up of APIRG/14 Conclusions and Decisions, including AFI/7 regional air navigation (RAN) meeting outstanding recommendations

4. Air navigation issues
   - 4.1 Aerodrome Operations
   - 4.2 Communications, Navigation and Surveillance
   - 4.3 Air Traffic Management (ATS, AIS & SAR)
   - 4.4 RVSM implementation in the AFI Region
   - 4.5 Aeronautical Meteorology
   - 4.6 Aviation Security (AVSEC)

5. Deficiencies in the air navigation field
   - 5.1 Unified Strategy for resolving safety-related deficiencies
   - 5.2 Implementation of USOAP under a Comprehensive Systems Approach
   - 5.3 List of deficiencies in the air navigation field

6. Review of significant developments related to air navigation
   - 6.1 Follow-up on the outcome of the Eleventh Air Navigation Conference (AN-Conf/11)
   - 6.2 Outcome of the 35th session of the Assembly on air navigation issues

7. Interregional coordination
   - 7.1 SAT/12 coordination meeting

8. Future work programme of APIRG

9. Any other business

5. CONCLUSIONS AND DECISIONS

5.1 APIRG records its actions in the form of Conclusions and Decisions with the following significance:

a) Conclusions deal with matters which, in accordance with the group's terms of reference, merit directly the attention of States or on which further action will be initiated by ICAO in accordance with established procedures.

b) Decisions deal with matters of concern only to APIRG and its contributory bodies.

PART II — REPORT ON AGENDA ITEMS

AGENDA ITEM 1: ELECTION OF CHAIRPERSON AND VICE-CHAIRPERSONS

1.1 In view of the need for continuity and the good performance, the Meeting, re-elected the following member:

Mr. M. Chérif	Chairman (Tunisia)
Mr. F. Manga Fouda	First Vice-Chairman (Cameroon)
Mr. M.R. Alloo	Second Vice-Chairman (Tanzania).

AGENDA ITEM 2: ACTION BY THE AIR NAVIGATION COMMISSION AND THE COUNCIL ON THE APIRG/14 REPORT

2.1 The meeting reviewed the actions taken by the ANC (hereafter referred to as the Commission) and the Council on the Report of APIRG/14, which was held in Yaounde, Cameroon, from 23 to 27 June 2003. The meeting also noted the follow-up actions by the States and the Secretariat on conclusions and decisions of the meeting, as contained in Appendix B attached hereto. It was noted that a number of new proposals that would further enhance aviation safety, security and efficiency in the AFI Region would be discussed during APIRG/15.

2.2 Concluding its review, the meeting thanked the Council and the Commission for their valuable guidance on various activities of APIRG, which would be taken into account in the development of an ongoing action plan for the Region.

AGENDA ITEM 3: REVIEW AND FOLLOW-UP OF APIRG/14 CONCLUSIONS AND DECISIONS INCLUDING THE AFI/7 RAN MEETING OUTSTANDING RECOMMENDATIONS

3.1 The meeting reviewed action taken on the APIRG/14 conclusions and decisions. It noted those on which actions had been completed, and reaffirmed those are still valid and those on which action is continuing. The meeting also noted the follow-up action taken by Kenya on APIRG/14 conclusions and decision, as elaborated in the various information papers presented to the meeting.

AGENDA ITEM 4: AIR NAVIGATION AND AVIATION SECURITY (AVSEC) ISSUES

4.1: **Aerodrome operations**

Review of the Report of the Sixth Meeting of the Aerodrome Operational Planning Sub-Group (AOP/SG/6).

4.1.1 The AOP/SG/6 Meeting was held from 11 to 13 May 2005 in Nairobi, and 11 States and was attended by 3 international organizations. The meeting was apprised of the concerns of the Council with regard to the noticeable lack of progress in the reduction and eventual elimination of deficiencies, even though States acknowledge that these deficiencies have a serious impact on safety of operations.

Bird hazard reduction

4.1.2 The meeting acknowledged the progress made by various States in this regard. Nevertheless, it was evident that more effort need to be deployed. It was noted that where mitigation measures had been implemented without proper ornithological studies, the success of the measures taken was minimal. The meeting further noted that several measures, working together, is the only sure way to obtain the desired results. Aerodrome operators were reminded that adequate resources must be deployed over time since the benefits of these measures are not immediate.

4.1.3 With regard to reporting of bird strikes to ICAO bird strike information system (IBIS), it was agreed that no strike was too minor to be reported. Airlines also were advised to transmit reports on bird strikes to the airport operator for follow-up and reporting to IBIS. The meeting therefore reaffirmed the relevance of APIRG/14 Conclusion 14/1 (Bird hazard control and reduction) and further developed the following Conclusion:

CONCLUSION 15/1: BIRD HAZARD CONTROL AND REDUCTION

That States ensure all bird strike incidents (regardless of the bird size) are reported to ICAO for inclusion in the ICAO IBIS database.

Rescue and fire fighting services (RFFS)

4.1.4 The meeting noted that some international airports still do not have the level of protection, as indicated in the AFI facilities and services implementation document (FASID). This state of affairs is accentuated by the fact that, as of January 2005, the level of protection should depend solely on the physical parameters (length and width of fuselage) of the critical aircraft, irrespective of the number of movements.

4.1.5 As more autonomous airport authorities are formed, the meeting noted that there has been considerable improvement on the numbers and quality of the fire fighting trucks. This, however, has not been matched by equivalent improvement on the provision of the necessary rescue tools and equipment and protective material. This renders the facility ineffective, and, consequently, the morale of staff is negatively affected.

4.1.6 The issue of rescue and fire fighting in difficult environments, in particular for aerodromes close to large bodies of water, was discussed and it was agreed that many such aerodromes were not properly equipped. In addition, there was not sufficiently trained staff for rescue in water. The meeting underscored the need for States' regulating authorities to develop appropriate regulations to govern the RFFS' needs for such aerodromes, which are many in the AFI Region. The meeting commended those few States that have adequately provided for rescue and fire fighting in water and advised that such aerodromes should be both willing to share their experience and provide experts to assist other States when requested.

4.1.7 The meeting discussed the issue of RFFS staff strength and agreed that this can only be evaluated by consideration of the factors at each aerodrome, in particular the level of automation of the fire fighting trucks available, the location response time by the supporting agencies, etc. This aspect should therefore be addressed in the national regulations. These regulations should also address issues such as RFFS staff selection criteria, training curriculum and certification, and periodic medical examination.

4.1.8 The meeting acknowledged the efforts by ICAO Regional Offices in Eastern and Southern Africa (ESAF) and Western and Central Africal (WACAF) to hold regular workshops on this matter. It was noted that, pursuant to a recommendation at one such workshop, the RFF schools at Douala, Cameroon, and Accra, Ghana, had signed a memorandum of understanding (MoU) to facilitate the exchange of instructors and expertise in order to make them more efficient. The Airport Rescue and Fire Fighting Services Association of Africa (ARFFSAA) was then established and Ghana volunteered to coordinate its activities. A website (http://www.arffsaa.org) has also been developed. Additionally, the States have been advised to consider hosting these workshops so as to allow more participation by staff of the hosting State. This should also permit ICAO to hold more workshops as required.

4.1.9 In light of the above considerations, the meeting reaffirmed the relevance of the AFI/7 RAN meeting Conclusion 4/6 (Rescue and fire fighting services) and APIRG Conclusion 14/2 a) dealing with rescue and fire fighting in a difficult environment, and further developed the following Conclusion:

CONCLUSION 15/2: RESCUE AND FIRE FIGHTING SERVICES (RFFS)

That:

a) States which have not done so develop appropriate national regulations based on the ICAO requirements in RFFS;

b) ICAO develop, and make available to States, appropriate guidance material regarding RFFS staffing;

c) States which have not done so give priority to the provision of adequate rescue tools and protective material for RFFS staff;

d) States reinforce the exchange of experience in this field and, if necessary, call upon the expertise available in some States in the Region and at the Regional Offices for assistance;

e) States consider hosting ICAO-organized regional workshops on this matter in order to facilitate increased participation especially by the host State.

Aerodrome Emergency Plan (AEP)

4.1.10 The meeting observed that, despite several workshops that the ESAF and WACAF Regional Offices have held on the subject matter, the implementation of this requirement in the AFI Region was still inadequate. The integrity of the AEPs where they exist is questionable, the full-scale exercises when conducted were inadequate and, on many occasions, not followed up by elaborate critique and feedback sessions. It was further noted that there was not sufficient awareness amongst the responding agencies, in particular those that are not normally airport-based. In order to effect improvement, States were encouraged, where possible, to facilitate the participation of the Regional Offices in the planning, organizing, observing and assessment of the full-scale emergency exercises. The meeting therefore reaffirmed APIRG/12 Conclusion 12/6 (Aerodromes Emergency Planning) and developed the following Conclusion:

CONCLUSION 15/3: CONDUCT OF FULL-SCALE EMERGENCY EXERCISE

That States should consider inviting the ICAO Regional Offices to assist as required when they plan to conduct full-scale emergency exercises. Where possible, other States should be invited to witness the exercise and participate in the assessment sessions.

4.1.11 On the removal of disabled aircraft, the meeting was informed by Ghana of the availability of a disabled aircraft removal kit capable of lifting a B747-400 with a fully trained recovery

team of certified RFF officers that can be mobilized at short notice. This unit has, in the last two years, successfully held three recovery operations in Ghana and in the neighboring States.

Aerodrome certification

4.1.12 The meeting was informed that a survey initiated by the ESAF and WACAF Regional Offices had confirmed a low level of implementation of the requirement for aerodrome certification. It was agreed that the main reasons for this low level of implementation was, inter alia, the lack of expertise, the lack of an appropriate unit within the Civil Aviation Authority (CAA) to deal with the certification process, the lack of sufficiently trained personnel to process the applications for certification and conduct of the initial inspections, and the lack of the appropriate regulations. Where the regulatory authority and operations authority was one and the same, it was emphasized that these two bodies should at least fall under two separate administrative units.

4.1.13 The meeting acknowledged the efforts being made within the regional groupings such as UEMOA[1], the Banjul Accord Group (BAG)[2], CEMAC[3], with the assistance of the ICAO Technical Cooperation Bureau (TCB) and the EAC with the assistance of Federal Aviation Administration (FAA) under the Safe Skies Initiative and agreed that, such a cooperative approach, which enables the pooling of resources and facilitates the development of common reference documents, should be emulated elsewhere. The meeting was informed that the ESAF Regional Office is promoting similar arrangements for the SADC and the Common Market for Eastern and Southern Africa (COMESA) States.

4.1.14 The meeting appreciated the training activities that had been organized by both the ESAF and WACAF Offices on this subject matter and agreed that more such activities should be held. Future activities should include the element of safety management systems at aerodromes. In light of the above, the meeting reaffirmed the relevance of APIRG Conclusion 14/4 (Certification of aerodromes) and further developed the following Conclusion:

CONCLUSION 15/4: IMPLEMENTATION OF THE AERODROMES CERTIFICATION REQUIREMENT

That:

a) States consider the use of subregional groupings, where they exist, to collectively address the aerodromes certification requirement;

b) States which have not done so consider separating the regulatory authority from the airport authority, where feasible, taking into consideration the volume of aviation activity. In the case of a single management entity, the two functions should be under two separate departments;

c) ICAO continue to assist States by organizing more training activities, and including the subject of safety management system; and

d) States publish, in their respective Aeronautical Information Publications (AIPs), the list of airports which have been certified in accordance with the requirements of ICAO Annex 14 — *Aerodromes,* Volume I — *Aerodrome Design and Operations.*

[1] UEMOA includes Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.
[2] BAG includes Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone.
[3] CEMAC includes Cameroon, Congo, Gabon, Equatorial Guinea, Central African Republic, Sao Tome and Principe, and Chad.

Impact of the new larger aeroplanes (NLA) in the AFI Region

4.1.15 The AOP/SG received and reviewed the report of the second meeting of the NLA Task Force (NLA/TF) and acknowledged that the development of the Airbus 380 (A380) had now reached an advanced stage following the first test flight in February 2005. Consequently, all the technical and physical characteristics of the aircraft are known. It was also noted that, in addition to the introduction in Annex 14 (the requirements related to Code F aeroplanes), ICAO had, in the meantime, published Circ 305, *Operation of New Larger Aeroplanes at Existing Aerodromes*, of a Code F.

4.1.16 The meeting was also informed of the action taken by the European Civil Aviation Authorities (ECAC) where the A380 Airport Compatibility Group (AACG) developed a Common Agreement Document which considers ways of facilitating the introduction of the A380 for safe and harmonized operations in existing aerodromes not meeting Code F requirements. This Group has published such studies on a dedicated ECAC website (http://www.ecac-ceac.org/nla-forum).

4.1.17 The ESAF and WACAF Regional Offices ascertained that, thus far, only South Africa (Johannesburg and Cape Town) has clearly indicated that their airlines wish to fly the A380 to these aerodromes and the development works currently in progress included the provisions necessary for A380 operations. The meeting agreed that the studies carried out at the airports in South Africa should be made available to other States upon request. Despite the current lack of any immediate requirements, the meeting was of the opinion that, when new airports are being contemplated, some of the requirements for the operation of NLAs should be implemented in the first phase, in particular those related to strength and dimension of drainage channels and the aspect of land acquisition. The meeting emphasized that alternate aerodromes should also meet the minimum requirement to accommodate NLAs, and, in this regard, Egypt and Angola indicated that they were currently developing their airports with consideration of possible NLA operations.

4.1.18 The meeting observed that the NLA/TF had completed its original mandate and decided that it should be disbanded. Nevertheless the AOP/SG would continue to monitor developments in this regard. The following Conclusion and Decision were therefore adopted.

CONCLUSION 15/5: IMPACT OF NEW LARGER AIRCRAFT (NLA) IN THE AFI REGION

That:

a) specific aeronautical and other studies conducted by States to accommodate the NLA be shared with other States, on request, through the ICAO Secretariat or other appropriate means;

b) when contemplating development of new airports, consideration of some facilities required for Code F aerodromes, including land acquisition, strength and dimensions of culverts and bridges, etc., be included in the first phase.

DECISION 15/6: NEW LARGER AEROPLANES TASK FORCE (NLA/TF)

That the NLA/TF be disbanded and any additional monitoring be undertaken under the auspices of the AOP/SG.

Review of deficiencies in the AOP field

4.1.19 The meeting noted the efforts made by States to reduce the deficiencies. However, because of the new requirement to certify aerodromes, which has not been effectively implemented, the

list of deficiencies has increased. The meeting noted that the most common and persistent deficiencies were the lack of adequate aerodrome fencing, the lack of a duly approved, regularly tested and updated aerodrome emergency plan, the lack of an effective bird hazard reduction programme, the unreliability of the primary power supply, and the inadequate secondary power supply. Among the reasons for these persistent deficiencies was the lack of financial resources, the lack of financial and/or decision autonomy, the inadequate approach in implementing corrective measures due to lack of trained personnel, and emphasis at the management level of economic considerations.

4.1.20 The meeting held discussions on some practical solutions to eliminate these persistent deficiencies, such as not necessarily resorting to very expensive airport fencing, negotiation with the power supplier so that the airport is supplied from two different sources, and the involvement and sensitization of all stakeholders, including the neighbouring communities, for bird hazard control.

4.1.21 The meeting noted that the list of deficiencies was based on the Annex 14 requirement and the AFI air navigation plan (ANP). The latter is developed based on information provided by the States, particularly with regard to the critical aircraft. It is therefore essential that this information be up-to-date. The meeting therefore reaffirmed APIRG Conclusions 12/56, 12/57, 12/58 and 14/56 (Institutional strategies for addressing deficiencies in the air navigation field at airports in the AFI Region; Coordinated approach to solve persistent problems; Integrated subregional approach to the removal of shortcomings and removal; and Establishment of autonomous, respectively), and adopted the following Conclusion:

CONCLUSION 15/7: UPDATE OF THE AFI FASID AOP TABLE I

That all States regularly liaise with ICAO in order to ensure that the necessary updates of the Table AOP I are made as soon as the changes occur.

Participation at future AOP/SG meetin.

4.1.22 The meeting appreciated the encouraging response to requests for participation at AOP/SG meetings. It however emphasized that, in order to ensure efficiency and effectiveness at future meetings, States should consider including participants in their delegations who were at previous meetings so that there would be no repeat discussions of the items on the agenda. The meeting therefore adopted the following Conclusion:

CONCLUSION 15/8: CONTINUITY OF PARTICIPATION AT AOP/SG MEETINGS

That States, as much as possible, ensure that their delegations to AOP/SG meetings do not change too frequently so as to maintain continuity and to guarantee efficiency.

4.2 Communications, navigation and surveillance (CNS)

Communications systems

4.2.1. The meeting reviewed the report of the first meeting of the Communications, Navigation and Surveillance Sub-Group (CNS/SG/1), which was held in Dakar from 7 to 8 April 2005 and was attended by 57 participants from 19 States and 3 international organizations.

Aeronautical fixed services

Review of aeronautical fixed telecommunication network (AFTN) performance

4.2.2 In reviewing AFTN performance, the meeting noted that it was still affected by a number of weaknesses, such as low circuit availability in certain areas (e.g. circuits within AFI Satellite Telecommunications Network (AFISNET) core area), low level of implementation of bit-oriented protocols and low-speed circuits, thereby resulting in long transit times in some areas. It also noted that not all AFTN COM centres had implemented the 14th edition of the AFI AFTN Routing Directory and therefore urged those centres that had not yet done so to comply.

4.2.3 In order to improve AFTN performance in terms of time accuracy and transit times using a common time reference, the meeting recalled the importance of checking ATS systems clocks and other time recording devices (of which AFTN automatic message switches), as required, to ensure correct time to within plus or minus 30 seconds of Co-ordinated Universal Time (UTC) and recommended that the global positioning system (GPS) be the common time reference for all AFTN automated message switch clocks. The following Conclusions were adopted:

CONCLUSION 15/9: IMPLEMENTATION OF THE AFI AFTN ROUTING DIRECTORY

That AFI COM centres that have not yet done so urgently implement the AFI AFTN Routing Directory (14th edition, 2004).

CONCLUSION 15/10: SYNCHRONIZATION OF AFTN AUTOMATED MESSAGE SWITCH CLOCKS

That States and air navigation service providers that have not yet done so synchronize the clocks of their automated AFTN message switches using the global positioning system (GPS) as common time reference.

Status of implementation of the AFTN

4.2.4 The meeting noted that only 7 AFTN circuits (1 main and 6 tributary circuits) remained to be implemented for complete implementation of the AFTN Plan. In this connection, it invited the States to pursue their effort in improving the level of implementation and performance of AFTN in the AFI Region, notably by enhancing maintenance capabilities in some areas (e.g. AFISNET circuits in the Gulf of Guinea), by making use of very small aperture terminal (VSAT) technology, and by achieving interoperability between aeronautical VSAT networks in accordance with APIRG Conclusion 14/12 (Planning meeting on the integration of subregional VSAT networks).

4.2.5 The AFI AFTN Implementation Specifications as defined by APIRG/14 under its Conclusion 14/8 (Implementation requirements of the AFTN circuits) were also updated by the meeting, as shown in Appendix C to this report.

Implementation status of air traffic services/dialogue service (ATS/DS) circuits

4.2.6 The meeting reviewed the implementation efforts since the last meeting and noted that 23 ATS/DS circuits have been implemented by 27 States, whilst one State has not yet implemented any of the 3 required ATS/DS circuits. It should be noted that there are 36 non-implemented circuits out of a total of 227 ATS/DS circuits required in the AFI ANP.

4.2.7 The meeting noted that, while several VSAT solutions are being implemented, States concerned should be advised to use satellite telephone or public switched telephone network (PSTN) to satisfy the ATS/DS requirements, in accordance with APIRG Conclusion 12/15 (Implementation of the ATS/DS Circuit Plan). The following Conclusion was adopted:

CONCLUSION 15/11: IMPLEMENTATION OF ATS/DS CIRCUITS

That the following centres use, as a temporary measure, satellite telephones for ATS coordination with relevant adjacent centres, pending the availability of the planned VSAT connections: Abidjan, Accra, Brazzaville, Khartoum, Kinshasa, Luanda and N'Djamena.

Use of VSAT technology to cater for AFS requirements

Communications requirements between Accra, Brazzaville, Dakar Oceanic (Abidjan Sector), Kano, Kinshasa and Luanda FIRs

4.2.8 The meeting noted that the ATS/COM Coordination Meeting among Accra, Brazzaville, Dakar Oceanic (Abidjan Sector), Kano, Kinshasa and Luanda FIRs, as called upon by APIRG/14 (Conclusion 14/11 refers), was held in Luanda, Angola, from 24 to 26 November 2003, and that the requirements for ATS communications among these FIRs (except Kinshasa FIR) and Luanda FIR were far from being met. It therefore reiterated the need for States and organizations concerned to implement the required VSAT facilities.

Updates on VSAT networks

4.2.9 The meeting was updated on the implementation status and plans for the development of AFISNET, SADC, Central Atlantic FIR Satellite Network (CAFSAT) and North Eastern AFI VSAT Network (NAFISAT) VSAT networks as follows:

- *AFISNET Network:* New VSAT stations have been installed within Accra FIR (Benin, Ghana and Togo) and in Sao Tome to support AFS and aeronautical mobile service (AMS) (extended VHF coverage). A VSAT station was installed in Algiers to support aeronautical fixed service (AFS) links with Dakar and Niamey, and also a bilateral ATS/DS circuit Algiers/N'Djamena. It was noted that AFISNET members were considering a collective approach to auditing and re-engineering the network.
- *CAFSAT Network:* Argentina has installed a CAFSAT node in Ezeiza connected to Johannesburg and Canary Islands; and Morocco is developing a national VSAT network to be established on CAFSAT operated Satellite IS-801@328.5° East.
- *SADC Network:* Activities related to the SADC VSAT-2 replacement network are underway. The new network is expected to be operational in 2007.
- *NAFISAT Network:* A MoU on the implementation of the NAFISAT was signed by Djibouti, Egypt, Eritrea, Libya, Kenya, Civil aviation Caretaker Authority (CACAS) of Somalia, Seychelles, Sudan, Uganda, Tanzania, Yemen, the air traffic navigation services of South Africa (ATNS) and the International Air Transport Association (IATA). Two more States are still to sign the NAFISAT MoU: Ethiopia has confirmed its participation and Saudi Arabia is considering its participation. The network is expected to be operational in 2007.

4.2.10 In respect of AFISNET, taking into consideration the continuous degradation of the network performance in the Gulf of Guinea over the past three years and based on information provided to it, the meeting urged Ghana, Nigeria, the Agency for Air Navigation Safety in Africa and Madagascar

(ASECNA) and Roberts FIR to implement an enhancement programme in order to restore the stability and reliability of the aging network, and to take the necessary steps to expedite the conduct of a joint external technical audit in view of the network re-engineering, with the assistance of the relevant ICAO Regional Office. The following conclusion was adopted:

CONCLUSION 15/12: SUSTAINABILITY OF AFISNET NETWORK

That Ghana, Nigeria, ASECNA and Roberts FIR implement an enhancement programme in order to restore the stability and reliability of AFISNET performance in terms of availability, efficiency and maintainability.

Consolidation and interoperability of VSAT networks

4.2.11 The meeting noted that, in accordance with APIRG Conclusion 14/12 (Planning meeting on the integration of subregional VSAT networks) and based on the outcome of the regional planning meeting on VSAT Network Integration Meeting (Johannesburg, 31 March - 1 April 2004), the migration of AFISNET network (55 VSAT stations) onto INTELSAT Satellite IS 10-02 was successfully completed in October/November 2004. The meeting commended all States and organizations concerned (Ghana, Nigeria, Mauritius, Réunion, Sao Tome and Principe, South Africa, ASECNA Member States, Roberts FIR Member States) for such an important achievement, a challenging process which required tremendous efforts in terms of human resources, training of personnel, funding, coordination and cooperation with INTELSAT and the industry under ICAO auspices.

4.2.12 Mindful of the potential benefits and savings that would be derived from the consolidation of existing and planned VSAT networks, the meeting confirmed the necessity for establishing the remaining VSAT networks on the same IS 10-02 transponder to the maximum extent possible. It accordingly recommended that the States concerned take the necessary steps with INTELSAT to have the required bandwidth secured, with the assistance of the ICAO Regional Offices. The attention of the meeting was drawn to the technical limitations of the targeted Transponder 20/20 of INTELSAT Satellite IS 10-02 to cater for coverage (polarization) and bandwidth requirements for CAFSAT, NAFISAT and SADC/2 networks. In this connection, it was agreed that the ICAO Regional Offices should arrange for a coordination meeting between States and organizations concerned as well as INTELSAT as a matter of urgency in order to find ways of consolidating all aeronautical VSAT networks on the same IS 10-02 transponder.

4.2.13 The meeting re-affirmed the need for achieving interoperability between VSAT networks in order to implement an integrated and seamless network on a larger scale, and reviewed ways of achieving this objective. The meeting adopted the following conclusion:

CONCLUSION 15/13: INTEROPERABILITY OF VSAT NETWORKS

That the States concerned, with the assistance of ICAO:

a) pursue the process of establishing MID VSAT, NAFISAT and SADC/2 networks on Satellite IS 10-02@359°E, Transponder 20/20 EHA;

b) be encouraged to take advantage of new VSAT technology platform functionalities in terms of network spectrum usage, flexibility, quality of service management, etc.;

c) make effort to achieve interoperability at baseband level where access techniques differ due to the application of emerging VSAT technologies, taking into consideration agreed performance and quality of service requirements for the aeronautical fixed and mobile services (including data link services);

d) carry out necessary coordination with their AFS correspondents when implementing new VSAT systems in order to anticipate interoperability end-to-end requirements; and
e) as a matter of urgency organize a coordination meeting with INTELSAT, the space segment provider, in order to discuss ways of achieving effective consolidation of all aeronautical VSAT networks on a single transponder of IS 10-02.

ATN planning: Development of draft AFI ATN routing architecture and addressing plan

4.2.14 The meeting, when reviewing the initial draft AFI ATN routing architecture prepared by the ATN Planning Task Force of CNS/SG/1, agreed that it should be circulated to AFI States for comments and completion of the related tables. States were therefore requested to provide the Secretariat with the required feedback in a timely manner for consideration by the ATN Planning Task Force when finalizing its assigned work. The meeting noted both Ethiopia and Tunisia's willingness to host ATN backbone boundary intermediate systems and advised them to raise this issue at the Task Force level. The meeting, however, was of the view that the ATN architecture planning should take into account the volume of the traffic and the historical performance of existing AFTN main centres. It also took note of the Sub-Group's work on the development of a draft ATN network service access point (NSAP) addressing plan intended to provide guidance in the specifications of NSAP addresses and of routing domain identifiers for routing domains and routing domain confederations. The following conclusion was adopted:

CONCLUSION 15/14: DRAFT AFI ATN ROUTING ARCHITECTURE

That the initial draft AFI ATN routing architecture as developed by the ATN Planning Task Force be circulated to States for comments and completion of the tables.

Aeronautical mobile service

Extension of VHF coverage in the AFI Region

4.2.15 The meeting commended the efforts made by a number of States to extend VHF coverage of ATS routes using VSAT technology, in accordance with AFI/7 Recommendation 5/12 (Implementation of VHF radio coverage). It particularly noted with satisfaction the implementation of a total of 50 remote VHF stations throughout the following 11 FIRs: Accra, Algiers, Antananarivo, Brazzaville, Dakar, Khartoum, Kinshasa, Lusaka, Mauritius, N'Djamena and Niamey.

4.2.16 The meeting was informed that extended VHF radio coverage was critically needed within Luanda and Tripoli FIRs. Concerns were expressed at the recurrence of ATS incidents in the oceanic part of Luanda FIR due to lack of high frequency (HF) communications. The meeting was apprised of Angola's plans to improve extended VHF radio coverage and HF communications reliability within Luanda FIR in the near future. The following Conclusions were adopted:

CONCLUSION 15/15: AIR/GROUND COMMUNICATIONS IN LUANDA FIR

That, taking into account the increasing number of ATS incidents in its airspace, Angola, as a matter of urgency, assign the highest priority to extend VHF coverage over continental FIR and the provision of efficient HF communications over the oceanic part of Luanda FIR.

CONCLUSION 15/16: AIR/GROUND COMMUNICATIONS IN TRIPOLI FIR

That Libya assign a high priority to extend VHF coverage in Tripoli FIR.

Navigation Systems

Status of implementation of the aeronautical radio navigation service

4.2.17 APIRG reviewed the implementation efforts since its last meeting and noted that 41 navigational aids (of which 24 omnidirectional radio range (VORs), 13 distance measuring equipment (DME), and 4 instrument landing systems (ILSs)) required in the AFI Air Navigation Plan (ANP) had not yet been implemented, whereas 14 installed facilities (8 VORs, 5 DMEs and 1 ILS) were to be repaired. Most of the reported deficiencies (84%) were related to en-route operations. The Democratic Republic of the Congo reported implementation of new navigation aids (VOR, DME, ILS) at Kinshasa/Ndjili and Lubumbashi airports. Concerning Cameroon, the meeting agreed that the AFI FASID should be amended to replace the non-implemented VOR/DME of Foumban with that operating at Bafoussam (27 NM away). The following conclusion was formulated:

CONCLUSION 15/17: AMENDMENT TO AFI FASID, TABLE CNS-3

That the AFI FASID Table CNS-3 be amended to replace the VOR/DME of Foumban with that of Bafoussam.

Global navigation satellite system (GNSS) Implementation

4.2.18 The meeting reviewed the progress report of the GNSS Implementation Task Force GNSS/I/TF). This Task Force has held 3 meetings: Dakar (17-18 November 2003), Johannesburg (22-23 June 2004) and Lagos (29-30 June 2005).

Implementation of Basic GNSS

4.2.19 The United States of America provided the status of collaborative efforts with ICAO and AFI States in implementing Basic GNSS in the AFI Region. Since 2004, under the Safe Skies for Africa programme, the FAA has provided training in GNSS NOTAMs, GNSS flight inspection, legal and regulatory framework for GNSS and ICAO PANS-OPS (two sessions). It was stated that future GNSS training will be based on an assessment of the current needs of States.

4.2.20 Kenya provided information that it had authorized the use of GNSS for en-route, terminal and non-precision approaches. Further, GNSS-based procedures, non-precision approach (NPA), standard instrument departures (SIDs) and standard terminal arrival routes (STARs) have been published, and operational evaluations by selected operators were to commence in early September 2005. The Kenyan GNSS implementation programme includes:

a) completion of a draft legislation pertaining to requirements for airworthiness, operations, maintenance, pilot license, air traffic services and aeronautical telecommunications;

b) training of personnel for GNSS implementation; targeting air traffic controllers, airworthiness and flight operations inspector;

c) training of PAN-OPS procedure designers and developers to certification level; and

d) development and implementation of GNSS procedures for an additional international airport in Eldoret and three domestic airports in Kisumu, Malindi and Lokichoggio.

4.2.21 The meeting reviewed progress made by States in publishing approvals of the operational use of GPS from en-route to NPA, development, testing and publication of non-precision approach and landing procedures. The status of implementation was as follows:

a) approval of operational use of GPS:
   - Cape Verde, Egypt, Ethiopia, Kenya, Malawi, Tunisia, South Africa and Sudan;

b) approval pending:
   - Angola, Botswana, Democratic Republic of Congo, Lesotho, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe: procedures tested but not yet published;
   - Benin, Burkina Faso, Cameroon, Central African Republic, Congo, Cote d'Ivoire, Gambia, Gabon, Equatorial Guinea, Madagascar, Mali, Mauritania, Niger, Senegal, Chad and Togo: procedures published but regulatory texts not yet published.

GNSS Test Bed

4.2.22 The meeting noted that three European Geostationary Navigation Overlay Service (EGNOS) test beds have been implemented in the AFI Region using 10 reference and integrity monitoring stations (RIMS) in central, southern and eastern Africa. The performance level was approach with vertical guidance – I (APV-I). In this regard, Kenya reported on the successful flight demonstrations performed in Nairobi on 19 May 2005.

Pre-operational test bed: AFI System Test Bed (ASTB)

4.2.23 The meeting noted that the pre-operational Studies and planning for the operational satellite-based augmentation system (SBAS) test bed, known as the AFI System Test Bed (ASTB), would be built from the existing three test beds with the addition of 4 RIMS to be located at Accra, Cape Town, Jeddah and Mahajanga. The objective of the ASTB is to provide APV-I signal over AFI landmasses. The operation of the Cape Town and Mahajanga RIMS was planned during the fourth quarter 2005. It was planned to operate the ASTB until mid-2006.

4.2.24 IATA stated its firm opposition to the implementation of SBAS in the AFI Region. The meeting took note and recalled that IATA has participated for the past 10 years in all activities related to GNSS implementation, apart from not attending the third meeting of the AFI GNSS/I/TF.

SBAS

4.2.25 The meeting noted that, in accordance with APIRG/14 Conclusion 14/46 (Implementation of a GNSS SBAS operational system), several studies and planning activities were conducted, in cooperation with the European Commission (EC) and the European Space Agency (ESA), toward the implementation of the AFI operational SBAS, known as the Inter-regional SBAS over AFI (ISA). The work covered technical studies, institutional arrangements, cost-benefit analyses and funding options.

Technical studies for ISA

4.2.26 The meeting was informed that ESA has contracted an industrial group to conduct detailed ISA feasibility studies, including ionosphere, communications network, central processing facility extension, ISA architecture and cost assessment, etc. The report is expected to be available during the first quarter 2006.

Institutional framework for the ISA

4.2.27 The meeting agreed that, in view of the progress of the technical studies for the ISA, there was urgency for the AFI Region to establish organizational structures capable of oversight, administration, operating and maintaining the ISA. The meeting reviewed and discussed the institutional model developed by the GNSS TF. After discussion, the following institutional set-up was agreed for ISA:

a) Three sub-regional ISA service providers to be established in:
   i) AFI West and Central area, corresponding to FIRs of ASECNA States and FIRs Accra, Kano, Roberts and Sal;
   ii) AFI South, which corresponds to the SADC States; and
   iii) AFI East, which covers FIRs Addis Ababa, Asmara, Entebbe, Khartoum, Mogadishu, Nairobi and Seychelles.

b) Each subregional ISA service provider to be appointed and supervised by a management board composed of the concerned States/air navigation service providers (ANSPs) and users; and

c) An AFI-wide ISA Supervisory Board, composed of ATS providers, users and ISA subregional providers, to coordinate with the three subregional management boards in b) above and with the Mediterranean Development Area (MEDA).

4.2.28 The meeting requested the GNSS TF to follow-up on the MEDA RIMS installed in North Africa. The proposed structure is shown at Appendix D to the report, which includes an example of composition of a subregional management board. The following conclusion was adopted:

CONCLUSION 15/18: PROPOSED INSTITUTIONAL STRUCTURE FOR THE INTERREGIONAL SBAS OVER THE AFI REGION

That the institutional structure model shown at Appendix D to the report be adopted for implementation of the ISA.

Cost-benefit analysis

4.2.29 The meeting noted a study on the benefits of the ISA, which indicated that the benefits are most likely to arise from safety-of-life applications. The study estimates benefits of around €5-10 million in the early years, increasing to around €30 million per year once all aircraft are equipped with SBAS receivers. The estimated costs of implementing and operating the ground infrastructure of SBAS would be around €10-12 million per year. Further studies are required to accurately determine both implementation and operating costs. Potentially significant benefits, such as avoiding the costs of replacing conventional navigation aids and the safety benefits, have not yet been quantified in economic terms. The study did not take into account the cost of aircraft equipage. In this regard, ASECNA presented a preliminary cost-benefit analysis for its area.

Funding options for ISA

4.2.30 The meeting reviewed the funding options for the ISA and concluded that they could comprise a combination of the following:

a) direct input from the designated subregional service providers;

b) input from the European Commission regional programmes, for the preparatory activities; and

c) loan from the European Investment Bank (EIB) for the ISA infrastructure.

4.2.31 With regard to para 4.2.30 a) above, the meeting agreed on the need for commitment by ATS providers to invest in ISA implementation. In this regard, it was agreed that a meeting of parties interested in ISA investment and management be organized as soon as possible.

4.2.32 With regard to b) above, APIRG considered the validity of Conclusion 14/45 (States support for the funding of GNSS implementation) regarding the need to obtain the support and inclusion of ISA into the priority EC programmes of regional economic organizations (CEMAC, COMESA, ECOWAS[4] and SADC). The mandate of these programmes would be completed in 2005-2006. The following conclusion was adopted:

CONCLUSION 15/19: MEETING OF INVESTORS IN THE ISA

That a meeting of AFI ATS providers, identified as potential investors in the ISA, be convened as soon as possible in order to:

a) confirm their commitment to invest in the ISA;

b) review and endorse the proposed institutional structure model; and

c) take ownership of the implementation of the ISA.

Amendment of the AFI GNSS strategy

4.2.33 The meeting revised the AFI GNSS implementation strategy by amending the timelines and the objectives of Phase II, taking into consideration new terminology for approach with GNSS vertical guidance as shown in Appendix E to the report. The following conclusion was adopted:

CONCLUSION 15/20: REVISED AFI GNSS IMPLEMENTATION STRATEGY

That the updated AFI GNSS Implementation Strategy shown in Appendix E to the report be adopted and provided to States.

Surveillance Systems

Status of implementation of AFI Surveillance Plan

4.2.34 The meeting was apprised of the status of implementation of the AFI aeronautical surveillance plan and was provided with information on surveillance implementation plans and related activities by Algeria, ASECNA, Ghana and South Africa and, based on the information provided and its discussions, it updated Tables CNS-4A and CNS-4B, as shown in Appendices F and G, respectively, to this report. The following conclusion was adopted:

CONCLUSION 15/21: AMENDMENT TO AFI FASID, TABLES CNS-4A AND CNS-4B

That AFI FASID Table CNS 4A – *Surveillances systems* and Table CNS 4B – *ATS automation systems* be amended, as shown in Appendices F and G, respectively, to this report.

Automatic dependent surveillance/controller-pilot data link communications (ADS/CPDLC)

4.2.35 The meeting noted the need for increased participation by airlines in the ADS/CPDLC trials. It also identified the need to include in the work programme of the APIRG ATM Sub-Group, the development of an ADS/CPDLC operational manual, based on those already in use or are being

[4] ECOWAS: Economic Community of West African States

introduced in adjacent regions (e.g. Asia and Pacific (APAC), Caribbean and South America (CAR/SAM), Indian Ocean, North Atlantic (NAT), South Atlantic) to facilitate interoperability at global level. The following Conclusion and Decision were adopted.

CONCLUSION 15/22: ADS-C/CPDLC TRIALS

That operators that are already ADS-C equipped cooperate with States and participate in the various ADS/CPDLC trials underway in the AFI Region.

DECISION 15/23: FUTURE AIR NAVIGATION SYSTEMS (FANS) 1/A OPERATIONAL MANUAL FOR AFI REGION

That the Air Traffic Management Sub-Group (ATM/SG) include in its work programme the development of a FANS 1/A operational manual for use in the AFI Region, taking due account of the operational manuals already in use in adjacent regions (ASIA/PAC, CAR/SAM, Indian Ocean, NAT, South Atlantic) to ensure global interoperability.

ADS-Broadcast (ADS-B) data link in the AFI Region

4.2.36 The meeting discussed the ADS-B data links: Mode S extended squitter, VHF data link (VDL) Mode 4, and universal access transceiver (UAT). Taking into account the need for ensuring global interoperability, the meeting endorsed Recommendation 7/1 (Strategy for the near-term introduction of ADS-B) of AN-Conf/11 concerning the adoption of Mode S extended squitter as the initial data link for introduction of ADS-B in the AFI Region. The following conclusion was adopted.

CONCLUSION 15/24: INITIAL ADS-B DATA LINK IN THE AFI REGION

That the SSR Mode S extended squitter be the initial data link for the introduction of ADS-B in the AFI Region.

Alternate means of surveillance

4.2.37 During its discussions concerning surveillance requirements, the meeting agreed that, when developing the AFI Aeronautical Surveillance Plan, the CNS Sub-Group should consider the possible introduction of surveillance systems using multilateration technique, pending their standardization by ICAO.

Cooperative approach to maintenance of air navigation infrastructure

4.2.38 The meeting recalled APIRG/14 deliberations on the need for a cooperative approach between States in addressing maintenance issues, harmonization of maintenance working methods and coordination procedures. Such cooperation between States should include the signing of cooperation agreements and/or of letters of agreement between maintenance units. The following conclusion was adopted:

CONCLUSION 15/25: COOPERATIVE APPROACH TO CNS MAINTENANCE

That AFI States adopt a cooperative approach in addressing issues related to the maintenance of CNS facilities, e.g. by signing cooperation agreements and/or of letters of agreement between their maintenance units and harmonizing performance assessment procedures.

Review of ICAO position and preparations for the International Telecommunication Union) — World Radiocommunication Conference — 2007 (ITU-WRC-2007)

4.2.39 The meeting reviewed the ICAO position for ITU-WRC-2007. Attention was drawn to WRC-07 Agenda Items 1.5 and 1.6 and their direct effect on expansion of ICAO CNS/ATM systems. States were urged to participate in country and regional ITU WRC preparatory meetings (namely those of the African Telecommunications Union (ATU)) so that the ICAO position is reflected in their country's and the ATU's submissions to the ITU. The following conclusion was adopted:

CONCLUSION 15/26: ICAO POSITION AND PREPARATIONS FOR THE ITU-WRC-2007

That States and air navigation service providers:

a) continue their efforts on implementation of the relevant elements of ICAO Assembly Resolution A32-13 (Support of the ICAO policy on radio frequency spectrum matters) and, in particular, participate in the preparatory work of the ITU and the ATU for WRC-07;

b) continue to assign high priority to the tasks relating to the protection and availability of radio frequency spectrum allocated to aeronautical services and, in particular, actively participate in the relevant activates of the ITU Radiocommunications Sector (ITU-R) and the ATU; and

c) provide their focal contact person for ITU matters, if they have not yet done so.

4.3 Air traffic management (ATS, AIS & SAR)

Review of air route structures

4.3.1 The Group recalled APIRG Conclusion 14/19 (Implementation of the non-implemented routes, including RNAV routes) and the 35th Session of the ICAO Assembly, which had instructed the Council, as a matter of priority, to utilize the planning and implementation regional groups (PIRGs) to identify possible further savings through rationalization of the air route structures. To this end, APIRG identified the need to establish an internationally funded project in the AFI Region to review and rationalize ATS route structures contained in the AFI ANP. The immediate focus of the project would be to include area navigation (RNAV) routes, parallel routes where required, and the connection of major city pairs in the ANP. This action would enhance planning for implementation of supporting facilities and services and identify any further possible savings in flight times for users, which translates directly into financial and environmental benefits.

4.3.2 It was agreed that, once these tasks had been completed, regional agreement could be reached at the next AFI RAN meeting, as proposed by the African Civil Aviation Commission (AFCAC), or through the ANP amendment process, in order to eliminate any service disruption. The following conclusion was developed:

CONCLUSION 15/27: AIR TRAFFIC MANAGEMENT AND AIR ROUTE STRUCTURE IMPROVEMENTS

That ICAO develop a comprehensive planning document for overall ATM and air route structure improvements in the AFI Region; through the special implementation project (SIP) mechanism, use the planning document as the basis for obtaining the funds from the donor organizations to fund the project.

Fuel crisis and urgent need to implement fuel saving measures

4.3.3 The meeting noted with concern that the extraordinary high oil prices threaten the aviation industry with substantial losses.

4.3.4 APIRG was urged to implement measures for fuel savings. These measures include airspace and air route restructuring, enhanced ATS techniques, review of various noise abatement procedures, coordination and cooperation with military authorities for the optimum use of airspace, and any other measure to ensure that aircraft operate in the most efficient environment.

4.3.5 APIRG agreed that every step identified, achieved and expeditiously implemented would result in significant savings to airlines.

4.3,6 It was noted that the project on the review of the AFI air route structure would contribute significantly to fuel savings and efficiency. The Group then formulated the following conclusion:

CONCLUSION 15/28: FUEL EFFICIENCY MEASURES

That States:

a) identify, with IATA and local airlines, actions that would provide fuel efficiency;

b) establish and promulgate a program to implement fuel efficiency measures; and

c) nominate a "fuel champion" who would liaise with IATA, airlines, ANS providers and other stakeholders to ensure that all possible fuel conservation strategies are evaluated and implemented.

4.3.7 The meeting, which reviewed the report of the eighth meeting of the ATM Sub-Group (Dakar, 10-12 August 2005), adopted conclusions developed by the Sub-Group.

4.3.8 APIRG was updated on the deliberations of the third Aeronautical Information and Charts (AIS/MAP) Task Force and noted that among the issues covered were the provisions governing automation of the integrated aeronautical information package. The meeting then formulated and revised other conclusions relating to AIS/MAP.

4.3.9 APIRG was apprised of the provisions relating to the implementation of area control services, ATS D/S circuits, the review of the ATS route network, and the review of the implementations of ICAO requirements in the fields of ATS, AIS and SAR, and considered deficiencies in the ATS/AIS/SAR fields.

4.3.10 The meeting considered standards relating to the implementation of airborne collision avoidance system (ACAS) II, secondary surveillance radar (SSR) transponders and implementation of the ATS safety management programme; and it urged the concerned States to pursue their implementation.

4.3.11 The following Conclusions relevant to fields of ATS/AIS/SAR were formulated:

CONCLUSION 15/29: REPORTING AND ANALYSIS OF ATS INCIDENTS

That, in compliance with Assembly Resolution A31-10 (Improving accident prevention in civil aviation), the provisions in the ICAO Annex 13 (Aircraft Accident and Incident Investigation), paragraph 7.3, and AFI/7 Recommendation 5/26 (Reporting and analysis of ATS incidents),

States establish incident reporting systems which should be non-punitive and educational in order to register the maximum number of incident reports.

CONCLUSION 15/30: ATS OPERATIONAL AUDITING AND PROFICIENCY MAINTENANCE

That, in the spirit of AFI/7 Conclusion 5/27 (ATS operational auditing and proficiency maintenance), the lack of standard auditing and proficiency maintenance procedures in ATS units of States be included in the APIRG list of deficiencies relating to the ATM field.

CONCLUSION 15/31: APPLICATION OF FLEXIBLE USE OF AIRSPACE (FUA)

That:

a) States adopt a FUA approach in establishing prohibited, restricted or danger areas such that these areas are established on a temporary basis, taking into account the needs of civil aviation; and

b) States constantly review the existence of prohibited, restricted or danger areas pursuant to LIM/AFI (1988) Recommendation 2/21.

CONCLUSION 15/32: ATS SAFETY MANAGEMENT

That States which have not done so, implement a systematic and appropriate ATS Safety Management Programme to ensure safety is maintained in the provision of ATS within airspaces and at aerodromes (Annex 11 — *Air Traffic Services* refers).

CONCLUSION 15/33: DISSEMINATION OF AIS DATA

That, in the spirit of APIRG Conclusion 13/48, States which have not done so establish a civil aviation website taking into account integrity, security of information and guidance on the use of the public Internet for aeronautical applications.

CONCLUSION 15/34 : AERODROME AIS UNIT IMPLEMENTATION

That States ensure that AIS Aerodrome Units at FASID Table AIS (1) (Appendix H to this report) are established and manned by qualified AIS personnel.

CONCLUSION 15/35: STATUS OF IMPLEMENTATION OF THE ICAO REQUIREMENTS IN THE AIS/MAP FIELD IN THE AFI REGION

That the following AFI FASID tables be circulated to States for update and which will subsequently form the amendment proposal to the AFI FASID:

a) AFI FASID Table AIS-1, which sets out the requirements pertaining to the establishment of aerodrome AIS Units in the AFI Region;

b) AFI FASID Table-AIS-2, which sets out the requirements pertaining to the AIS required at aerodromes; and

c) AFI FASID Table AIS-4, which sets out the requirements for the Integrated Aeronautical Information Package from foreign AIS to be available at aerodrome/heliport AIS Units in the AFI Region, for pre-flight briefing.

CONCLUSION 15/36: STATUS OF IMPLEMENTATION OF THE INTEGRATED AERONAUTICAL INFORMATION PACKAGE

That the status of implementation of the integrated aeronautical information package, at F 4.3B be circulated to States for update.

CONCLUSION 15/37: ORGANIZATION OF AN AUTOMATED AIS SYSTEM

That States be urged to achieve automation at a national level in accordance with APIRG/13 Conclusion 13/44 (AIS Automation Strategy) and by using the principles governing introduction of ais automation in the AFI Region, at Appendix I to this report.

CONCLUSION 15/38: PARTICIPATION OF AIS PERSONNEL IN THE PLANNING RELATED TO CNS/ATM IMPLEMENTATION

That AIS personnel be involved in the planning related to CNS/ATM implementation.

CONCLUSION 15/39: IMPLEMENTATION STRATEGY FOR AIS AUTOMATION IN THE AFI REGION

That, with a view to ensuring progressive implementation of automated AIS systems, States, which have not yet introduced automation within their AIS, are urged to:

a) plan to initially automate their NOTAM and pre-flight information services; and/or

b) arrange for the provision of automated services on their behalf on the basis of bilateral or multilateral agreements with States or other non-governmental organizations.

CONCLUSION 15/40: HARMONIZATION OF AIS, MET AND FILED FLIGHT PLAN (FPL) INFORMATION

That:

a) in view of AIS automation, States should take the necessary measures to enable users to access both AIS and MET information from a common interface based on the flight plan entry, to support combined AIS/MET/FPL pre-flight briefing from one common point access; and

b) States implement a selection functionality based on the ICAO NOTAM selection criteria and an update briefing functionality to enable the notification of updates following an initial briefing.

CONCLUSION 15/41: QUALITY MANAGEMENT SYSTEM

That:

a) in accordance with Annex 15 — *Aeronautical Information Services* provisions, AFI States which have not done so are required to take the necessary measures to implement a quality management system within their AIS, in conformity with the ISO 9001 series of standards; and

b) a draft questionnaire on quality management system at Appendix K be circulated to States for comments before adoption for application in the AFI Region; and

c) ICAO develop, as a matter of urgency, an AIS guidance material on quality management systems**.**

CONCLUSION 15/42: CONVERSION OF EN-ROUTE GEOGRAPHICAL COORDINATES TO WORLD GEODETIC SYSTEM-1984 (WGS-84) AND UPDATING OF AERONAUTICAL CHARTS

That:

a) States which have not done so complete the required conversion of their WGS-84 for en-route and FIR boundary reporting points and, accordingly, update all the aeronautical charts; and

b) ICAO assist States concerned in respect of a) above.

CONCLUSION 15/43: CENTRALIZED AFI AIS DATABASE

That IATA, in cooperation with ICAO and air navigation service providers in the AFI Region, study the establishment of a centralized AFI AIS data base similar to the European aeronautical database and forward it to the AIS/MAP Task Force for its consideration.

CONCLUSION 15/44: FAMILIARIZATION VISITS

That, in the spirit of AFI/7 Recommendation 12/3, States be encouraged to put a plan in place for familiarization visits to foreign AIS units as part of training and development.

CONCLUSION 15/45: IMPLEMENTATION OF ATC SERVICE

That States which have not yet done so implement air traffic control (ATC) service along all ATS routes contained in Table ATS 1 of the Air Navigation Plan — *Africa-Indian Ocean Region* (Doc 7474), as soon as possible, but not later than 28 September 2006, in the spirit of AFI/7 Recommendation 5/21 (Provision of area control service).

CONCLUSION 15/46: AMENDMENT TO AFI ANP TABLE ATS-1

a) that the ICAO AFI ANP Table ATS-1 be amended to include a requirement for ATS routes, at Appendix L.

b) the ATS routes, at Appendix M, be deleted from the AFI ANP; and

c) that ATS routes, at Appendix N, be realigned as shown.

CONCLUSION 15/47: IMPLEMENTATION OF ATS ROUTES, INCLUDING RNAV ROUTES

That:

a) States which have not yet done so expedite the implementation of ATS routes shown in Appendix O as soon as possible but not later than 28 September 2006.

b) the realigned RNAV routes UM998 (Gaborone, Maun, Luena and Maiduguri) and UM731 (Johannesburg, Saurimo and N'Djamena) through Angola, Botswana, Central African Republic, Chad, Congo, D.R. Congo, Libya, Nigeria, South Africa and Zambia be implemented on the common aeronautical information regulation and control (AIRAC) date of 19 January 2006; and

c) Angola, Botswana and D.R. Congo implement segments of RNAV routes UM998 at the common AIRAC date of 19 January 2006.

CONCLUSION 15/48: SAR COOPERATION AGREEMENTS AMONGST STATES

That, in order to promote a more effective and economic utilization of SAR facilities, States should enter into precise agreements with other States in order to pool their resources and provide mutual assistance in SAR operations, using the specimen agreement in Appendix I of the *International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual,* Volume I — *Organization and Management* (Doc 9731).

CONCLUSION 15/49: IMPLEMENTATION OF SAR LEGISLATION

That, as a matter of priority, States undertake to:

a) enact the SAR legislation that will make SAR operations legal, and empower the SAR mission coordinator to request external assistance when the available facilities and personnel are unable to cope with an emergency or are deemed inadequate to cope with a distress situation; and

b) ensure that the request referred to in a) is not delayed by any approval requirements from high-level authorities, and that a notification should be sufficient.

CONCLUSION 15/50: AFCAC PROJECT IN THE SAR FIELD

That, because of persistent problems that still hinder the implementation of ICAO's requirements in the SAR field, States be urged to support the AFCAC SAR project, the objective of which is to accelerate the implementation of ICAO SAR requirements and emphasizing, in particular, related legislation, organizational matters and agreements.

4.4 RVSM implementation in the AFI Region

4.4.1 The meeting recognized that the AFI RVSM implementation programme is undoubtedly the largest ATM implementation project undertaken by the Region. The initiative will not only realize the implementation of RVSM as planned, but also, as a spin-off, the ATM infrastructure contributing to overall safety in the AFI Region has been improving step by step,. At the same time, AFI States and aviation partners are being drawn closer together in the field of ATM cooperation.

4.4.2 The meeting recalled that the RVSM preparation process is based on scientific methodology, and the following steps (paragraph 4.4.3 below refers) have been undertaken to achieve implementation in accordance with ICAO provisions.

4.4.3 As a first step, a comprehensive Functional Hazard Assessment (FHA) has been completed by independent consultants as required and adopted by the RVSM Task Force 6 (Nairobi, 25-27 May 2005) with participation and input from most States in the Region. The FHA will contribute substantially to aviation safety in the Region by identifying hazards and mitigation measures, where necessary. The FHA has been utilized by States to compile their own unique national safety plans (NSPs).

4.4.4 The meeting noted with appreciation that 46 of 54 States have submitted NSPs. To date, 42 NSPs have been reviewed by an international panel led by ICAO Headquarters, and feedback was provided to each State. Four NSPs were submitted for processing during the meeting.

4.4.5 APIRG recalled that the Commission highlighted the need for a comprehensive Collision Risk Assessment (CRA) prior to implementation. To this end, an expert engaged by EUROCONTROL has compiled a CRA for the AFI Region. The meeting recognized that the CRA was completed at an early stage of RVSM planning, after the implementation date had been postponed, to highlight areas where

improvements may be required. The Group noted that the CRA would have to be re-calculated as a final step before implementation, followed by a comprehensive Pre-implementation Safety Case (PISC). States were requested to diligently report all incidents with the aim of rectifying the causes. The improved reporting mechanism will identify deficiencies to be rectified. The overall reduction of incidents is required to achieve an acceptable target level of safety (TLS).

4.4.6 The meeting noted that the AFI Regional Monitoring Agency (ARMA) has been established and in contact with 53 of the 54 RVSM national program managers.

4.4.7 The meeting recalled that, in order to foster the implementation of RVSM, there was an urgent need to improve communication, in particular ATS/DS circuits and air/ground communication.

4.4.8 The meeting unanimously agreed that RVSM implementation should proceed once all requirements stipulated above are met. For planning purposes, the meeting agreed to an implementation date of 28 September 2006.

4.4.9 APIRG considered and adopted several conclusions from the RVSM Task Force Meetings:

CONCLUSION 15/51: SAFETY ASSESSMENT DATA, REMEDIAL ACTIONS AND TARGET DATE FOR AFI RVSM IMPLEMENTATION

That:

a) States pursue stringent incident reporting measures and take appropriate remedial actions in order to comply with the total TLS;

b) States intensify their efforts in reducing the incident rates to support positive CRA results;

c) States continue to provide the required safety assessment data to ARMA on a monthly basis using Forms 1, 2, 3 and the revised Form 4;

d) the actual date/time of implementation of RVSM will be determined taking into account:

   i) the completion of the activities in the AFI RVSM, Strategy/Action Plan;

   ii) the development of an acceptable PISC and its subsequent approval by the Commission;

   iii) the approval by Commission of *Regional Supplementary Procedures* (Doc 7030/4) relating to RVSM; and

e) the target date for implementation of RVSM in the AFI Region will be the AIRAC date of 28 September 2006.

CONCLUSION 15/52: CIVIL/MILITARY COORDINATION

That, in order to ensure the safe and coordinated implementation of RVSM in the AFI Region, States ensure that the military aviation authorities are fully involved in the planning and the implementation process.

DECISION 15/53: NOMINATION OF A NATIONAL RVSM PROGRAMME MANAGER

That States which have not done so, as a matter of urgency, nominate a national RVSM programme manager who will be responsible for ensuring that the proper mechanisms are put in

place for the safe implementation of the RVSM Programme and will also act as the focal point or contact person. Additionally, national programme managers will keep this information up-to-date.

CONCLUSION 15/54: REPORTING OF DATA FOR MONITORING AND/OR CARRYING OUT SAFETY ASSESSMENT

That:

a) all States institute the procedures for reporting of data, incidents and conditions necessary for performing the collision risk calculations prerequisite for RVSM implementation to the ARMA. The data will include, but not necessarily be limited to:
   - height deviations of 300 ft or more;
   - total number of instrument flight rules (IFR) movements for each month;
   - average time per movement spent in the level band FL 290 to FL 410;
   - ATC coordination failures;
   - turbulence;
   - traffic data; and

b) Global positioning system monitoring unit (GMU) will be used and, where appropriate, height monitoring units (HMU) (multilateration) for height monitoring in AFI Region, both of which will be coordinated by ARMA.

CONCLUSION 15/55: IMPLEMENTATION OF RVSM IN THE AFI REGION

That:

a) all RVSM implementation preparatory work (i.e. safety, assessment, training) be completed, taking into consideration the FL band 290 and 410 inclusive, being the AFI RVSM airspace.

b) implementation of RVSM in the AFI Region be harmonized and coordinated within the AFI Region as well as with the adjacent regions.

CONCLUSION 15/56: IMPLEMENTATION OF ATS/DS CIRCUITS

That:

a) States which have not done so implement, as soon as possible, ATS/DS circuits in order to foster the implementation of RVSM; and;

b) States be urged to implement contingency measures with regard to correcting the ATS/DS deficiencies in accordance with FHA requirements.

CONCLUSION 15/57: TRAINING OF ALL PERSONNEL INVOLVED WITH THE IMPLEMENTATION OF RVSM IN THE AFI REGION

That:

a) seminars continue to be organized in the Region to train all personnel involved in the implementation of RVSM;

b) States having difficulties in implementing the RVSM implementation programme may either individually or in group explore the possibility of seeking outside expertise;

c) on-site training courses be conducted to expedite the training process; and

d) in order to ensure uniformity of the training, States use the AFI RVSM training material.

CONCLUSION 15/58: GUIDANCE MATERIAL FOR AIRWORTHINESS AND OPERATIONAL APPROVAL

That States in the AFI Region be urged to include in their national legislation and regulations the airworthiness and operational approval process for aircraft and operators intending to operate within the RVSM airspace, based on provisions of Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes,* Chapter 15, para. 15.2.3 and the guidance material contained in Joint Aviation Authorities (JAA) Temporary Guidance Leaflet (TGL) N°6.

CONCLUSION 15/59: RVSM ENFORCEMENT IN NATIONAL LEGISLATION

That States which have not done so take the appropriate measures in order to:

a) publish, as a matter of urgency, an aeronautical information circular (AIC), informing users of their intention to implement RVSM; and

b) include the necessary provisions in their national legislation.

CONCLUSION 15/60: FUNDING OF THE RVSM IMPLEMENTATION PROGRAMME

That governments, regulatory bodies, operators, service providers and other stakeholders be granted budgetary allocations for acquisitions and other activities necessary for ensuring that all the requirements are met in a timely manner in order to safely implement RVSM in the AFI Region.

CONCLUSION 15/61: MONITORING OF HEIGHT DEVIATIONS

That:

a) States having radar establish a unit at the ACC to conduct monitoring of aircraft height deviations in the AFI RVSM airspace; and

b) data collected at a) above be forwarded to ARMA for action.

CONCLUSION 15/62: AFI RVSM SAFETY POLICY

That States expedite the publication of an AIC on the AFI RVSM safety policy at Appendix P to this report.

CONCLUSION 15/63: RVSM NSP

That:

a) the States of Burundi, Cape Verde, D. R. Congo, Djibouti, Lesotho, Libya Arab Jamahiriya, Morocco, Réunion (France) and Swaziland submit to the AFI RVSM Programme Office (ARPO) their NSP as soon as possible but not later than 30 November 2005; and

b) States that had submitted their NSPs to the NSP Validation Panel send their revised NSPs to ARPO as soon as possible but not later than 30 November 2005.

CONCLUSION 15/64: STATE RVSM READINESS ASSESSMENT

That:

a) ICAO urge States which have not done so to provide the State RVSM readiness assessment; and
b) ICAO urge States to update "the State RVSM Readiness Survey".

DECISION 15/65: PRE-IMPLEMENTATION SAFETY CASE (PISC)

That the date of submission of PISC to the Commission will be determined by the Task Force.

DECISION 15/66: CONTINUATION OF AFI RVSM PROGRAMME OFFICE (ARPO)

That the ARPO, located at the ICAO ESAF Office, continue the coordination activities relating to RVSM implementation.

CONCLUSION 15/67: ADOPTION OF THE FUNCTIONAL HAZARD ASSESSMENT (FHA) FINAL REPORT

That the results of the AFI RVSM FHA of the AFI RVSM Implementation at Appendix G to the report of the sixth meeting of the RVSM Task Force (RVSM/TF/6) (available at ICAO website: http://www.icao.int/ESAF/RVSM) will be used for the development of NSPs and PISC.

DECISION 15/68: AFI RVSM CORE AIRSPACE

That:

a) for Req $_{core}$ 12 (AFI FHA report refers) "Air/Ground Communication system shall be designed to ensure a total coverage of the RVSM Airspace with a minimum MTBF (Mean Time Between Failure) of two months for a given FIR"; and
b) for Req $_{core}$ 88 (FHA report at Appendix G to the RVSM/TF/6 Report refers; available at ICAO website: http://www.icao.int/ESAF/RVSM) "Aircraft shall be equipped with ACAS II version 7".

DECISION 15/69: AFI RVSM SWITCH-OVER PERIOD

That:

a) for Req $_{swit}$ 24 (AFI FHA report at Appendix G to the RVSM/TF/6 Report refers; at ICAO website: http://www.icao.int/ESAF/RVSM "Use of Eastbound RVSM FL (FL310, FL350 and FL390) shall be suspended for a period of Two (2) hours after the Time Zero (T0)";
b) for Req $_{swit}$ 40 (AFI FHA report at Appendix G to the RVSM/TF/6 Report refers; at ICAO website: http://www.icao.int/ESAF/RVSM) "Traffic density shall be limited during switch-over period as appropriate";
c) a Trigger NOTAM shall be published Two (2) weeks before Time Zero (T0) notifying the implementation of RVSM and relevant procedures to be applied;
d) for Req $_{swit}$ 25 (AFI FHA report at Appendix G to the RVSM/TF/6 Report refers; at ICAO website: http://www.icao.int/ESAF/RVSM) "A NOTAM shall be published to suspend FL310, FL350 and FL390 for RVSM operations after ToS during a period of Two hours";

e) for Req $_{swit_}$35 (AFI FHA report at Appendix G to the RVSM/TF/6 Report refers; at ICAO website: http://www.icao.int/ESAF/RVSM) "Transit of non-RVSM civil aircraft shall be suspended for a period of Two hours after Time Zero (T0)"; and

f) That for Req $_{swit_}$36 (AFI FHA report at Appendix G to the RVSM/TF/6 Report refers; at ICAO website: http://www.icao.int/ESAF/RVSM) "Operation above FL410 shall be suspended for non-RVSM aircraft for a period of Two (2) hours after Time Zero (T0)".

DECISION 15/70: SHARING RVSM READINESS PROGRAMMES AND EXPERIENCE

That ICAO explore further means of encouraging States to share their readiness programmes, experience, and available expertise/resources amongst themselves for an economic implementation of RVSM in AFI Region.

CONCLUSION 15/71: REGIONAL AIRWORTHINESS CERTIFICATION AND CERTIFICATION AGENCY FOR RVSM OPERATION

That:

a) States having difficulties with the implementation of operational airworthiness certification on the RVSM implementation should seek assistance from other States having this expertise; and

b) seminars/workshops be conducted for airworthiness/operations personnel on issues relating to RVSM certification.

DECISION 15/72: STUDIES ON RVSM CERTIFICATION AGENCIES

That studies be conducted by IATA, in cooperation with ICAO, relating to the establishment of RVSM Certification Agencies for the AFI Region and results be forwarded to the RVSM/TF for consideration**.**

CONCLUSION 15/73: AFI RVSM IMPLEMENTATION – COST RECOVERY

That:

a) IATA airlines continue to financially support RVSM implementation effort in order to improve safety and economy of air traffic across the AFI Region;

b) IATA put in place an RVSM cost-recovery scheme based on a charge imposed on all international jet flights in the Region that participate in the IATA Clearing House (ICH); and

c) IATA reports to the RVSM Task Force on the progress of the AFI RVSM implementation.

CONCLUSION 15/74: CAMPAIGN TO ENHANCE RVSM IMPLEMENTATION

That Chief Executive Officers (CEOs) of ANS providers and Directors General of Civil Aviation (DGCAs) be sensitized by ICAO Regional Directors and IATA on the importance of RVSM and the need for its early implementation in the AFI Region be accorded priority during ICAO and IATA missions to States.

CONCLUSION 15/75: AFI RVSM STRATEGY/ACTION PLAN

That the updated RVSM Strategy/Action Plan at Appendix Q be circulated to States for action.

DECISION 15/76: AIRCRAFT/OPERATORS READINESS SURVEY

That the results of ICAO/ARMA surveys be updated and presented at the RVSM Task Force meetings for their consideration.

DECISION 15/77: AMENDMENT TO ICAO DOC 7030/4

That the RVSM/RNAV/RNP Task Force continue developing appropriate RVSM material to be incorporated in the amendment proposal for the ICAO Regional supplemental procedures for the AFI Region (Doc.7030/4 refers).

DECISION 15/78: RVSM OPTIMAL SWITCH-OVER TIME

That:

a) the TF Secretariat Support Team, composed of Nigeria, South Africa, Tanzania, ASECNA and IATA, coordinate and research all the associated elements, including weather and human factors, that will have an effect on the switch over, taking into account Decision 15/80 below and;

b) considering that the switch-over period remains one of the most critical in the management of the implementation of RVSM, the RVSM Task Force consider the ASECNA conventional vertical separation minimum (CVSM) – RVSM switch-over Plan at Appendix R be amended by the Task Force and distributed to States.

DECISION 15/79: EXCHANGE OF RVSM DATA BETWEEN ASECNA AND ARMA

That ASECNA subregional monitoring unit continue to forward to ARMA the RVSM data collected from their Member States.

DECISION 15/80: FHA SAFETY REQUIREMENTS NEEDING APPROPRIATE ACTIONS BY THE RVSM PROGRAMME

That the following FHA safety requirements are allocated to the RVSM Programme:

a) Req $_{Swit_}$31 “The switch-over period shall be performed during an appropriate low traffic density period”.

b) Req $_{Swit_}$39 “The switch-over period shall be determined out of Hajj period”;

c) Req $_{Swit_}$40 “Traffic density shall be limited during switch-over period as appropriate”;

d) Req $_{Swit_}$41 “The FIR airspace shall be optimised to reduce controller workload”;

c) Req $_{Swit_}$52 “The date of switchover shall take into account the effect of adverse weather (thunderstorm, sandstorm, etc.) to minimize the effect on switch over operations”; and

d) Req Swit_60 ”Civil/Military coordination committee shall be in place**”.**

Note – Req $_{Swit\_}$ - refer to the FHA Report at Appendix G to the RVSM/TF/6 Report (available at ICAO website: http://www.icao.int/ESAF/RVSM).

4.5 Aeronautical meteorology

Review of the report of the seventh meeting of the Meteorology Sub-Group (MET/SG/7)

Introduction

4.5.1 Under this agenda item, APIRG reviewed the report of the MET/SG/7 meeting held in Dakar from 11 to 13 April 2005.

World area forecast system (WAFS) in the AFI Region

4.5.2 The meeting noted the follow-up action taken by ICAO and the world area forecast centre (WAFC) London Provider State concerning conclusions of the APIRG relating to the WAFS in particular the training on the use of GRIB and BUFR codes and the acquisition by AFI States of latest version of satellite distribution system for information relating to air navigation (SADIS) VSAT workstation software. The meeting also noted that, despite the training seminars organized jointly by ICAO/WMO and United Kingdom for the Region, there are still States that have not received training. It was proposed that these States should take action to receive the required training at the earliest. Options include arranging training from their software vendor, sourcing training material from WAFC London and contacting ASECNA with regard to their offer to assist in their training programmes. If all these options fail, then consideration should be given by ICAO, WMO and UK (subject to MET Authority approval) to arranging a further training event. The following conclusion was formulated:

CONCLUSION 15/81: TRAINING FOR THE USE OF GRIB AND BUFR CODES

That the United Kingdom, in coordination with ICAO and WMO, be invited to consider providing training for the use of GRIB and BUFR codes to those AFI States which have not benefited from previous training seminars.

4.5.3 The meeting was made aware, through the AFI ICAO Regional Offices concerned, of the introduction of the SADIS Second Generation (SADIS 2G) service and the termination of the 1G service on 31 December 2008. All existing SADIS users must have migrated to the SADIS 2G service before this date. The meeting formulated the following conclusion:

CONCLUSION 15/82: PROCUREMENT OF THE NECESSARY SADIS 2G HARDWARE

That SADIS users in the AFI Region be invited to:

a) procure the necessary SADIS 2G hardware well ahead of the termination of the 1G service on 31 December 2008, and

b) attend the SADIS seminar scheduled to take place in 2006 aimed at assisting users in the procurement of SADIS 2G hardware and, as necessary, compliant visualisation software.

4.5.4 The meeting welcomed the move of WAFC London to produce WAFS significant weather (SIGWX) (significant weather high level (SWH) and significant weather medium level (SWM)) in the portable network graphics (PNG) format for specific regions and place these on the Internet-based SADIS file transfer protocol (FTP) service. It was noted that this will provide users with convenient access to standard area charts that requires minimal investment on end-user software. The meeting urged States to take part in the planned survey in May 2006 aimed at verifying the implementation of the reception and effective utilisation of BUFR-coded (SIGWX) forecasts by States. The following Conclusions were formulated:

CONCLUSION 15/83: PARTICIPATION OF AFI STATES IN THE SURVEY IN MAY 2006 ON UTILIZATION OF BUFR-CODED (SIGWX) FORECASTS

That AFI States be urged to participate in the survey in May 2006 aimed at verifying the implementation of the reception and effective utilization of BUFR-coded (SIGWX) forecast by States.

CONCLUSION 15/84: SADIS INTERNET FTP SERVICE

That, in parallel with the satellite broadcast, the SADIS Provider State be invited, as of 1 July 2005, to make WAFS forecasts and operational meteorological (OPMET) data available, as a primary component of the SADIS service, in accordance with the SADIS User Guide through the Internet-based SADIS FTP service.

Note 1 – The development and management of this service will be overseen by the SADISOPSG, and its work programme will be amended accordingly.

Note 2 – The SADIS Cost Recovery Administrative Group (SCRAG) has been informed about the planned date of implementation.

4.5.5 The meeting was informed by ASECNA that, as a result of the lack of reliable and cost-effective Internet access across many of the ASECNA States, it would be highly beneficial if the PNG formatted SIGWX charts could also be added to the SADIS satellite service. In this regard, the meeting formulated the following Conclusion:

CONCLUSION 15/85: PNG FORMATTED (SIGWX) CHARTS TO BE ADDED TO THE SADIS SATELLITE SERVICES

That the Satellite Distribution System Operations Group (SADISOPSG) invited to consider adding the PNG formatted WAFS SIGWX charts to the SADIS satellite services.

4.5.6 The meeting reviewed the SADIS strategic assessment tables, at Appendix S hereto, with entries regarding the current and projected data volumes for the period 2005-2009. The meeting agreed on the proposed tables and formulated the following Conclusion:

CONCLUSION 15/86: SADIS STRATEGIC ASSESSMENT TABLES

That the SADIS strategic assessment tables, as given in Appendix S to this report, be adopted and forwarded to the SADISOPSG to plan the future requirements for bandwidth on the SADIS broadcast.

4.5.7 Table MET 7: Implementation of SADIS in the AFI Region was revised and updated as given in Appendix T to this report.

AFI Meteorological Bulletins Exchange (AMBEX) scheme

4.5.8 The meeting noted that, following the introduction of aerodrome routine meteorological reports (in meteorological code form) (METARs) in AMBEX exchanges (APIRG Conclusion 13/66: Inclusion of METAR Exchange in the AMBEX scheme, refers) the AMBEX scheme now caters for exchanges of aerodrome forecasts (in meteorological code form) (TAFs), air-reports (AIREPs) and

METARs. The meeting was of the view that there is a need to enhance OPMET exchanges with adjacent regions. Therefore, amendments were made to AMBEX exchanges, the predetermined address Toulouse: LFZZMAFI was added for exchange of METARs and TAFs with the European (EUR) Region. In fact, the EUR requirements of AFI TAFs and METARs are exactly the same as those included in the Annex 1 of the SADIS User Guide, which is included in the new EUR FASID Table MET 2A (AFI part). The following Conclusion was formulated:

CONCLUSION 15/87: OPMET EXCHANGES WITH THE EUROPEAN REGION

That AFI TAF Collecting Centres (TCCs) be invited, to add in the AMBEX, the predetermined address Toulouse: LFZZMAFI for exchange of METARs and TAFs with the EUR Region.

4.5.9 The meeting discussed the content of AFI FASID Table MET 2A and suggested that this table be aligned to Annex 1 of the SADIS User Guide. The following Conclusion was formulated:

CONCLUSION 15/88: AFI FASID TABLE MET 2A

That the SADIS User Guide, Annex 1 be adopted as the AFI FASID Table MET 2A.

4.5.10 The meeting recalled that APIRG approved the establishment of two AFI OPMET data banks in Dakar and Pretoria – to serve Western and Central Africa for Dakar and Eastern and Southern Africa for Pretoria (APIRG Decision 12/66 refers: Implementation of RVSM). Senegal and South Africa informed the meeting that action is underway for the implementation of the two data banks by the end of 2005. It was agreed that, in the meantime, the AFI Region will continue to be served by the EUR data banks in Toulouse, Brussels and Vienna. The following Conclusion was formulated:

CONCLUSION 15/89: IMPLEMENTATION OF THE AFI OPMET DATA BANKS

That Senegal and South Africa be invited to urgently implement the Dakar and Pretoria international OPMET data banks

Provision of tropical cyclones and volcanic ash advisories for the AFI Region

4.5.11 Under this agenda item, the meeting discussed the issuance of tropical cyclone and volcanic ash advisories by the Tropical Cyclone Advisory Centre (TCAC) in Réunion and the Volcanic Ash Advisory Centre (VAAC) in Toulouse.

Volcanic Ash Advisories

4.5.12 The meeting noted that there was a need to carry out a test in order to check on the accuracy and currency of procedures maintained by meteorological watch offices (MWOs), relative to International airways volcano watch (IAVW) procedures, including the reliability of telecommunications circuits. The meeting then formulated the following Conclusion:

CONCLUSION 15/90: TEST ON THE RECEPTION OF VOLCANIC ASH ADVISORIES IN THE AFI REGION

That VAAC in Toulouse, in coordination with ICAO, be invited to organize a test for on the reception of volcanic ash advisories in the AFI Region before end of July 2006.

Note – The procedures to be followed for the test are at Appendix U to this report.

4.5.13 The meeting agreed that the test volcanic ash SIGMET header list for the AFI Region be prepared, on the basis of the current SIGMET header list with "WS" replaced by "WV". It was concluded that WMO, in consultation with ICAO, and the States prepare such list in readiness for the test.

CONCLUSION 15/91: PREPARATION OF THE VOLCANIC ASH HEADER LIST FOR THE AFI REGION

That WMO, in consultation with the ICAO and the States, be invited to prepare the volcanic ash SIGMET header list for the AFI region on the basis of the current SIGMET header list and replacing "WS" with "WV" in the headers.

Deficiencies in the MET field

4.5.14 Under this agenda item, the meeting reviewed and updated the list of deficiencies based on the uniform methodology approved by Council for identification, assessing, tracking and reporting air navigation systems deficiencies. The review also took into account the remedial action taken by States concerned as well as the inclusion of additional deficiencies identified since APIRG/14 meeting.

Challenges facing AFI meteorological services

4.5.15 The meeting reviewed the challenges facing AFI meteorological services in order to assess the improvement made in taking up the challenges. It may be recalled that the MET Sub-Group (MET/SG) identified a number of challenges facing the AFI MET services in particular, autonomous management, cost recovery, qualified personnel in sufficient number, and introduction of quality management system. The MET/SG had formulated relevant conclusions, which had subsequently been approved by APIRG.

4.5.16 The meeting noted the follow-up actions on these conclusions taken by the AFI Regional Offices in encouraging States to establish cost-recovery systems and autonomous entities to manage meteorological services. Seminars were organized to that end by WACAF and ESAF Offices. Seminars on quality management have been scheduled to take place on 13-14 April 2005 for WACAF area as well as in the fourth quarter for the ESAF area. Regarding acquisition of the latest version of SADIS workstation, the problem is being addressed adequately within the framework of the SADISOPSG, which invites States to submit applications to WMO seeking assistance from donor States.

Review of the regional meteorological procedures in AFI ANP/FASID

4.5.17 The meeting was of the view that the regional meteorological procedures contained in the AFI ANP/FASID should be updated and fully aligned to Annex 3 — *Meteorological Service for International Air Navigation* provisions. This would avoid the risk of the regional plan becoming increasingly outdated and less relevant for aviation users. It was emphasized that the review should be an ongoing process and, consequently, the MET/SG should include a routine item on this subject in its agenda.

4.5.18 The meeting endorsed a comprehensive review of regional procedures relating to Annex 3 provisions including Amendment 73 as given in Appendix V to this report. The following Conclusion was formulated:

CONCLUSION 15/92: METEOROLOGICAL REGIONAL PROCEDURES

That the meteorological regional procedures, at Appendix V to the report, replace the existing regional procedures of the AFI ANP/FASID (Doc 7474 — *Air Navigation Plan — Africa-Indian Ocean Region, Volume II — FASID*).

Meteorology component of the AFI CNS/ATM plan

4.5.19 The meeting was aware that the Commission, in reviewing the APIRG/14 Report, recommended that the planning of the MET component of the AFI CNS/ATM Plan be tasked to the AFI ATM Sub-Group. The meeting therefore decided to dissolve the Task Force on the meteorology component of the AFI CNS/ATM Plan. The following Decision was formulated:

DECISION 15/93: DISSOLUTION OF THE TASK FORCE ON METEOROLOGY COMPONENT OF THE AFI CNS/ATM PLAN

That the Task Force on the meteorology component of the AFI CNS/ATM Plan be dissolved as its task is transferred to the AFI ATM Sub-Group.

Terms of reference, work programme and composition of the MET/SG

4.5.20 The meeting discussed training and qualification of aeronautical meteorology personnel and concluded that this subject be included in the work programme of the MET/SG. The following Decision was formulated:

DECISION 15/94: TRAINING AND QUALIFICATIONS OF AERONAUTICAL METEOROLOGY PERSONNEL

That the subject of training and qualifications of aeronautical meteorology personnel be included in the work programme of the AFI MET/SG.

AGENDA ITEM 5: DEFICIENCIES IN THE AIR NAVIGATION FIELDS

5.1 Unified Strategy for resolving safety-related deficiencies

5.1.1 APIRG noted that the findings of the USOAP had revealed many difficulties in implementing Standards and Recommended Practices (SARPs) and in correcting identified safety-related deficiencies by States, thus creating potential safety gaps and sources of risk to aviation safety; reasons include the lack of adequate staff and financial resources and a lack of political commitment.

5.1.2 The Group noted that, keeping the strategic objectives of the Organization in mind, the unified strategy to resolve safety-related deficiencies comprised two main elements. It aimed, firstly, to provide assistance to States, or groups of States, in resolving safety-related deficiencies. Secondly, it aimed at ensuring increased transparency and sharing of safety information for use by States when performing their safety oversight functions, including inspections as provided for in Article 16 of the Convention. The Assembly, at its 35th Session (Montreal, 28 September – 8 October 2004) had adopted Resolution A35-7 (Unified strategy to resolve safety-related deficiencies). The resolution recognized the challenges faced by States in the implementation of their safety oversight systems, and endorsed the

concept of a unified strategy to resolve safety-related deficiencies based on the principles of increased transparency, cooperation, assistance and partnerships, where appropriate.

5.1.3 The meeting noted that, in addition, the unified strategy was fostering partnerships among States, industry, regional safety oversight organizations, financial institutions and other international organizations. States are encouraged to work together through regional safety oversight organizations (RSOOs) and the Cooperative Development of Operational Safety and Continuing Airworthiness Programmes (COSCAP).

5.1.4 APIRG was informed that Contracting States, which are in need of assistance are encouraged to take advantage of the funding opportunity offered by the administration of the International Financial Facility for Aviation Safety (IFFAS).

5.1.5 The meeting, recognizing that the unified strategy, as reflected in Resolution A35-7, is of a high priority for addressing safety-related deficiencies, urged States to share with other Contracting States critical safety information which may have an impact on the safety of international air navigation and to facilitate access to all relevant safety information. The meeting also requested States to provide tangible support for strengthening and furthering regional safety oversight organizations. The meeting developed the following Conclusion:

CONCLUSION 15/95: SHARING OF CRITICAL SAFETY INFORMATION AND SUPPORT BY STATES FOR REGIONAL SAFETY ORGANIZATIONS

That States:

a) share with other Contracting States critical safety information; and
b) provide tangible support for strengthening regional safety oversight organizations.

5.2 Implementation of ICAO USOAP under a comprehensive systems approach

5.2.1 The Group was provided with a report on the implementation of the comprehensive systems approach for the conduct of safety oversight audits launched January 2005 under ICAO USOAP. The meeting was reminded that ICAO USOAP was established in 1999, pursuant to Assembly Resolution A32-11 (Establishment of an ICAO Universal Safety Oversight Audit Programme), with the objective of promoting global aviation safety through the conduct of regular and mandatory safety oversight audits of all Contracting States. Safety oversight audits performed thus far had been planned and conducted on an Annex-by-Annex basis, starting with Annex 1 — *Personnel Licensing*, Annex 6 — *Operation of Aircraft* and Annex 8 — *Airworthiness of Aircraft*, with a view to progressively introducing other Annexes. While this approach served its purpose and proved effective for the establishment of the Programme and the initial audits, it was time for USOAP to evolve from an Annex-by-Annex to a comprehensive systems approach, which would focus on the States' overall safety oversight capabilities. The comprehensive systems approach would cover all safety-related Annexes and would provide an improved and cost-effective approach to auditing.

5.2.2 Activities related to the planning and implementation of the comprehensive systems approach began immediately following the endorsement of Assembly Resolution A35-6 (Transition to a comprehensive systems approach for audits in the ICAO Universal Safety Oversight Audit Programme (USOAP)), in October 2004. The schedule for States to be audited in 2005 and 2006 was published in December 2004, providing States adequate time to prepare for an ICAO safety oversight audit and to discourage States from requesting the postponement of audits. Nevertheless, requests for postponement have been received from States scheduled to be audited in 2005 as well as from States scheduled in 2006. APIRG recognized that all States cannot be audited in the last year of the audit cycle and that each request

for postponement generates a negative impact on the Programme, both in its effectiveness and efficiency. Noting this concern, the Group requested ICAO's ESAF and WACAF Regional Offices to urge States, through a letter, to accept the safety oversight audit schedule as determined by ICAO, with reference to Operative Clause 11 of Assembly Resolution A35-6, which is as follows:

A35-6: Transition to a comprehensive systems approach for audits int he ICAO Universal Oversight Audit Programme (USOAP)

(Operative Clause) 11. *Urges* all Contracting States to cooperate with ICAO and as much as practicable to accept audit missions as scheduled by the Organization in order to facilitate the smooth functioning of the Programme.

5.2.3 In preparation for the launching of safety oversight audits under the comprehensive systems approach, the meeting was apprised that ICAO had conducted seven workshops, one in each of ICAO's Regional Offices, directed at the National Safety Oversight Coordinators, ICAO Regional Office experts and other participants from Contracting States, and regional and international organizations. A series of audit tools were developed to assist both Contracting States and ICAO in the preparation for, and conduct of, safety oversight audits. These tools include the State Aviation Activity Questionnaire (SAAQ), Compliance Checklists for each Annex concerned and Audit Protocols for each area of audit. The SAAQ is available to all Contracting States through the ICAO-NET website in English, French, Russian and Spanish. The meeting also noted that ICAO had completed the recruitment and training of all the required staff. States were urged to appoint suitable personnel for training as auditors. The meeting developed the following Conclusion:

CONCLUSION 15/96: ICAO UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP) UNDER THE COMPREHENSIVE SYSTEMS APPROACH

That:

a) ICAO Regional Offices in Dakar and Nairobi, urge AFI States to accept the safety oversight schedule (2005/2006) as prepared by ICAO;

b) ICAO consider training and certification of safety oversight auditors in all fields covered by the comprehensive systems approach audit program; and

c) States which have not done so, as a matter of urgency, respond to ICAO's request for appointment of suitable personnel to be trained and certified as auditors.

5.3 List of deficiencies in the air navigation fields

General

5.3.1 The meeting noted with appreciation that the deficiencies had been listed by State and field. The meeting agreed that, there was need to vigorously take remedial actions in the Region on the deficiencies identified and that where a State is unable to take appropriate action, it should be given the necessary assistance and support. Based on the principle of increased transparency espoused in the Unified Strategy, the critical safety deficiencies will be posted on the ICAO website: www.icao.int, as agreed at the APIRG/14 Meeting.

5.3.2 Deficiencies in the AOP field

5.3.2.1 In the AOP field, the meeting noted the progress made in the removal of some of the deficiencies as a result of increased allocation of resources pursuant to the formation of the autonomous authorities. Nevertheless, the meeting was of the opinion that there was still a lot to be done in particular

in the control/reduction of bird hazards, provision of rescue and fire fighting tools and protective materials, training of personnel, establishment of planned maintenance programmes and development and testing of aerodrome emergency plans. The meeting emphasized the need for airports located close to large bodies of water to adequately equip the rescue and fire fighting service. With respect to the requirement for certification of aerodromes, the meeting expressed disappointment that only a handful of States had implemented this requirement and considered that States will have to increase efforts to certify the airports as soon as possible.

5.3.3 **Deficiencies in the ATS/AIS/SAR fields**

5.3.3.1 The meeting was apprised of the updated list of deficiencies in the ATS, AIS and SAR fields, based on the uniform methodology approved by the Council for the identification, assessment, tracking and reporting of the deficiencies of air navigation systems in the AFI Region.

5.3.3.2 The meeting noted with appreciation that there was a marked improvement in the elimination of the deficiencies in these fields. In the ATS field, 50 per cent of the deficiencies have been rectified and in the AIS field, 75 per cent of the deficiencies have also been rectified. In the SAR field, though there were some improvements, issues relating to SAR legislation and SAR agreement continue to be prevalent. States were requested to study and update the appropriate deficiencies and endeavour to eliminate them.

5.3.3.3 While reviewing the deficiencies in the ATS/AIS/SAR fields, the meeting noted the progress in the implementation of the ICAO/AFCAC technical cooperation programme in the field of SAR. In particular, the meeting noted that 37 States had volunteered to participate in the SAR evaluation programme, 26 of which had received an evaluation mission. The meeting noted that the technical assistance phase had started, and that two States had already received technical assistance in their SAR rehabilitation process. Furthermore, the meeting noted with satisfaction that the programme made provision for training sessions to be organized in English and French.

5.3.3.4 The meeting further noted that a working group had been established to draft a manual on SAR exercises.

5.3.3.5 APIRG also noted that a conference on the funding of SAR services had been held in Saly-Portudal, Senegal, in October 2004. The conference adopted a Declaration on Search and Rescue Funding that listed high-level SAR management principles that could improve SAR service cost efficiency in the AFI Region. APIRG endorsed the declaration. The following Conclusion and Decision was adopted:

CONCLUSION 15/97: SEARCH AND RESCUE (SAR)

That States:

a) participate in the ICAO/AFCAC SAR evaluation programme;

b) after having received a SAR evaluation mission, implement the evaluation recommendations, either with their own resources, or with technical assistance offered by the project;

c) organize regular SAR exercises; and

d) implement the SAR management principles adopted by the conference on SAR funding held in Saly-Portudal, Senegal, from 25 to 28 October 2004 and reflected in the Saly Declaration on SAR.

DECISION 15/98: SAR FUNDING

That APIRG endorse the Declaration on Search and Rescue (SAR) Funding adopted by the Conference on SAR Funding held in Saly-Portudal, Senegal, from 25 to 28 October 2004 (Appendix W refers).

5.3.4 **Deficiencies in the CNS field**

5.3.4.1 The meeting noted the progress achieved by AFI States in eliminating deficiencies in the field of aeronautical telecommunications since APIRG/11 (1998) as shown in Table below:

	Number of Deficiencies of priority "A" and "U"			
APIRG Meetings	**AFTN**	**ATS/DS**	**AMS**	**ARNS**
APIRG/11 (1998)	31	59	19	75
APIRG/12 (1999)	20	45	14	64
APIRG/13 (2001)	14	53	14	60
APIRG/14 (2003)	11	50	9	42
APIRG/15 (2005)	8	28	7	38

5.3.4.2 The following Conclusion was adopted:

CONCLUSION 15/99: ELIMINATION OF DEFICIENCIES AFFECTING THE CNS FIELD

That:

a) the efforts by States/organizations aimed at eliminating deficiencies affecting AFTN, ATS/DS, AMS and ARNS are acknowledged;

b) States/organizations concerned:
   i) strengthen and coordinate their maintenance capabilities; and
   ii) continue their efforts until complete elimination of the deficiencies affecting communications and navigation facilities.

5.3.5 **Deficiencies in the MET field**

5.3.5.1 The meeting reviewed the list of deficiencies in the aeronautical meteorology field, which are based on criteria relating to the critical safety elements. The Group expressed concern at deficiencies, which remained unresolved for a long time. The Group noted that the implementation of SADIS VSAT was at 80 per cent in the Region and had improved the availability as well as the exchange of OPMET data in the Region.

5.3.6 **Dissemination of regional safety groups recommendations**

5.3.6.1 The meeting was informed of the establishment of an AFI Safety Enhancement Team (ASET) providing an independent forum for the evaluation of the possible corrective measures for dealing with the deficiencies. Participating organizations include ICAO, IATA, AFCAC, African Airlines Association (AFRAA), African Aviation Safety Council (AFRASCO), ASECNA, International

Federation of Air Line Pilots' Associations (IFALPA), International Federation of Air Traffic Controllers' Associations (IFATCA), Airports Council International (ACI), JAA, FAA, AIRBUS Industries, BOEING, ATNS, Airports Company of South Africa (ACSA), and Netherlands CAA. The first meeting of ASET was held in February 2005.

5.3.6.2 The meeting appreciated the efforts being made by regional safety groups like ASET in the monitoring and assessment of the level of safety in aviation in the AFI Region. The meeting noted the decisions and conclusions made by the ASET Safety Summit held in Nairobi in February 2005. The meeting also noted the adoption of the ASET recommendations by the meeting of African Ministers responsible for aviation held in Sun-City, South Africa, from 18 to 19 May 2005. The distribution of the ASET recommendations and conclusions was discussed at length, in view of the importance of their action by States. The meeting noted the existing mechanism of State letters and recommended that ICAO distribute the ASET recommendations and conclusions to all AFI States. The Group developed the following Conclusion:

CONCLUSION 15/100: DISSEMINATION OF AFI SAFETY ENHANCEMENT TEAM (ASET) RECOMMENDATIONS

That The recommendations and conclusions of ASET from the Safety Summit meeting held in Nairobi from 23 to 24 February 2005 be distributed to States by ICAO Regional Offices through the State letter machinery.

AGENDA ITEM 6: REVIEW OF SIGNIFICANT DEVELOPMENTS RELATED TO AIR NAVIGATION

6.1 Developments in the modernization of air navigation systems

6.1.1 The meeting was presented with an overview of the global and regional developments in the modernization of air navigation systems. It noted that, through the panels of the Air Navigation Commission and assisted by study groups, the ICAO Secretariat had made substantial progress in the development of SARPs, Procedures for Air Navigation Services (PANS) and guidance material. The meeting noted, amongst other things, the following:

a) development status of SARPs and guidance material;

b) work programmes of various panels and study groups engaged in CNS/ATM-related activities; and

c) comparative analysis of regional developments in air navigation systems.

6.1.2 In addition, the Group noted that, while RMAs had been established in other regions, work was underway to address associated institutional and economic issues on a global scale. The meeting agreed to take into account these air navigation developments in the work programme of APIRG.

The Global Air Navigation Plan for CNS/ATM Systems

6.1.3 The meeting noted that, in response to AN-Conf/11 Recommendation 1/9 which called for ICAO to develop a formal review and agreement process for the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750), the Council had reviewed the status of the Global Plan. Taking into consideration the legal constraints associated with changing the status of the Plan, the Council decided that the present procedure for acceptance and updating of the Global Plan should be retained, with the

addition that the Secretary General may, upon recommendation by the Commission, circulate specific proposals, or parts thereof, to States and selected international organizations for comment.

6.1.4 The Group noted that the sixth meeting of the ANC Consultation with Industry had been held in Montreal in May 2004 and had agreed that the Industry would develop a common roadmap/global action plan, aimed at attaining operational benefits in the near- to medium-term, that would be made available to ICAO in November 2004. APIRG was informed that, in January 2005, the Commission reviewed the Roadmap and requested the Secretariat to develop a proposal, as a part of the second amendment to the Global Plan, to incorporate relevant material from the Roadmap. The Secretariat would finalize and present this second amendment to the Global Plan to the Commission for its initial review during its 170th Session (October – December 2005).

6.1.5 The meeting noted that that the Global Plan would continue to be the primary element of the regional planning framework for a coordinated implementation of a harmonized and seamless global ATM system. The Group noted that ALLPIRG/5 will be convened the latter part of March 2006 at ICAO Headquarters, Montreal.

Need for a RAN meeting for the AFI Region

6.1.6 The Group recalled that the most recent RAN meeting in the AFI Region had taken place in 1997. The eight years that had elapsed since then seemed like a rather long time, considering the rapid evolution of technology and the dramatic changes in the political, economic and social environments in the world. The group discussed various factors that highlighted the need to convene another RAN meeting in the AFI Region to ensure optimum efficiency in air navigation planning for the next decade. APIRG agreed that a RAN meeting early in the next triennium could serve as a catalyst to further reduce deficiencies and improve aviation safety in the Region through regional agreement.

6.1.7 APIRG further proposed that the RAN meeting could be partially funded through revenue-generating activities, such as an exhibition whereby industry is afforded the opportunity to meet with the high-level authorities from all States in the AFI Region.

6.1.8 The Group noted that an APIRG meeting will be required soon after the completion of the RAN meeting to amend the APIRG work programme. The Group formulated the following Conclusion:

CONCLUSION 15/101: EIGHTH AFRICA-INDIAN OCEAN REGIONAL AIR NAVIGATION (AFI/8 RAN) MEETING

That ICAO:

a) consider convening the AFI/8 RAN Meeting early in the next triennium to plan for the provision of air navigation infrastructure for the Region; and

b) investigate ways to fund the RAN meeting through revenue-generating activities.

6.2 Results of AN-Conf/11

6.2.1 The Group noted the outcome of, and actions on, the AN-Conf/11 that were taken by the Council of ICAO.

6.2.2 The Meeting recalled that the Regional Offices have transmitted to States the list of recommendations of which their follow-up action was required, and that this information was also

provided to the APIRG sub-groups for inclusion into their work programmes for appropriate follow-up action.

6.3 Follow-up to the 35th Session of the ICAO Assembly concerning air navigation matters

6.3.1 The meeting was presented with a report on the outcome of the A35 and actions taken thereon by the Council, the Commission and the Secretary General of ICAO. The Assembly had developed a number of resolutions and decisions enveloping a wide range of issues concerning air navigation matters and called for further follow-up action by States and PIRGs.

6.3.2 The proposed actions on the resolutions and decisions, which are analysed in Appendix X to the report, were discussed, and the meeting decided to include the relevant follow-up actions in the APIRG work programme.

AGENDA ITEM 7: INTERREGIONAL COORDINATION

Review of the Report of the Twelfth Informal Meeting on the improvement of air traffic services over the South Atlantic (SAT/12)

7.1 The meeting reviewed the Report of the Twelfth Informal Meeting on the improvement of air traffic services over the South Atlantic (SAT/12) and noted the latest developments in SAT area in the fields of ATM and CNS, which include the following:

- harmonization of RVSM programmes between AFI and SAM Regions (creation of transition areas in SAM FIRs) (2005);
- two-phased implementation of random RNAV routing initially in the southern part of the SAT area (in 2006);
- study on restructuring the EUR/SAM corridor airspace, including the feasibility of a unidirectional ATS route structure and RNP 4 operations airspace;
- implementation of strategic lateral offsets procedures, aimed at increasing the safety of operations;
- development of coordinated ATS contingency plans in South Atlantic FIRs (2005), in order to comply with relevant provisions contained in ICAO Annex 11 and Doc 9426 — *Air Traffic Services Planning Manual*;
- assessment of communications system (AFTN) performance;
- implementation of a CAFSAT node in Ezeiza (Argentina) connected to Johannesburg, South Africa (2005);
- studies on ways of achieving consolidation of, and interoperability between, VSAT networks; and
- harmonization of ADS/CPDLC applications, including development of a common FANS 1/A Operational Manual in harmony with those of other Regions (ASIA/PAC, NAT, Indian Ocean) (2005).

7.2 The meeting also noted that the SAT/12 ATM Working Group as well as the CNS Working Group and Study Group on the Implementation of a New Airspace Structure met at the SAT/12 Task Force in Rio de Janeiro, Brazil (5 – 9 September 2005), in order to progress matters related to their assigned work programmes.

7.3 Noting the implementation activities being carried out by the SAT Informal Group, and mindful of its significant achievements so far reached in improving air navigation services in the SAT area, the meeting reiterated APIRG Conclusion 14/59 (Need for continued support to inter-regional coordination) on the need for continued support to be provided by the States concerned and ICAO to this interregional mechanism.

AGENDA ITEM 8: FUTURE WORK PROGRAMME OF APIRG

8.1 The meeting, on considering its future work programme, reviewed the terms of reference, composition and work programme of its subsidiary bodies. The terms of reference, work programme and composition of the AOP, ATM, CNS, MET Sub-Groups and the GNSS/I/TF adopted by the Group are at Appendices Y, Z, Z-A, Z-B, and Z-C.

8.2 The meeting was informed that an application from Benin was received by the Secretary of APIRG requesting membership to APIRG. The application was supported by the Group. The following Conclusion and Decision were adopted:

CONCLUSIONS 15/102: MEMBERSHIP OF APIRG

That the ICAO Council approve the application from Benin for membership to APIRG.

DECISION 15/103: MEMBERSHIP TO APIRG CONTRIBUTORY BODIES

That, the membership to the sub-groups be increased to include the following members:

a) ATM/SG:	Ghana, Uganda, IFALPA
b) CNS/SG:	Uganda
c) GNSS Implementation Task Force :	Algeria, Ghana, Sudan
d) MET/SG:	Malawi

AGENDA ITEM 9: ANY OTHER BUSINESS

9.1 The Group was informed that the second DGCA meeting of the WACAF area took place in Cotonou, Benin, from 4 to 6 May 2004, under the chairmanship of Benin. The Group was informed that the DGCA meeting focused their attention on remedial action required to eliminate deficiencies.

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Fifteenth Meeting of the AFI Planning and Implementation Regional Group (APIRG/15)
Quinzième réunion du Groupe régional AFI de planification et de mise en œuvre (APIRG/15)
Nairobi, Kenya, 26-30 September 2005

APPENDIX A / APPENDICE A

List of Participants / Liste des Participants

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REVIEW AND FOLLOW-UP
OF THE
APIRG/14 CONCLUSIONS AND DECISIONS
INCLUDING AFI/7 RAN MEEETING OUTSTANDING RECOMMENDATIONS

CONCLUSION / DECISION	TITLE	ACTION TAKEN
CONCLUSION 14/1:	BIRD HAZARD CONTROL AND REDUCTION	Several States facing bird hazard problem are conducting environmental and ornithological studies. Cooperative approach has not been effected yet. Reporting of bird strikes improved slightly. Some States are reluctant to report “minor” strikes.
CONCLUSION 14/2:	RESCUE AND FIRE FIGHTING IN DIFFICULT ENVIRONMENT	Little change has been observed. Additional follow-up by the Regional Offices required.
CONCLUSION 14/3:	DESIGNATION OF A NATIONAL COORDINATOR FOR AERODROME EMERGENCY PLANNING	Not implemented. Additional follow-up by the Regional Offices required.
CONCLUSION 14/4:	CERTIFICATION OF AERODROMES	States have made progress in the implementation of the requirement. ICAO audits shall ascertain the need for further action where certification has been completed. Training of personnel ongoing.
CONCLUSIONS 14/5:	IMPACT OF NEW LARGER AEROPLANES ON AERODROMES IN THE AFI REGION	Noted for future action as and when required.
DECISION 14/6:	SURVEY ON AVAILABILITY AND USAGE COSTS OF PDNs AND ISDNs	Survey conducted. In view of comments on Concl. 14/7, PDNs and ISDNs are likely not to be used by the AFS .
CONCLUSION 14/7:	USE OF PDNs and ISDNs TO MEET AFTN REQUIREMENTS	States advised of the conclusion. Kenya has attempted to implement. However, the corresponding parties have consistently recommended using of 64-kbps leased circuits. X.25 is gradually becoming obsolete.
CONCLUSION 14/8 :	IMPLEMENTATION REQUIREMENTS FOR THE AFTN CIRCUITS	States advised of the conclusion.
CONCLUSION 14/9 :	AFTN TRANSIT TIME STATISTICS	Implemented
CONCLUSION 14/10:	USE OF THE INTERNET	State letter was sent advising States of the adoption of the ICAO guidelines on the use of the public Internet for aeronautical uses.
CONCLUSION 14/11:	ATS/COM COORDINATION MEETING BETWEEN THE ACCRA, BRAZZAVILLE, DAKAR OCEANIC, KANO, KINSHASA AND LUANDA FIRs	Meeting held November 2003.

CONCLUSION / DECISION	TITLE	ACTION TAKEN
CONCLUSION 14/12:	PLANNING MEETING ON THE INTEGRATION OF SUB-REGIONAL VSAT NETWORKS	Meeting held 30 March – 1 April 2004 in Johannesburg, followed by several other meetings. Migration of AFISNET implemented during 4th quarter of 2004
DECISION 14/13	IMPLEMENTATION OF ATS INTER-FACILITY DATA COMMUNICATIONS (AIDC)	Data collection to be continued by the Secretariat
CONCLUSION 14/14:	INFORMATION ON THE PLANNING BY STATES OF THE IMPLEMENTATION OF THE ATS MESSAGE HANDLING SYSTEM (AMHS)	Data collection to be continued by the Secretariat.
CONCLUSION 14/15:	FOCAL POINTS FOR THE PREPARATION OF ITU WRCS	States advised of the conclusion
CONCLUSION 14/16:	NEED FOR A PERMANENT LIAISON WITH STATE TELECOMMUNICATION REGULATORY AUTHORITIES	States advised of the conclusion.
CONCLUSION 14/17:	SEMINARS ON THE REGULATIONS AND MANAGEMENT OF THE RADIO FREQUENCY SPECTRUM	Seminar held 17-19 February 2004.
CONCLUSION 14/18:	AMENDMENT TO AFI ANP TABLE ATS B 1	Completed.
CONCLUSION 14/19:	THE NON-IMPLMENTED ROUTES, INCLUDING RNAV ROUTES	Ongoing.
CONCLUSION 14/20:	IMPLEMENTATION OF ATC SERVICE	Ongoing.
CONCLUSION 14/21:	IMPLEMENTATION OF RVSM IN THE AFI REGION	Ongoing. Target date 19 January 2006.
CONCLUSION 14/22:	IMPLEMENTATION OF RNAV ROUTE UM114	Route implemented. Action completed.
CONCLUSION 14/23:	DELINEATION OF FIR BOUNDARIES	Ongoing follow-up by Regional Office.
CONCLUSION 14/24:	IMPLEMENTATION OF 10-MINUTE LONGITUDINAL SEPARATION MINIMUM	Action completed.
CONCLUSION 14/25:	DEVELOPMENT OF CHART ATM 1 (PART V-ATM OF THE AFI FASID)	Action completed.
CONCLUSION 14/26:	CLASSIFICATION OF AIRSPACES	Issue being addressed globally at HQ ATM section.
CONCLUSION 14/27:	DEVELOPMENT OF AN AIS/MAP SIP	Completed.

CONCLUSION / DECISION	TITLE	ACTION TAKEN
CONCLUSION 14/28:	ORGANIZATION OF REGIONAL SAR SEMINARS/WORKSHOPS	Completed.
CONCLUSION 14/29:	ATM SAFETY MANAGEMENT SYSTEMS	Action completed. Seminar held.
CONCLUSION 14/30:	"SINGLE SKY" CONCEPT IN AIR TRAFFIC MANAGEMENT IN THE AFI REGION	Issue addressed and deferred by D/ANB.
CONCLUSION 14/31:	CARRIAGE AND OPERATION OF AIRBORNE COLLISION AVOIDANCE SYSTEM (ACAS) AND PRESSURE-ALTITUDE REPORTING TRANSPONDERS	Action completed.
CONCLUSION 14/32:	NEED FOR LATEST VERSION OF WORKSTATION SOFTWARE	Follow-up with States by Regional Offices. Many States have indicated progress in acquiring the software.
CONCLUSION 14/33:	COMPOSITION OF THE SADIS OPERATIONS GROUP (SADISOPSG)	Action completed.
CONCLUSION 14/34:	APPLICATION OF EUR OPMET UPDATE PROCEDURES IN THE AFI REGION	Action completed.
DECISION 14/35:	INTRODUCTION OF METARS IN AMBEX EXCHANGES	Action completed.
DECISION 14/36:	INCLUSION OF PORT-GENTIL IN AMBEX EXCHANGES AND FASID TABLE MET 1A FOR TREND FORECASTS	Action completed.
CONCLUSION 14/37:	COST RECOVERY OF AERONAUTICAL METEOROLOGICAL SERVICES	Action ongoing.
CONCLUSION 14/38:	SEMINARS ON COST RECOVERY OF AERONAUTICAL METEOROLOGICAL SERVICES	Action completed. Seminar held in Nairobi during November 2004.
CONCLUSION 14/39:	AUTONOMOUS ENTITIES AND METEOROLOGICAL SERVICE FOR AIR NAVIGATION	Through State letters and missions by Regional Officers, States implementation,
CONCLUSION 14/40:	QUALITY MANAGEMENT	States encouraged through State letters and during missions to implement QMS. QMS Seminar held 13-14 April 2005 for WACAF States.
CONCLUSION 14/41:	STUDY OF TRAINING AVAILABLE FOR AERONAUTICAL METEOROLOGICAL PERSONNEL IN THE AFI REGION	Study completed.

CONCLUSION / DECISION	TITLE	ACTION TAKEN
CONCLUSION 14/42:	SEMINARS ON ATS/MET/PILOT COORDINATION	Ongoing. Planned, 4th quarter of 2005.
DECISION 14/43:	METEOROLOGY CHAPTER FOR THE AFI CNS/ATM IMPLEMENTATION	Task Force established, and some preliminary work has been done. Task transferred to ATM/Sub-Group. Task force to be dissolved.
CONCLUSION 14/44:	USE OF GNSS FROM EN-ROUTE TO NPA	States advised of the conclusion. Survey of States indicates very slow implementation. Only 8 States have published AIC on this matter.
CONCLUSION 14/45:	STATES' SUPPORT FOR THE FUNDING OF GNSS IMPLEMENTATION	Part a) EU-ACP funding delayed until next funding cycle (2007). Part b) implemented by States supporting the EGNOS test bed
CONCLUSION 14/46:	IMPLEMENTATION OF A GNSS SBAS OPERATIONAL SYSTEM	States advised of the conclusion. Implementation planning initiated by the GNSS Implementation Task Force.
DECISION 14/47:	GNSS IMPLEMENTATION TASK FORCE	Implemented. Task Force has held 3 meetings.
CONCLUSION 14/48:	ASSISTANCE WITH GNSS PROCEDURES DESIGN	Two PANS-OPS GNSS workshop, one GNSS flight checking and GNSS NOTAMs organized with FAA assistance
CONCLUSION 14/49:	GNSS LEGISLATION	Seminar has been organized with support of the FAA
CONCLUSION 14/50:	UPDATE OF THE AFI CNS/ATM IMPLEMENTATION PLAN (DOC 003)	Completed.
CONCLUSION 14/51:	AMENDMENT TO AFI ANP/FASID DOCUMENTS	Partially completed. Other material being processed.
CONCLUSION 14/52:	ICAO UNIVERSAL SECURITY AUDIT PROGRAMME (USAP)	Ongoing.
CONCLUSION 14/53:	ESTABLISHMENT OF A MECHANISM FOR AIR NAVIGATION SAFETY IN THE AFI REGION	Establishment of an Aviation Safety Group for Eastern and Southern Africa Region
DECISION 14/54:	ELEVENTH AIR NAVIGATION CONFERENCE	Completed.
CONCLUSION 14/55:	ESTABLISHMENT OF A SAFETY AND QUALITY MANAGEMENT TASK FORCE	Action underway.
CONCLUSION 14/56:	ESTABLISHMENT OF AUTONOMOUS AUTHORITIES	When autonomous authorities are established, both management and financial autonomy should be granted by the government in order to facilitate allocation and fast mobilization of resources necessary to eliminate air navigation systems deficiencies.

CONCLUSION / DECISION	TITLE	ACTION TAKEN
CONCLUSION 14/57:	ELIMINATION OF DEFICIENCIES IN THE FIELD OF AERONAUTICAL TELECOMMUNICATIONS	States advised of the conclusion.
CONCLUSION 14/58:	ICAO/AFCAC SEARCH AND RESCUE TECHNICAL COOPERATION PROGRAMME	Programme continuing.
CONCLUSION 14/59 :	NEED FOR CONTINUED SUPPORT TO INTERREGIONAL COORDINATION	Ongoing.
CONCLUSION 14/60:	FIFTH WORLDWIDE AIR TRANSPORT CONFERENCE	Ongoing
CONCLUSION 14/61:	COOPERATIVE DEVELOPMENT OF OPERATIONAL SAFETY AND CONTINUING AIRWORTHINESS PROGRAMME (COSCAP) MECHANISM	Ongoing.
CONCLUSION 14/62:	REVISED TERMS OF REFERENCE OF APIRG	Completed.
CONCLUSION 14/63:	MEMBERSHIP OF APIRG	Completed.
DECISION 14/64:	MEMBERSHIP TO APIRG SUBSIDIARY BODIES	Completed.
CONCLUSION 14/65:	FACILITATING OF APIRG WORK	Ongoing.

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APPENDIX C

AFI RATIONALIZED AFTN – IMPLEMENTATION SPECIFICATIONS / RSFTA RATIONALISÉ – SPECIFICATIONS 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* FR : Frame relay X.25: ITU X.25 protocol/*Protocol X.25 de l'UIT*
6 and 11	Data transfer code (syntax)/*Code alphabétique* ITA-2: International TelegraP 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*

APPENDIX C
AFI AFTN RATIONALIZED PLAN - IMPLEMENTATION SPECIFICATIONS

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 X.25
Asmara	T	NIL					SAT/D	1200	X.25	ITA-2	AFTN		NAFISAT
Djibouti	T	NIL					SAT/D	1200	X.25	ITA-2	AFTN		NAFISAT
Khartoum	T	NIL					SAT/D	1200	X.25	ITA-2	AFTN		NAFISAT
Nairobi	M	SAT/A	50	NONE	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		NAFISAT
Niamey	M	SAT/A	50	TTY	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		NAFISAT
MID (Jeddah)	M	SAT/A	50	A	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		NAFISAT
ALGER													
Casablanca	M	LTT/A	1200	V.24	ITA-2	AFTN	LTT/A	1200	V.24	IA-5	AFTN		
Niamey	M	SAT/D	2400	FR	IA-5	AFTN	SAT/D	2400	FR	IA-5	AFTN	26.04.05	
Tunis	M	LTT/A	1200	V.24	ITA-2	AFTN	LTT	1200	V.24	IA-5	AFTN		
EUR (Bordeaux)	M	LTT/A	1200	V.24	ITA-2	AFTN	SAT/D	1200	V.24/X.25	IA-5	AFTN		
BRAZZAVILLE													
Bangui	T	SAT/D	1200	X.25	ITA-2	AFTN	SAT/D	1200	X.25	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	9600	X.25	IA-5	AFTN	May 2005	
Johannesburg	M	SAT/D	1200	FR	IA-5	AFTN	SAT/D	1200	FR	IA-5	AFTN		
Libreville	T	SAT/D	2400	X.25	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	X.25	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		

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
CAIRO (CIDIN Centre)													
Khartoum	T	SAT/A	50	TTY	ITA-2	AFTN	SAT/D	1200	TTY	ITA-2	AFTN		NAFISAT
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	TTY	ITA-2	AFTN	SAT/D	1200	X.25	IA-5	AFTN		
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 (CIDIN Centre)													
Dakar	M	SAT/D	1200	FR	IA-5	AFTN	SAT/D	9600	TTY/FR	IA-5	AFTN		
Las Palmas	T	LTT/A	9600	FR	ITA-2	AFTN	SAT/D	9600	X.25	IA-5	AFTN		
EUR (Madrid)	M	SAT/A	4800	CIDIN AFTN	IA-5	AFTN	SAT/D	4800	CIDIN	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		
Johannesburg	M	LTT	9600	FR	IA-5	AFTN	SAT/D	9600	FR	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	9600	TTY	IA-5	AFTN	SAT/D	9600	X.25	IA-5	AFTN		
SAM (RIO)	M	SAT	9600	TTY	IA-5	AFTN	SAT/D	9600	TTY	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
JOHANNESBURG													X.25 planned/ IA-5 capable
Antananarivo	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	X.25	IA-5	AFTN		
Beira	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	FR	IA-5	AFTN		
Bujumbura	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	FR	IA-5	AFTN		
Gaborone	T	SAT/D	2400	TTY	ITA-2	AFTN	SAT/D	9600	FR	IA-5	AFTN		
Harare	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Kigali	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Lilongwe	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Lusaka	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Maputo	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Maseru	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Manzini	T	LTT/A	2400	TTY	IA-5	AFTN	SAT/D	9600	TTY	IA-5	AFTN		
Nairobi	M	LTT/A	50	TTY	ITA-2	AFTN	SAT/D	9600	X.25	IA-5	AFTN		NAFISAT
Windhoek	T	SAT/D	2400	TTY	IA-5	AFTN	SAT/D	9600	NONE	IA-5	AFTN		
ASIA/PAC (Brisbane)	M	SAT/D	64 kbps	X.25	IA-5	AFTN	SAT/D	64 kpbs	X.25	IA-5	AFTN		
SAM (Buenos Aires)	M	SAT/D	9600	FR	IA-5	AFTN	SAT/D	9600	FR	IA-5	AFTN		2005
NAIROBI													
Dar es Salaam	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	9600	X.25	IA-5	AFTN		NAFISAT
Entebbe	T	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	9600	X.25	IA-5	AFTN		NAFISAT
Mauritius	T	SAT/A	50	NONE	ITA-2	AFTN	SAT/A	9600	X.25	IA-5	AFTN		SADC/2 NAFISAT
Mogadishu FIC	T	LTT/A	50	NONE	ITA-2	AFTN	SAT/A	9600	X.25	IA-5	AFTN		NAFISAT
Seychelles	T	SAT/A	50	NONE	ITA-2	AFTN	SAT/A	9600	X.25	IA-5	AFTN		NAFISAT
ASIA (Mumbai)	M	LTT/A	50	NONE	ITA-2	AFTN	LTT/A	1200	X.25	IA-5	AFTN		
NIAMEY													
Accra	T	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	FR	IA-5	AFTN		
Kano	T	SAT/D	2400	X.25	IA-5	AFTN	SAT/D	2400	FR	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	X.25	IA-5	AFTN	SAT/D	2400	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
TUNIS													
Tripoli	T	LTT/A	50	TTY	ITA-2	AFTN	LTT/A	1200	V.24	IA-5	AFTN		
EUR(Rome)	M	SAT/A	1200	V.24		AFTN	SAT/A	1200	V.24	IA-5	AFTN		
ACCRA													
Cotonou	S	SAT/D	2400	X.25	IA-5	AFTN	LTT/A	2400	X.25	IA-5	AFTN		
Lome	S	SAT/D	2400	X.25	IA-5	AFTN	LTT/A	2400	X.25	IA-5	AFTN		
ANTANANARIVO													
Dzaoudzi	S	SAT/D	2400	FR	IA-5	AFTN	SAT/D	2400	FR	IA-5	AFTN		
Mauritius	T	SAT/D	2400	FR	IA-5	AFTN	SAT/D	2400	FR	IA-5	AFTN		
Moroni	S	SAT/D	2400	FR	IA-5	AFTN	SAT/D	2400	FR	IA-5	AFTN		
DOUALA													
Malabo	S	SAT/D	1200	X.25	IA-5	AFTN	SAT/D	1200	X.25	IA-5	AFTN		
KANO													
Lagos	S	SAT/A	1200	FR	IA-5	AFTN	SAT/D	2400	X.25	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	FR	IA-5	AFTN	SAT/A	2400	FR	IA-5	AFTN		
Johannesburg	T	SAT/D	2400	FR	ITA-2	AFTN	SAT/D	9600	FR	IA-5	AFTN		
CONAKRY													
Robertsfield	S	SAT/D	1200	X.25	IA-5	AFTN	SAT/D	1200	X.25	IA-5	AFTN		
Freetown	S	SAT/D	1200	X.25	IA-5	AFTN	SAT/D	1200	X.25	IA-5	AFTN		

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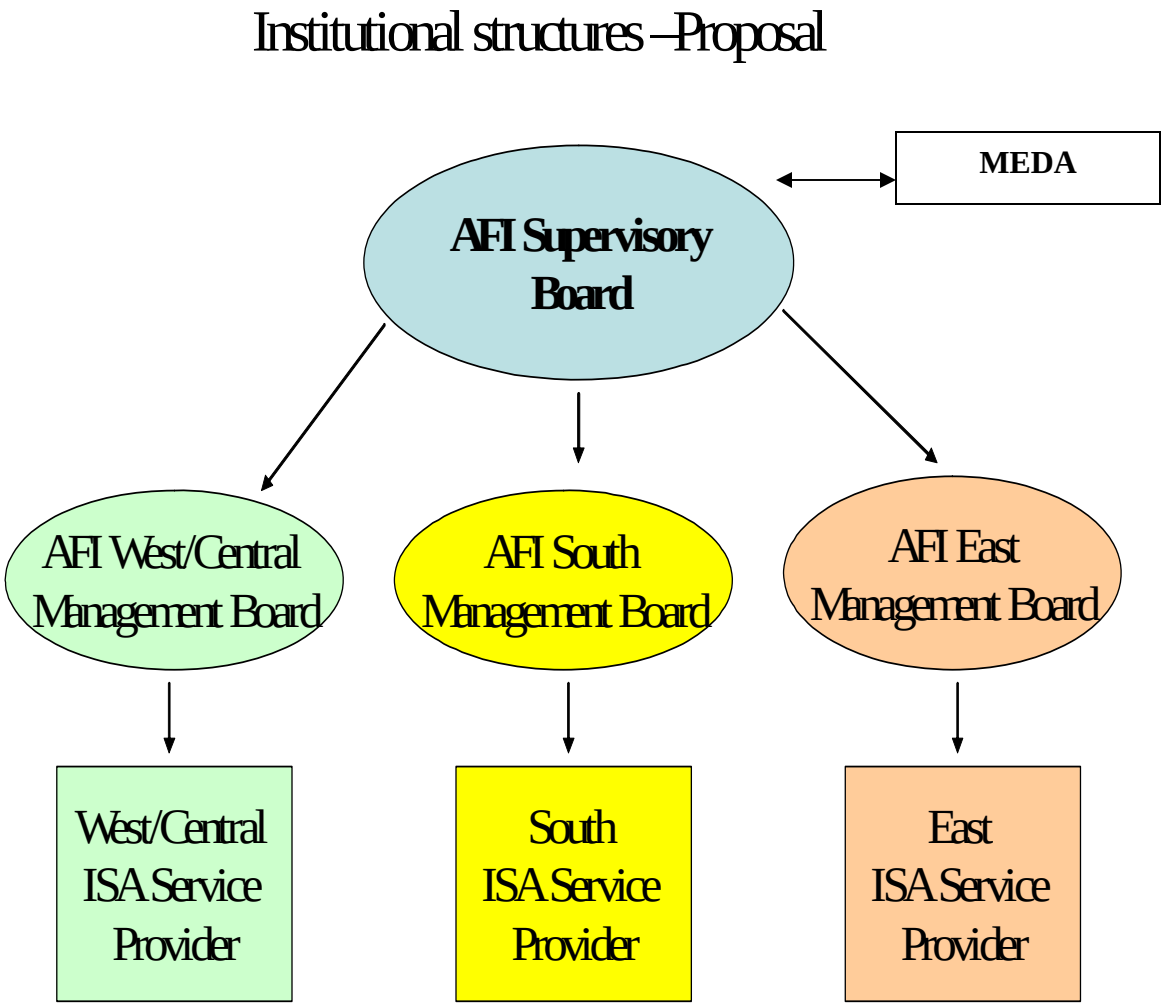
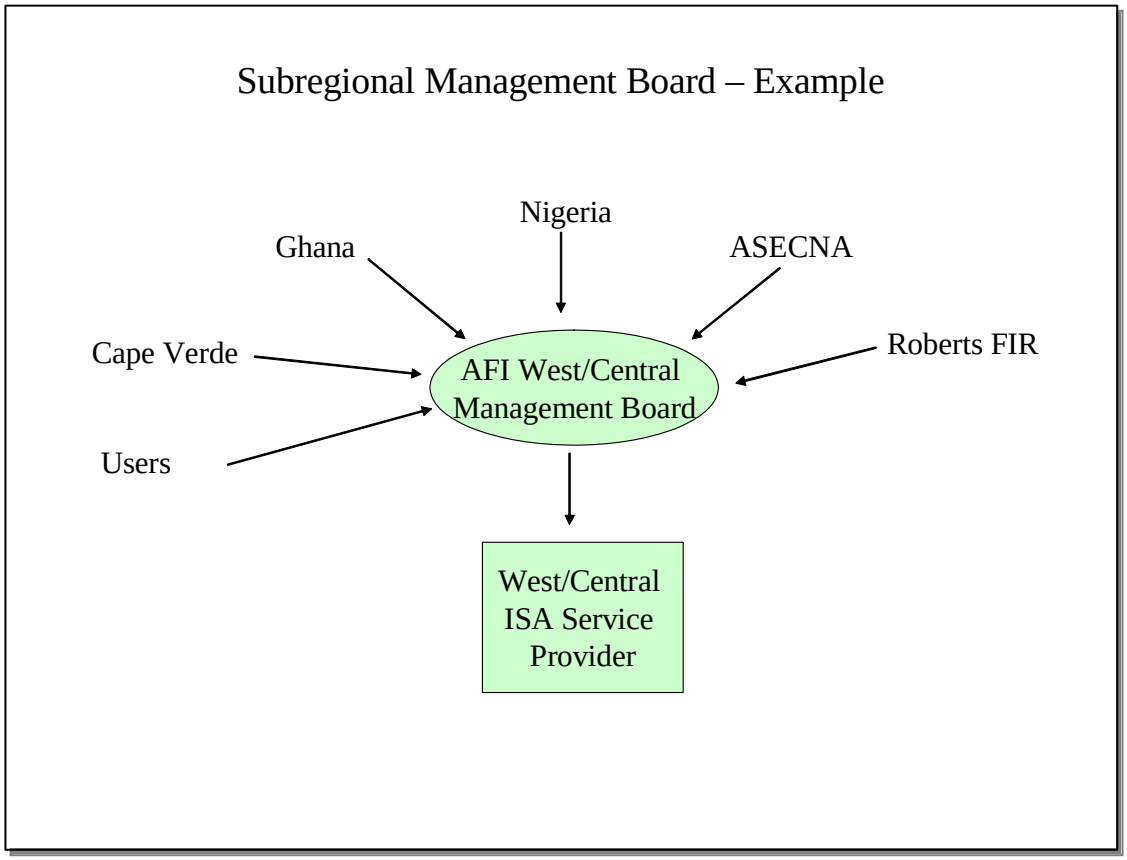
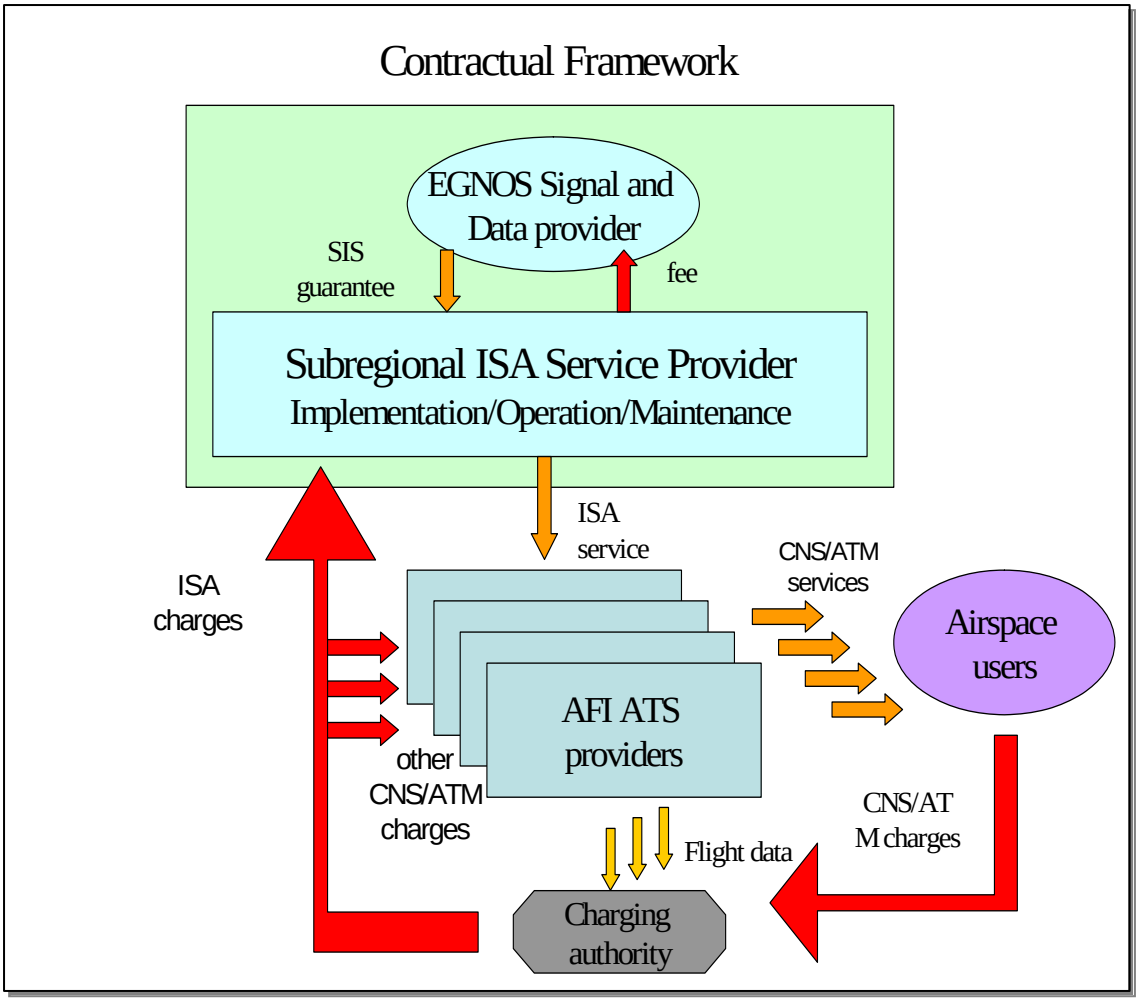
APPENDIX D

PROPOSED INSTITUTIONAL STRUCTURE FOR INTERREGIONAL SBAS OVER THE AFI REGION




Subregional Management Board – Example
Nigeria
Ghana
ASECNA
Cape Verde
AFI West/Central Management Board
Roberts FIR
Users
West/Central ISA Service Provider


Contractual Framework
EGNOS Signal and Data provider
SIS guarantee
fee
Subregional ISA Service Provider
Implementation/Operation/Maintenance
ISA service
ISA charges
CNS/ATM services
Airspace users
AFI ATS providers
other CNS/ATM charges
CNS/AT M charges
Flight data
Charging authority

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APPENDIX E

CONCEPT OF THE GNSS STRATEGY FOR THE AFI REGION

1. Introduction

1.1 The purpose of the AFI GNSS strategy is to define an evolution path for replacement of ground-based navigation aids, i.e. VOR/DME/ILS/NDB[1], ensuring that operational and other concerns such as positive cost benefit, are fully taken into account.

1.2 The AFI GNSS strategy assumes availability of a GNSS meeting the specified parameters at every phase of deployment. It does not analyse GNSS systems configuration per se nor the advantages and disadvantages of various deployment strategies.

2. General considerations

2.1 By necessity, satellite-based and ground-based navigation systems will co-exist for a period of time. Considering that the operation of a dual system is detrimental to positive cost-benefit, users and providers will cooperate with the view to reducing the duration of the transition period as much as possible, having due regard for the following principles:

- The level of safety will not be downgraded during the transition;
- GNSS-based service must, before the end of the transition period, fully meet the required parameters of accuracy, availability, integrity and continuity for all phases of flight;
- During the transition, gradually evolving levels of functionality will be available;
- Operational advantage shall be taken of the available capabilities at every step of deployment;
- Methods of application will take into full consideration safety considerations of any functional limitations;
- Users must be given sufficient advance notice to re-equip before ground-based systems are decommissioned.

3. Evolving functionality

3.1 **Phase I (Short term), up to 2005**: *Additional ranging and health information on GPS constellation provided via GEO satellites*

- This phase will allow the use of Basic GNSS for en-route, approach and NPA. Existing ground infrastructure remains intact.
- An AFI GNSS test bed will be implemented to validate the objectives and differential correction algorithms of the operational EGNOS system to be implemented during Phase I.

3.2 **Phase II (Medium term) 2006-2011**: *LPV* (*APV-I) ,i.e localizer performance with 20m vertical accuracy, will be available everywhere in the AFI Region*

- This phase will include the following:
  a) To prepare EGNOS implementation, numerous activities must be carried out: final system definition, specifications development, cost-benefit analysisand funding,

[1] NDB = non-directional radio beacon

preparation of the institutional and operational framework and programmatic issues will be carried out, with EGNOS validation in the AFI Region.

b) En-route phase: sufficient capability to meet en-route navigation requirements everywhere in the AFI Region; GNSS is approved for en-route navigation, taking into account technical and legal developments, and institutional aspects. En-route navigation aids will be progressively withdrawn accordingly in consultation with users.

c) Terminal areas: sufficient capability to meet terminal control area (TMA) navigation requirements everywhere in the AFI region; GNSS is approved for TMAs, taking into account technical and legal developments, and institutional aspects.

d) Terminal area VOR, NDB, and Locators not associated with ILS, will be progressively withdrawn in consultation with users during Phase II.

e) Approach and landing phase: sufficient capability for LPV (APV-1) in the whole AFI Region. ILS will continue to be provided at aerodromes (Note 1 below refers).

Note 1 – Where the requirements for approach and landing can be met by LPV (APV-1), the withdrawal of ILS CAT I should be considered.

- During Phase II, the implementation of Long term GNSS will be developed.

3.3 **Phase III (Long term) 2012 onwards**: *It is assumed that at least two constellations of navigation satellites will be available. GNSS is approved for navigation services from en-route to CAT I operations. CAT I by SBAS or ground-based augmentation system (GBAS) will be available in those locations where analysis of historical MET data or traffic characteristics justifies the requirement. Other requirements will be met by GBAS.*

- During Phase III, ILS CAT I will be withdrawn in consultation with users.
- Where CAT II/III ILS requirements have been confirmed, these facilities will remain, unless technical evolution then demonstrates that the requirement can be supported by GBAS or SBAS.

4. Institutional issues

4.1 Phases II and III of the AFI GNSS strategy will require the deployment of AFI specific GNSS components. In order to minimize costs associated with the deployment and operation of these components, AFI should seek cooperation agreements with systems providers in adjacent regions with a view to the joint use of GNSS components, where feasible and cost-effective.

4.2 Meanwhile, in some AFI States, the modalities of installation and cost-recovery of multinational facilities, essentially RIMS, must be addressed without delay so that deployment can be initiated as soon as technically possible.

5. **Synopsis of the AFI GNSS strategy**

AFI GNSS Strategy				
	Phase I		**Phase II**	**Phase III**
Time scale	**2000 – 2005**		**2006 – 2011**	**2012 – 2017**
Certification	Basic GNSS	Basic GNSS	from en-route to LPV (APV-1)	from en-route to CAT I
Oceanic/En-route		GPS	GPS with EGNOS	Long-term GNSS
Continental/En-route		GPS	GPS with EGNOS	Long-term GNSS
Terminal	GPS		GPS with EGNOS	Long-term GNSS
Approach and landing	(GPS/Baro) NPA		LPV (APV-1) SBAS	SBAS CAT I CAT I GBAS CAT II/III GBAS

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APPENDIX F

Table CNS 4A — SURVEILLANCE

Explanation of the Table

Column

1	Name of country and location of radar head facility or FIR
2	Area of routing
3	Air traffic services unit served by the facility or FIR
4	PSR - primary surveillance radar
5	Coverage of primary surveillance radar in nautical miles
6	SSR - secondary surveillance radar and modes implemented will be indicated within brackets, namely Modes A, C and S
7	Coverage of secondary surveillance radar in nautical miles
8	ADS-B - automatic dependent surveillance – broadcast *
9	ADS-C - automatic dependent surveillance – contract
10	Remarks

Note:

The following codes are used in columns 4, 6, 8-10

I - Required and implemented. For column 6,
I stands for implementation using conventional SSR, while
MI stands for implementation using Monopulse SSR.

X - Required but implementation status not determined

N - Required but not implemented

A - existing facility provided to supplement or substitute the requirement

F - Future Plan

< - Year: planned commissioning year to be used as appropriate in conjunction with AF@ and AN@

> - Year: planned commissioning year to be used as appropriate in conjunction with AA@ and AI@

* Under development

State/Location Etat/Emplacement	AR	ATS unit served/ Organe ATS desservi	PSR	Coverage/ Couverture of/du PSR (NM)	SSR (A/C/S)	Coverage/ Couverture of/du SSR (NM)	ADS-B*	ADS-C	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10
ALGERIA									
Alger	AR4	Alger ACC			MI(A/C)	250		I	ADS trials/Essais ADS
Annaba		Alger ACC			MI(A/C)	250			
El Bayad		Alger ACC			MI(A/C)	250			
El Oued		Alger ACC			MI(A/C)	250			
Oran		Alger ACC			MI(A/C)	250			
ANGOLA									
Luanda	AR2 AR4	Luanda ACC			F<-2003			N	MSSR planned/prévu
BOTSWANA									
Gaborone	AR4	Gaborone ACC						N	
CAPE VERDE								F<-2004	
Sal	AR1	Sal ACC							
CHAD/TCHAD									
N'Djamena	AR4 AR5	N'Djamena ACC			I			I	
CONGO									
Brazzaville	AR4	Brazzaville ACC			F<2006			F<-2006	
COTE D'IVOIRE									
Abidjan	AR5	Abidjan ACC			F<2006			N	
DEM. REP. OF CONGO									
Kinshasa	AR4	Kinshasa ACC						N	

State/Location Etat/Emplacement	AR	ATS unit served/ Organe ATS desservi	PSR	Coverage/ Couverture of/du PSR (NM)	SSR (A/C/S)	Coverage/ Couverture of/du SSR (NM)	ADS-B*	ADS-C	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10
EGYPT Cairo 300715N 312354E 300621N 312439E 300621N 312439E	AR3	Cairo ACC			MI(A/C)	250		I	
Hurghada 270319N 335025E		Cairo ACC			MI(A/C)	250			
Mersa Matruh 311810N 270831E		Cairo ACC			MI(A/C)	250			
Aswan 235830N 324636E	AR3	Cairo ACC			MI(A/C)	250			
Asyut 270332N 310108E		Cairo ACC			MI(A/C)	250			
ERITREA Asmara	AR3	Asmara ACC						N	
ETHIOPIA Addis Ababa	AR3	Addis Ababa ACC						F<-2002	
GHANA Accra	AR5	Accra ACC			MI(A/C)	250		N	
Tamale		Accra ACC			MI(A/C)	250			
GUINEA/ LIBERIA/ SIERRA LEONE Robertsfield	AR5	Roberts FIC/ACC						N	
KENYA	AR3								

State/Location Etat/Emplacement	AR	ATS unit served/ Organe ATS desservi	PSR	Coverage/ Couverture of/du PSR (NM)	SSR (A/C/S)	Coverage/ Couverture of/du SSR (NM)	ADS-B*	ADS-C	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10
Nairobi		Nairobi ACC			I(A/C)	200		N	
LIBYAN ARAB JAMAHIRIYA Tripoli	AR3 AR4	Tripoli ACC						N	
MADAGASCAR Antananarivo	AR3 AR10	Antananarivo ACC						I-2001	
MALAWI Lilongwe	AR4	Lilongwe ACC						N	
MAURITIUS Mauritius	AR3 AR6	Mauritius ACC						N<-2001	
MOROCCO Casablanca 332124.12N 073642.99W	AR1	Casablanca ACC			MI(A/C)	250		N	
Agadir 301908.96N 092440.75W									
Ifrane 333151.87N 050926.95W									
Safi 321904.94N 091444.078W									
MOZAMBIQUE	AR4								

State/Location Etat/Emplacement	AR	ATS unit served/ Organe ATS desservi	PSR	Coverage/ Couverture of/du PSR (NM)	SSR (A/C/S)	Coverage/ Couverture of/du SSR (NM)	ADS-B*	ADS-C	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10
Beira		Beira ACC						N	
NAMIBIA Windhoek	AR4	Windhoek ACC						N	
NIGER Niamey	AR4 AR5	Niamey ACC			F<2006			F<-2006	
NIGERIA Kano	AR4 AR5	Kano ACC			F(A/C)	250		F<-2005	
Lagos		Lagos ACC			F<2003	250		F<-2005	
SENEGAL Dakar	AR1 AR5	Dakar ACC						F<-2005	
SEYCHELLES Seychelles	AR3 AR6	Seychelles ACC						N	
SOMALIA Mogadishu	AR3	Mogadishu FIC						N	
SOUTH AFRICA Cape Town	AR2 AR4 AR6	Cape Town ACC			MI(A/C)				
Johannesburg		Johannesburg ACC Johannesburg Oceanic			MI(A/C)			I	

State/Location Etat/Emplacement	AR	ATS unit served/ Organe ATS desservi	PSR	Coverage/ Couverture of/du PSR (NM)	SSR (A/C/S)	Coverage/ Couverture of/du SSR (NM)	ADS-B*	ADS-C	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10
SPAIN (Canarias)									
Gran Canaria	AR1	Canarias ACC			I(A/C)	200		I	5 radars on multi-radar system
Lanzarote		Canarias ACC			I(A/C)	220		N	
Las Palmas		Canarias ACC			I(A/C)	150			
La Palma		Canarias ACC			I(A/C)	170*			**Between/Entre* 005°-210°
Tenerife		Canarias ACC			I(A/C)	120		N	
SUDAN									
Khartoum	AR3	Khartoum ACC						N	
TUNISIA									
Tunis PSR: 365135.417N 0101428.9293E	AR4	Tunis ACC			MI(A/C)	250		N	
Sidi Zid: 362829.0381N 0101929.0568E									
Akouda 035 53 37N 010 33 46E		Tunis ACC			MI(A/C)	250			
UGANDA									
Entebbe	AR3	Entebbe ACC						N	
UNITED REP. OF TANZANIA									
Dar Es Salaam	AR3	Dar Es Salaam ACC						N	

State/Location Etat/Emplacement	AR	ATS unit served/ Organe ATS desservi	PSR	Coverage/ Couverture of/du PSR (NM)	SSR (A/C/S)	Coverage/ Couverture of/du SSR (NM)	ADS-B*	ADS-C	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10
ZAMBIA Lusaka	AR4	Lusaka ACC						N	
ZIMBABWE Harare	AR4	Harare ACC			I(A/C)				

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APPENDIX G

Table CNS 4B — ATS AUTOMATION SYSTEMS

Explanation or the Table

Column

1	Name of country and location of radar head facility or FIR
2	Area of routing
3	Air traffic services unit served by the ATS automation systems. The abbreviations for this column are: AACC: Area/approach control centre — ACC: Area control APP: Approach control — EC: En-route centre FIS: Flight information service — SMC: Surface movement control TCU: Terminal control unit — TMA: Terminal control area TWR: Tower control
4	Surveillance sensor linked to the ATS automation systems, 4-letter FIR identifier, enclosed in brackets, shall be shown for sensors outside the FIR
5	RDPS - Radar data processing system
6	FDPS - Fight data processing system
7	MSAW - Minimum safe altitude warning system
8	ADS - Automatic Dependent Surveillance
9	CPDLC - Controller-pilot data link communications
10	AIDC - ATS inter-facility data link communications
11	PA/RDPS - Processing area of the radar data processing system in NM^2 (nautical miles)
12	Npos - Number of ATS positions
13	Remarks

Note:

The following codes are used in columns 5 to12:

I - Required and implemented.

X - Required but implementation status not determined

N - Required but not implemented

A - Existing facility provided to supplement or substitute the requirement

F - Future plan

The number of systems provided for each type of process and the year of commissioning and decommissioning:

< - Year: planned commissioning year to be used as appropriate in conjunction with AF@ and AN@

> - Year: planned decommissioning year to be used as appropriate in conjunction with AA@ and AI@

State/Location / Etat/Emplacement	AR	ATS unit served / Organe ATS desservi	Data Source / Source de données	RDPS	FDPS	MSAW	ADS	CPDLC	AIDC	PA/RDPS NM^2	Npos	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10	11	12	13
ALGERIA Alger	AR4	Alger ACC		I	I	I	I	I	N			
ANGOLA Luanda	AR2 AR4	Luanda ACC			N		N	N	N			
BOTSWANA Gaborone	AR4	Gaborone ACC			F<-2001		N	N	N			
CAPE VERDE Sal	AR1	Sal ACC			N		N	N	N			
CHAD/TCHAD N'Djamena	AR4 AR5	N'Djamena ACC		N	N	N	N<-2002	N<-2002	N			
CONGO Brazzaville	AR4	Brazzaville ACC			N		N	N	N			
COTE D'IVOIRE Abidjan	AR5	Abidjan ACC			N		N	N	N			
DEM. REP. OF CONGO Kinshasa	AR4	Kinshasa ACC			N		N	N	N			
EGYPT Cairo	AR3	Cairo ACC		I	I	N	I	I	N			

State/Location / Etat/Emplacement	AR	ATS unit served / Organe ATS desservi	Data Source / Source de données	RDPS	FDPS	MSAW	ADS	CPDLC	AIDC	PA/RDPS NM^2	Npos	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10	11	12	13
ERITREA Asmara	AR3	Asmara ACC			N		N	N	N			
ETHIOPIA Addis Ababa	AR3	Addis Ababa ACC			I		F<-2002	F<-2002	N			
GHANA Accra	AR5	Accra ACC		I	I	I	N	N	N		3	
GUINEA/LIBERIA/ SIERRA LEONE Robertsfield	AR5	Robertsfield ACC			N		N	N	N			
KENYA Nairobi	AR3	Nairobi ACC	Mua Hills Eldoret Poror Wajir Mombasa	I	I	N	N	N	N		4	
LIBYAN ARAB JAMAHIRIYA Tripoli	AR3 AR4	Tripoli ACC			N		N	N	N			
MADAGASCAR Antananarivo	AR3 AR6	Antananarivo ACC			I-2001		I-2001	I-2001	N			
MALAWI Lilongwe	AR4	Lilongwe ACC					N	N	N			
MAURITIUS	AR3 AR6	Mauritius ACC			N		N<-	N<-	N			

State/Location / Etat/Emplacement	AR	ATS unit served / Organe ATS desservi	Data Source / Source de données	RDPS	FDPS	MSAW	ADS	CPDLC	AIDC	PA/RDPS NM^2	Npos	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10	11	12	13
Mauritius							2001	2001				
MOROCCO												
Casablanca	AR1	Mohamed V Radar	Casablanca Agadir Ifrane Safi	I	I	I				11310^2	1	
Rabat		Casablanca Radar		I	I	I	N	N	N	375330^2	5	
MOZAMBIQUE												
Beira	AR4	Beira ACC			N		N	N	N			
NAMIBIA												
Windhoek	AR4	Windhoek ACC			N		N	N	N			
NIGER												
Niamey	AR4 AR5				F<-2004		F<-2004	F<-2004	N			
NIGERIA												
Kano	AR4 AR5	Kano ACC		N	N	N	N	N	N			
Lagos		Lagos ACC		N	N	N	N	N	N			
SENEGAL												
Dakar	AR1 AR5	Dakar ACC			F<-2002		F<-2002	F<-2002	N			
SEYCHELLES												
Seychelles	AR3 AR6	Seychelles ACC			N		N	N	N			

State/Location / Etat/Emplacement	AR	ATS unit served / Organe ATS desservi	Data Source / Source de données	RDPS	FDPS	MSAW	ADS	CPDLC	AIDC	PA/RDPS NM^2	Npos	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10	11	12	13
SOMALIA												
Mogadishu	AR3	Mogadishu ACC			N		N	N	N			
SOUTH AFRICA												
Cape Town	AR2 AR4 AR6	Cape Town ACC		I	I	N			N			
Johannesburg		Johannesburg ACC		I	I	N	I	I	N			
SPAIN (CANARIAS)											ACC-8	
Gran Canaria	AR1	Canarias ACC		I	I	N	I	I	N	200		
Lanzarote		Canarias ACC		I	I	N	N	N	N	220		
Las Palmas		Canarias ACC		I	I	I	N	N	N	150		
La Palma		Canarias ACC		I	I	N	I	I	N	170*		**Between/Entre* 005°-210°
Tenerife		Canarias ACC		I	I	I	N	N	N	120	GCTS-1	
SUDAN												
Khartoum	AR3	Khartoum ACC			F<-2001		N	N	N			
TUNISIA											4	
Tunis	AR4	Tunis ACC		I	I	I	N	N	N		3 3	
UGANDA												
Entebbe	AR3	Entebbe ACC			N		N	N	N			

State/Location / Etat/Emplacement	AR	ATS unit served / Organe ATS desservi	Data Source / Source de données	RDPS	FDPS	MSAW	ADS	CPDLC	AIDC	PA/RDPS NM^2	Npos	Remarks/ Remarques
1	2	3	4	5	6	7	8	9	10	11	12	13
UNITED REP. OF TANZANIA	AR3											
Dar Es Salaam		Dar Es Salaam ACC			N		N	N	N			
ZAMBIA	AR4											
Lusaka		Lusaka ACC			N		N	N	N			
ZIMBABWE	AR4											
Harare		Harare ACC		I	I	N	N	N	N			

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APPENDIX H

Table AIS 1 — Tableau AIS 1 — Tabla AIS 1

ESTABLISHMENT OF AERODROME AIS UNITS
ÉTABLISSEMENT DE BUREAUX AIS D'AÉRODROME
ESTABLECIMIENTO DE DEPENDENCIAS AIS DE AERÓDROMO

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
ALGERIA	ADRAR/Touat
	ALGER/Houari Boumediene
	ANNABA/El Mellah
	CONSTANTINE/Mohamed Boudiaf
	GHARDAIA/Noumérate
	HASSI-MESSAOUD/Oued Irara
	ORAN/Es Sénia
	TAMANRASSET/Aguennar
	TÉBESSA/Tébessa
	TIARET/Bou-Chekif
	TLEMCEN/Zénata
	ZARZAITINE/In Amenas
ANGOLA	HUAMBO/Albano Machado
	LUANDA/4 de Fevereiro
BENIN	COTONOU/Cadjehoun
BOTSWANA	FRANCISTOWN/Francistown
	GABORONES/Sir Seretse Khama Intl
	KASANE/Kasane
	MAUN/Maun
	SELEBI-PHIKWE/Selebi-Phikwe
BURKINA FASO	BOBO-DIOULASSO/Bobo-Dioulasso
	OUAGADOUGOU/Ouagadougou
BURUNDI	BUJUMBURA/Bujumbura

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
CAMEROON	DOUALA/Douala
	GAROUA/Garoua
	MAROUA/Salak
	N'GAOUNDERE/N'Gaoundere
	YAOUNDE/Nsimalen
CANARY ISLANDS (Spain)	GRAN CANARIA/Gran Canaria, Canary I.
	HIERRO/Hierro, Canary I.
	LA PALMA/La Palma, Canary I.
	LANZAROTE/Lanzarote, Canary I.
	MELILLA/Melilla
	FUERTEVENTURA/Fuerteventura, Canary I.
	TENERIFE NORTE/Los Rodeos, Canary I.
	TENERIFE SUR/Reina Sofia, Canary I.
CAPE VERDE	PRAIA/Francisco Mendes
	SAL I./Amilcar Cabral
CENTRAL AFRICAN REPUBLIC	BANGUI/M'Poko
	BERBERATI/Berberati
CHAD	N'DJAMENA/N'Djamena
COMOROS	ANJOUAN/Ouani
	DZAOUDZI/Pamanzi, Mayotte I.
	MORONI/Hahaia
CONGO	BRAZZAVILLE/Maya-Maya
	POINTE NOIRE/Agostino Neto
CÔTE D'IVOIRE	ABIDJAN/Felix Houphouet Boigny Intl.
	BOUAKE/Bouake
DEM. REP. OF CONGO	GOMA/Goma
	KINSHASA/N'Djili
	KISANGANI/Bangoka
	LUBUMBASHI/Luano
DJIBOUTI	DJIBOUTI/Ambouli

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
EGYPT	ABU-SIMBEL/Abu-Simbel
	ALEXANDRIA/Alexandria
	ASWAN/Aswan
	CAIRO/Cairo Intl.
	HURGHADA/Hurghada
	LUXOR/Luxor
	MERSA-MATRUH/Mersa-Matruh
	SHARM EL SHEIKH/Sharm El Sheikh
	ST. CATHERINE/St. Catherine
	TABA/Taba
EQUATORIAL GUINEA	MALABO/Malabo
ERITREA	ASMARA/Asmara Intl.
	ASSAB/Assab
ETHIOPIA	ADDIS ABABA/Bole Intl.
	DIRE DAWA/Dire Dawa Intl.
GABON	FRANCEVILLE/M'Vengue
	LIBREVILLE/Leon M'ba
	PORT GENTIL/Port Gentil
GAMBIA	BANJUL/Banjul Intl.
GHANA	ACCRA/Kotoka Intl.
	KUMASI/Kumasi
	TAMALE/Tamale
GUINEA	BOKE/Baralande
	CONAKRY/Gbessia
	FARANAH/Badala
	KANKAN/Diankana
	LABE/Tata
	N'ZEREKORE/Konia
GUINEA-BISSAU	BISSAU/Osvaldo Vieira Intl.

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
KENYA	ELDORET/Eldoret Intl.
	MOMBASA/Moi Intl.
	NAIROBI/Jomo Kenyatta Intl.
LESOTHO	MASERU/Moshoeshoe I. Intl.
LIBERIA	MONROVIA/Roberts Intl.
LIBYAN ARAB JAMAHIRIYA	BENGHAZI/Benina
	SEBHA/Sebha
	TRIPOLI/Tripoli Intl.
MADAGASCAR	ANTANANARIVO/Ivato
	ANTSIRANANA/Arrachart
	MAHAJANGA/Amborovy
	NOSY-BE/Fascene
	SAINTE-MARIE/Sainte-Marie
	TOAMASINA/Toamasina
	TOLAGNARO/Tolagnaro
MALAWI	BLANTYRE/Chileka
	LILONGWE/Lilongwe Intl.
MALI	BAMAKO/Senou
	GAO/Gao
	KAYES/Kayes
	KIDAL/Kidal
	MOPTI-BARBE/Mopti-Barbe
	NIORO/Nioro
	TOMBOUCTOU/Tombouctou
MAURITANIA	ATAR/Atar
	NEMA/Nema
	NOUADHIBOU/Nouadhibou
	NOUAKCHOTT/Nouakchott
	ZOUERATE/Zouerate
MAURITIUS	MAURITIUS/Sir Seewoosagur Ramgoolam Intl.

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
MOROCCO	AGADIR/Al Massira
	AL HOCEIMA/Cherif Al Idrissi
	CASABLANCA/Mohammed V
	ERRACHIDIA/Moulay Ali Cherif
	FES/Saïss
	MARRAKECH/Ménara
	OUARZAZATE/Ouarzazate
	OUJDA/Angads
	RABAT/Salé
	TANGER/Ibnou-Batouta
	TAN-TAN/Plage Blanche
	TETOUAN/Saniat-R'mel
MOZAMBIQUE	BEIRA/Beira
	MAPUTO/Maputo Intl.
NAMIBIA	KEETMANSHOOP/Keetmanshoop
	WALVIS BAY/Walvis Bay
	WINDHOEK/Windhoek
NIGER	AGADES/Sud
	NIAMEY/Diori Hamani Intl.
	ZINDER/Zinder
NIGERIA	ABUJA/Nnamdi Azikiwe
	CALABAR/Calabar
	ILORIN/Ilorin
	KADUNA/Kaduna
	KANO/Mallam Aminu Kano Intl.
	LAGOS/Murtala Muhammed
	MAIDUGURI/Maiduguri
	PORT HARCOURT/Port Harcourt Intl.
	SOKOTO/Saddiq Abubakar III Intl.
REUNION (France)	SAINT-DENIS/Gillot La Réunion

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
RWANDA	KIGALI/Gregoire Kayibanda
SAO TOME AND PRINCIPE	SAO TOMÉ/Sao Tomé
SENEGAL	CAP SKIRING/Cap Skiring
	DAKAR/Leopold Sedar Senghor Intl.
	SAINT LOUIS/Saint Louis
	TAMBACOUNDA/Tambacounda
	ZIGUINCHOR/Ziguinchor
SEYCHELLES	MAHE/Seychelles Intl.
SIERRA LEONE	FREETOWN/Lungi
SOMALIA	BERBERA/Berbera
	BURAO/Burao
	HARGEISA/Hargeisa
	KISIMAYU/Kisimayu
	MOGADISHU/Mogadishu
SOUTH AFRICA	ALEXANDER BAY/Alexander Bay
	BLOEMFONTEIN/Bloemfontein
	CAPE TOWN/Cape Town
	DURBAN/Durban
	JOHANNESBURG/Johannesburg
	JOHANNESBURG/Rand
	LANSERIA/Lanseria
	UPINGTON/Upington
SUDAN	JUBA/Juba
	KASSALA/Kassala
	KHARTOUM/Khartoum
	PORT SUDAN/Port Sudan Intl.
SWAZILAND	MANZINI/Matsapha
TOGO	LOME/Tokoin
	NIAMTOUGOU/Niamtougou

State or Territory État ou territoire Estado o Territorio	AIS aerodrome units required at city/aerodrome Ville/aérodrome où un bureau AIS d'aérodrome doit être établi Dependencias AIS de aeródromo requeridas en ciudad/aeródromo
TUNISIA	DJERBA/Zarzis
	MONASTIR/Habib Bourguiba
	SFAX/Thyna
	TABARKA/7 Novembre
	TOZEUR/Nefta
	TUNIS/Carthage
UGANDA	ENTEBBE/Entebbe Intl.
UNITED REPUBLIC OF TANZANIA	DAR ES SALAAM/Dar Es Salaam
	KILIMANJARO/Kilimanjaro Intl.
	ZANZIBAR/Zanzibar
WESTERN SAHARA	EL AAIUN/El Aaiun
	SMARA/Smara
	VILLA CISNEROS/Villa Cisneros
ZAMBIA	LIVINGSTONE/Livingstone Intl.
	LUSAKA/Lusaka Intl.
	MFUWE/Mfuwe
	NDOLA/Ndola
ZIMBABWE	BULAWAYO/Bulawayo
	HARARE/Harare
	VICTORIA FALLS/Victoria Falls

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APPENDIX I

STATUS OF IMPLEMENTATION OF THE INTEGRATED AERONAUTICAL INFORMATION PACKAGE
(Annex 15, 4.1.1)

	EDITION	GEN	ENR	AD	LAST AMENDMENT (NO/YEAR)	REMARKS
Angola	2001	√	√	√	–	AIP NEW FORMAT
Botswana	1998	√	√	√	2/99	”
Burundi	2001	√	√	√	–	”
Comoros	–	X	X	X	–	AIP NOT PUBLISHED
Djibouti	1996	X	X	X	2/87	OUTDATED AIP
Eritrea	1996	√	√	√	2/00	AIP NEW FORMAT
Ethiopia	1996	√	√	√	1/00	”
Kenya	2002	√	√	√	–	”
Lesotho	1987	X	X	X	3/88	OUTDATED AIP
Madagascar	–	√	√	√	–	AIP NEW FORMAT
Malawi	1977	X	X	X	69/89	OUTDATED AIP
Mauritius	1997	√	√	√	2/00	AIP NEW FORMAT
Mozambique	2004	√	√	√	104/88	”
Namibia	1999	√	√	√	–	”
Réunion (France)	–	√	√	√	–	”
Rwanda	1982	X	X	X	5/89	OUTDATED AIP
Seychelles	1996	√	√	√	1/00	AIP NEW FORMAT
Somalia	1978	X	X	X	3/86	OUTDATED AIP

STATUS OF IMPLEMENTATION OF THE INTEGRATED AERONAUTICAL INFORMATION PACKAGE (Annex 15, 4.1.1)						
	EDITION	**GEN**	**ENR**	**AD**	**LAST AMENDMENT (NO/YEAR)**	**REMARKS**
South Africa	–	√	√	√	–	AIP NEW FORMAT
Swaziland	2000	√	√	√	–	”
Tanzania	2002	√	√	√	7/02	”
Uganda	1997	√	√	√	2/00	”
Zambia	1996	X	X	X	41/86	OUTDATED AIP
Zimbabwe	1999	√	√	√	1/02	AIP NEW FORMAT

Note: √ means available
X means not available

(HP, Why spanish and not French?_

State/Territory/ Etat/ Territoire	AIP	AIP Amendment			AIP Supplement			AIC	NOTAM				AIRAC		REMARKS OBSERVACIONES
		REG	AIRAC	NIL	REG	AIRAC	NIL		REG	TRIGGER/ DECLENCHEUR	CHECKLIST/ LISTE DE CONTRÔLE	SUMMARY/ SOMMAIRE	REG	NIL	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BURKINA FASO	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
CAMEROON	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
CAPE VERDE	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
CENTRAL AFRICAN REPUBLIC	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
CHAD	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
COMOROS	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
CONGO	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
COTE D'IVOIRE	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
DEM.R REP. CONGO	X	N	N	N	N	N	N	X	X	X	X	X	X	X	
EQUATORIAL GUINEA	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
GABON	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
GAMBIA	X	X	X	N	X	N	N	X	X	X	X	X	X	X	
GHANA	X	N	X	N	X	N	N	X	X	X	X	X	X	X	
GUINEA	X	N	X	N	X	N	N	X	X	X	X	X	X	X	
GUINEA-BISSAU	N	N	N	N	X	N	N	X	X	X	X	X	X	X	
LIBERIA	X	N	N	N	X	N	N	X	X	X	X	X	X	X	
MALI	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
MAURITANIA	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
NIGER	X	X	X	N	X	X	N	X	X	X	X	X	X	X	
NIGERIA	X	N	N	X	X	X	X	X	X	X	X	X	X	X	
SAO TOME & PRINCIPE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
SENEGAL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
SIERRA LEONE	X	N	N	X	X	X	X	X	X	X	X	X	X	X	
TOGO	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

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APPENDIX J

PRINCIPLES GOVERNING INTRODUCTION OF AIS AUTOMATION IN THE AFI REGION

a) In developing its National AIS System Centre (NASC), each participating State should closely cooperate in adopting the different elements that will make up an integrated AFI region automated AIS system, while taking into account its current and planned degree of development;

b) States which have not yet done so should initially automate NOTAM service within their own AIS while taking into account the users requirements;

c) Optimum use should be made of available communication and public networks as well as of new communication technology for the dissemination, exchange and retrieval of aeronautical information, particularly NOTAM;

d) ICAO NOTAM format which contains necessary qualifiers needed to facilitate storing, sorting and retrieval of NOTAM information should be exclusively used;

e) Common, user friendly, query procedures for the interrogation of AIS or NOTAM databases should be used. These procedures should be in accordance with the different levels of users requirements;

f) States must establish quality systems and procedures which will ensure that the available aeronautical information is of appropriate quality (accuracy, resolution, integrity and timeliness);

g) Any State, which decides not to automate its AIS, may arrange, in the interest of improved efficiency and, on the basis of bilateral or multilateral agreements between States or other non-governmental organization, for the provision of automated services on its behalf. The arrangement must take into account the non-transferable responsibility of States for the provision of aeronautical information as well as other technical and administrative aspects associated with such arrangement.

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APPENDIX K

INTERNATIONAL CIVIL AVIATION ORGANIZATION

QUESTIONNAIRE DE MESURE DE SATISFACTION CLIENT

Dans le cadre de la mise en place d'un système de management de la qualité conformément à la norme internationale (ISO 9001/Version 2000) et pour être à l'écoute de ses clients, le SIA **(ETAT)** sollicite les usagers de l'air de bien vouloir répondre au questionnaire ci-joint.

A la lumière de vos réponses, le SIA (***ETAT***) entreprendra les actions d'amélioration qui s'imposent pour satisfaire ses clients.

N.B : Les réponses peuvent parvenir au SIA par :

QUESTIONNAIRE ON MEASURING CUSTOMER SATISFACTION

As part of setting up a quality management system in compliance with the international standard (ISO 9001/version 2000), and, in order to attend to the needs of its customers, air users are kindly requested by (***STATE)*** AIS to answer the attached questionnaire.

According to your answers, **(STATE)** AIS will undertake improvement actions that are essential to satisfy its customers.

N.B: Answers are to be forwarded to AIS by:

Cette circulaire comporte 1 page + 1 annexe /
This AIC includes 1 page +1 annex

INTERNATIONAL CIVIL AVIATION ORGANIZATION

QUESTIONNAIRE DE MESURE DE SATISFACTION CLIENT / *QUESTIONNAIRE OF MEASURING CUSTOMER SATISFACTION*

Date (format : j-m-a/ *d-m-y***):** **/ /2005**

Organisme / *Organisation*:

Personne de contact / Contact person:

Prière de mettre une croix dans la case appropriée / *Please put an "X" the appropriate box, using the guide below.*

Guide	**1**	**2**	**3**	**4**
Degré d'importance/ *Degree of importance*	Peu important / *Not very important*	Moyennement important / *Fairly important*	Important / *important*	Très important / *Very important*
Degré de satisfaction/ *Degree of* satisfaction	Peu satisfaisant/ *Not very satisfactory*	Moyennement satisfaisant/ *Fairly satisfactory*	Satisfaisant/ *Satisfactory*	Trés satisfaisant/ *Very satisfactory*

SERVICE D'INFORMATION AÉRONAUTIQUE / *AERONAUTICAL INFORMATION SERVICE*

1. AIP, SUP AIP et/and AIC:

Degré d'importance / *Degree of importance*				**CRITERES / *CRITERIA***	**Degré de satisfaction/ *Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Degré de conformité de l'AIP ***(STATE)*** avec les SARP de l'OACI / *Degree of* ***(STATE)*** *AIP compliance with ICAO SARP*				
				Suffisance de l'information aéronautique publiée par (AIP, SUP AIP et AIC / *Adequacy of the published aeronautical information (AIP, SUP AIP and AIC).*				
				Exactitude de l'information aéronautique publiée par AIP, SUP AIP et AIC / *Accuracy of the published aeronautical information AIP, SUP AIP and AIC).*				
				La fréquence de publication damendement d'AIP / *Frequency of AIP amendment publication.*				
				Nombre de corrections manuscrites figurant dans l'AIP **(ETAT) /** *Number of handwritten corrections appearing in* ***(STATE)*** *AIP.*				
				Degré de compréhension du texte de l'AIP **(ETAT) /** *Degree of comprehension of* ***(STATE)*** *AIP text.*				
				Qualité des cartes aéronautiques / *Quality of the aeronautical* charts				

2. Publication sur support papier / *Publication on paper support* :

Degré d'importance / *Degree of importance*				**CRITERES / CRITERIA**	**Degré de satisfaction / *Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				La qualité du papier utilisé pour l'impression des amendements d'AIP, suppléments d'AIP, AIC et listes des NOTAM valides / *Quality of paper used for AIP AMDT, SUP AIP, AIC and list of valid NOTAM.*				
				Délais de réception des amendements AIP, SUP AIP, AIC par courrier / *Delay in receiving AIP AMDT, SUP AIP and AIC by mail*.				
				Qualité de l'emballage / *Quality of packaging*.				
				Prix des publications d'information aéronautique / *Price of the aeronautical information publications*.				
				Modalités de règlement des factures d'achat des publications / *Regulation terms of buying invoices of .publications.*				

3. Publication sur CD ROM / *Publication on CD ROM*:

Degré d'importance / *Degree of importance*				**CRITERES / CRITERIA**	**Degré de satisfaction / *Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Fréquence de la mise à jour du CD-ROM renfermant les éléments du système intégré d'information aéronautique / *Frequency of updating ~~of~~ CD-ROM, including Integrated Aeronautical Information Package*.				
				Facilité de l'usage du CD ROM / *Ease of the use of CD-ROM.*				
				Prix du CD ROM / *Price of CD-ROM*.				
				Modalités de règlement / *Regulation terms.*				

4. NOTAM:

Degré d'importance / ***Degree of importance***				**CRITERES /** ***CRITERIA***	**Degré de satisfaction/** ***Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Degré de conformité des NOTAM **(ETAT)** avec les SARP de l'OACI/ *Degree of **(STATE)** NOTAM compliance with ICAO SARPs.*				
				Annulation ou remplacement à temps des NOTAM "EST"/ *Timely cancellation or replacement of NOTAM "EST".*				
				Degré de compréhension des textes des NOTAM **(ETAT)** / *Comprehension of **(STATE)** NOTAM language.*				
				Suffisance de l'information aéronautique publiée par NOTAM / *Adequacy of the aeronautical information published by NOTAM.*				
				Exactitude de l'information aéronautique publiée par NOTAM / *Accuracy of the aeronautical information published by NOTAM.*				
				Utilisation des codes et abréviations de l'OACI pour la diffusion des NOTAM / *Use of ICAO codes and abbreviations for NOTAM distribution.*				
				Délais de réception des NOTAM pour être exploités / *Delay in receiving NOTAM to be used*				
				Délais d'incorporation par amendement des informations publiées par NOTAM dans l'AIP / *Delay by NOTAM in incorporating amendments in the AIP..*				
				La production de PIB par le SIA en cas de nécessité / *Production of PIB published by **(STATE)** AIS in case of necessity.*				

5. Information diffusée sur Internet / *Information broadcast on Internet*:

Degré d'importance / ***Degree of importance***				**CRITERES /** ***CRITERIA***	**Degré de satisfaction/** ***Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Qualité de la rubrique Service de l'Information Aéronautique du Site Web de (l'ETAT) (www.Site Web SIA de (l'ETAT)) / *Quality of Items on Aeronautical Information Service within the (STATE) AIS website* (*www.(STATE) AIS web site*).				
				L'information diffusée par le SIA **(ETAT)** via le Forum AGORA AIS / *Information published by **(STATE)** AIS through the AGORA AIS Forum.*				
				Facilité de l'usage de la rubrique Service de l'Information Aéronautique du Site Web / *Ease in using the item Aeronautical Information Service on the website.*				
				L'élément NOTAM sous la rubrique Service de l'Information Aéronautique du Site Web de l (l'ETAT) (www.Site Web SIA de (l'ETAT) / *The NOTAM element under items on Aeronautical Information Service within the (STATE) AIS website* (*www.(STATE) AIS web site*).				

6. Generalités / General Information:

Degré d'importance / ***Degree of importance***				**CRITERES /** ***CRITERIA***	**Degré de satisfaction/** ***Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Gestions des réclamations et suggestions des clients / *Managements of claims and customers' suggestions.*				
				Qualité de l'affichage mural des informations / *Quality of the wall billing of information.*				
				Communication avec les clients / *Communication with customers*.				

Vos commentaries / Your comments:

Vos suggestions : Your suggestions

BUREAU D'INFORMATION AÉRONAUTIQUE (BIA) / *AIS BRIEFING OFFICE*

1. AIP, SUP AIP et AIC de *(STATE)* et de l'étranger / (STATE) and foreign AIP, SUP AIP and AIC:

Degré d'importance / ***Degree of importance***				**CRITERES /** ***CRITERIA***	**Degré de satisfaction/** ***Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Disponibilité des documents dans les BIA/ *Availability of documents in AIS Briefing Office.*				
				Etat des documents/ *Condition of documents*				
				Présentation des documents/ *Presentation of documents.*				
				Mise à jour des documents/ *Updating of documents.*				

2. PIB:

Degré d'importance / ***Degree of importance***				**CRITERES /** ***CRITERIA***	**Degré de satisfaction/** ***Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Temps de réponse aux demandes d'établissement de PIB / *Timely response to requests for establishment of PIB.*				
				Conformité du PIB à la demande / *Conformity of the PIB with request.*				
				Présentation du PIB/ *Presentation of PIB.*				
				La qualité du papier utilisé pour l'impression du PIB/ *Quality of the paper used for the appearance of the PIB.*				

3. Generalités / General information:

Degré d'importance / ***Degree of importance***				**CRITERES /** ***CRITERIA***	**Degré de satisfaction/** ***Degree of satisfaction***			
1	**2**	**3**	**4**		**1**	**2**	**3**	**4**
				Gestions des réclamations et suggestions des clients / *Handling of claims and customers' suggestions*.				
				Temps de réponse SIA aux demandes des clients / *Timely response to-AIS to customers' requests*.				
				Communication avec les clients / *Communication with customers*.				

Vos commentaries / Your comments:

Vos suggestions: Your suggestions

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APPENDIX L

AMENDMENT TO THE AFI ATS ROUTE NETWORK
LIST OF NEW ATS ROUTES INCLUDING RNAV ROUTES TO BE ADDED
TO THE ICAO AFI ANP (Doc. 7474)

SERIAL NO.	ROUTE DESIGNATOR	SEGMENT(S)
1.	UG 745	Johannesburg Nelspruit Maputo
2.	UG 404	Casablanca Niamey
3.	UG 615	Nouakchott Mopti
4.	UG 616	RIPOL Kano
5.	UG 622	Khartoum RIPOL Zinder
6.	UG 624	Bangui Garoua
7.	UG 625	Libreville MOROS Bangui
8.	UG 629	CBA OZT Gao Lagos
9.	UG 402	Gao dct Tye dct Tamanrasset
10.	UG 981	Gao dct Pot dct Lv
11.	UG 403	MNA dct Hogar dct Tobouk dct Edara dct FL

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APPENDIX M

ATS ROUTES/SEGMENTS TO BE DELETED FROM THE ICAO AFI ANP (DOC 7474)

ROUTE DESIGNATOR	SEGMENT(S)	STATES	REMARKS
UG 852	Bamako / Elgolea	Algeria Mali Niger	a) Low traffic density b) Not strategically separated with UM 108/UB 735 c) All traffic will use UM 108/ UB 735
UG 853	TITOR / AMDIB	Algeria Senegal	Request from IATA
UB 726	Insalah / Niamey	Algeria Niger	a) Algeria, ASECNA, IATA to coordinate and report to ICAO b) Low density traffic, not strategically separated with UM 608. All traffic will use UM 608
UA 615	Tamanraset / Kano	Algeria Niger Nigeria	a) Usually closed during Haj period b) Not separated with UM 604 c) Low traffic density d) All traffic to use UA 604 e) Algeria agreed; Nigeria to report to ICAO within a week
UR 986	Kano / Tobuk	Niger Nigeria	a) No traffic b) Usually closed during Haj c) Major airlines have no objection
UA 605	Djanet / Inisa	Algeria Chad Niger	Due to : a) implementation RNAV routes UM 998 and UM 731 b) UA605 usually closed during Haj To be coordinated by Algeria, ASECNA & IATA
UW 500	Maiduguri / Bangui	Nigeria Cameroon Congo	a) Low traffic density b) Traffic to and from Bangui will use UW 400
UA 620	N'Djamena / KIMTA	Chad	Low density of traffic
UG207	Karachi KADER Mogadishu	Praslin Yemen Oman Mogadishu	No traffic.

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APPENDIX N

ROUTES IN THE ICAO AFI ANP (DOC 7474) TO BE REALIGNED

ATS Route	SEGMENT(S)	PROPOSED REALIGNMENT	JUSTIFICATION/ REMARKS
UM731	Johannesburg	Johannesburg	More Direct RNAVRoute
	Saurimo	Saurimo	
		Mbandaka	
	Ndjamena	Ndjamena	
UM998	Gaborone	Gaborone	More direct RNAV route.
	Luena	Luena	
	Maiduguri	Maiduguri	

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APPENDIX O

ATS ROUTES IN THE ICAO AFI ANP (DOC 7474) REQUIRING IMPLEMENTATION

Route Designator	Segment(s)	States	Observations/Remarks
UA145	(Paleohora) SALUN	Egypt Greece	Implemented by Egypt for northbound traffic only (3400N 024276)
	Sidi Barrani (31636N 02556E)		
UA293	Ibiza Tiaret	Algeria	Required northbound
UA411	Jerba Tripoli Benina	Libya	Implemented at variance with the Plan via: A411 – Jerba/Zawia/Tripoli/Misurata A411N – Jerba/TANLI/Mitiga/Misurata
UA618	Lubumbashi Bukavu SAGBU Malakal	DRC Sudan	
UA748	(GOZO) Tripoli Mizda Cairo Sharm Sheileh	Libya Egypt	
UA861	Lagos Garoua	Nigeria	
UB525	Addis Ababa Luxor	Ethiopia Sudan	
UB527	Malakal Kenana	Sudan	Implemented at variance with AFI Plan via Kenana
UB528	Livingstone Luena	Angola	
UB607	El Obeid Dongola Abu Simbel	Sudan	Not implemented in Khartoum FIR (due to military reasons)
UG207	Mogadishu Karachi	Somalia	
UG623	Annaba Tebessa Ghadames	Algeria Libya	Segment of the route suspended since 1980 by Libya
UG855	Tripoli Ghadames B. Omar Driss	Libya	
UG864	Tunis Ghardaia Timimoun	Libya	

Route Designator	Segment(s)	States	Observations/Remarks
UG979	Bordj Omar Driss Bou Saada Zemmouri	Algeria	
UL612	Goma El Dhaba	D.R. Congo Sudan Egypt	Egypt can accept implementation via ATMUL New Valley/KATAB/DBA
UM220	Lodwar Abu Simbel	Sudan	RNAV
UM731	Cabonara	Angola OSNAR	
	Tunis Jerba FARES DEKIL MOLOM Sauramo Johannesburg	Congo DRC Libya Botswana	Implemented in Tunis FIR between Tunis and FARES
UM994	Beni Walid ORNAT	Libya	RNAV
UM998	(Martigues) BALEN Constantine B. O. Driss Tobuk ENBUT Maiduguri EBIMU	Nigeria	RNAV
	Kinshasa Luena Maun Gaborone	D.R.Congo Angola Botswana	D.R. Congo not implemented as RNAV between Kinshasa Luena-Maun-Gaborone implemented as UB733 Kinshasa -Gaborone)
UR400	Abu Simbel Kassala	Sudan	
UR613	Pantelleria Lampedusa Tripoli	Libya	Implemented in Malta FIR via SARKI. Not implemented in Tripoli FIR Sahara.
UR780	Mogadishu Dire Dawa Asmara	Somalia	
UR981	Casablanca Marraketch BULIS Gao	Morocco	i) Implemented ii) Not implemented segment Casablanca Gao
UR986	Tunis Ghadames In Amenas	Algeria Libya	Not implemented due to restriction by Libya

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Appendix P

AFI REDUCED VERTICAL SEPARATION MINIMUM (RVSM) SAFETY POLICY

OCTOBER 2005

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AFI REDUCED VERTICAL SEPARATION MINIMUM (RVSM) SAFETY POLICY

1. INTRODUCTION

This document, the RVSM Safety Policy Document, sets out the Safety Policy, the Safety Objectives and describes the RVSM Safety Sub-Program tasks and actions necessary to ensure the safe implementation of RVSM in the AFI region.

The RVSM Safety Policy Document is intended to provide a framework to facilitate the safety regulation process of the AFI RVSM Program. As such, it is considered to be a formal deliverable of the RVSM Program.

The RVSM Safety Policy Document describes the deliverables of the RVSM Safety Sub-Program together with their role in the overall AFI RVSM Program and in the national safety assurance programs.

2. RVSM OPERATIONAL CONCEPT

The principal concept behind RVSM is the reduction of the vertical separation minimum between adjacent aircraft from 2000 feet to 1000 feet between the Flight Levels FL290 and FL410 inclusive. This will provide six additional cruising levels to air traffic, increase the capacity of the Air Traffic Management system and facilitate the task of Air Traffic Services in maintaining a safe, orderly and expeditious flow of traffic. It can be expected that the capacity and system benefits of RVSM will, by facilitating the Air Traffic Control function, also have the potential for possible safety benefits.

This vertical separation minimum shall be applied between RVSM approved aircraft within the airspace of the designated RVSM airspace. Therefore, all operators proposing to operate across the lateral limits of the RVSM airspace shall be required to indicate on Filed Flight Plans their RVSM status. Non-RVSM approved aircraft, other than state aircraft, shall not be permitted to operate within RVSM airspace.

There will be no RVSM Transition Airspace within the AFI Region.

The RVSM Program requires that specific training for aircrew and ATC staff shall be performed prior to the start of RVSM operations. The Program also requires ATC equipment and procedures to be modified according to specific Program requirements prior to the start of RVSM operations.

3. AFI RVSM PROGRAM SAFETY POLICY

The Safety Policy for RVSM implementation has been established to meet the requirements of ICAO Standards and Recommended Practices and guidance material on managing collision risk consequent on the implementation of RVSM.

The following statements define the Safety Policy of the RVSM Program:

(i) The AFI RVSM Program uses an explicit, pro-active approach to safety management in the development, implementation and continued operation of RVSM.

(ii) The responsibility of management for the safety performance of the RVSM Program is recognised. The RVSM Program Manager is responsible for the overall management of the Program. The RVSM Safety Program Manager is responsible to the RVSM Program Manager for ensuring the compliance of the Program with AFI Safety Policy and appropriate international standards and requirements. The RVSM Safety Program Manager is also responsible for liaison with the Regulation Authorities.

(iii) The implementation of RVSM shall be conducted in accordance with ICAO requirements and requires ninety percent RVSM approved aircraft operating within the Region;

(iv) The safety of air navigation has been given the highest priority in the development of the RVSM operational concept and the Implementation Program;

(v) The RVSM Program shall minimise the program's contribution to the serious or risk bearing incidents or aircraft accidents as far as is reasonably practicable.

4. RVSM IMPLEMENTATION SAFETY OBJECTIVES

(i) The RVSM Program shall conduct a full Functional Hazard Analysis looking at the whole system including air and ground segments and the proposed operational concept. This analysis shall adopt a total aviation system perspective and a risk based approach to the classification of hazards. The analysis shall include, but not be restricted to, those risks already identified by ICAO for RVSM implementation;

(ii) The RVSM Program shall, as its principal safety objective, minimise the program's contribution to the risk of an aircraft accident. The RVSM Program recognises the AFI Safety Objectives and Strategy, in particular the general objective to improve safety levels by ensuring that the number of ATM induced accidents and serious or risk bearing incidents do not increase and, where possible, decrease. Therefore, the implementation of RVSM shall not adversely affect the risk of en-route mid-air collision;

(iii) The RVSM Program shall establish an explicit Safety Sub-Program to ensure that Program's contribution to the risk of an aircraft accident is minimised in accordance with the principal safety objective;

(iv) In accordance with ICAO Guidance Material the management of vertical collision risk within RVSM airspace shall meet the Target Level of Safety of 5×10^{-9} fatal accidents per flight hour;

(v) In accordance with ICAO Guidance Material, the risk of mid-air collision in the vertical dimension within RVSM airspace, due to technical height keeping performance, shall meet a Target Level of Safety of 2.5×10^{-9} fatal accidents per flight hour.

(vi) Guidance shall be given to the States to explain the necessary activities to provide evidence about the safe implementation of RVSM on the national level and subsequently assure the preparedness of the States.

Safety Requirements that may arise as results from the detailed Functional Hazard Analysis that yet has to be carried out will complement these Safety Objectives.

5. RVSM IMPLEMENTATION SAFETY OBJECTIVES

As part of the RVSM Program, an RVSM Safety Sub-Program has been developed to provide evidence on the compliance of the Implementation Program with the RVSM Safety Policy and the RVSM Safety Objectives.

The work program of the RVSM Safety Program comprises the following elements:

(i) Detailed Hazard Analysis, Preliminary System Safety Assessment and System Safety Assessment of the proposed RVSM operational concept;

(ii) Assessment of operational error reports, both prior to and after implementation, to identify any additional risks and hazards associated with the proposed operational concept and to provide data for the assessment of the target levels of safety;

(iii) Establishment of formal requirements for participating states to demonstrate that all necessary national activities and actions have been undertaken prior to implementation.

(iv) Assessment of the risk of mid-air collision, using methods specified in ICAO guidance material;

(v) A major assessment of aircraft height keeping performance to monitor compliance with height keeping requirements.

Each of these elements will produce deliverables, in the form of reports, which will be formally presented to the ARTF as the Program proceeds.

6. RVSM SAFETY DELIVERABLES

In this section, the major deliverables of the RVSM Safety Sub-Program are described. Although the deliverables are in the form of formal documents, interim reports will be provided for review prior to completion of the final version of a deliverable document.

6.1 RVSM Functional Hazard Analysis

A detailed Functional Hazard Analysis (FHA) shall be carried out to provide assurance that all hazards and risks associated with RVSM have been identified and classified. The FHA shall cover (i) the situation that RVSM is operational one year after its introduction, (ii) the change-over on the day of RVSM introduction. The results of the FHA shall be documented in a detailed report and a hazard/risk matrix. It will be used as input to the Collision Risk Assessment and the National Safety Cases where appropriate. A summary of the results will constitute one chapter of the AFI RVSM Pre-Implementation Safety Case and the detailed report will appear as an Annex.

6.2 Collision Risk Assessment

A Collision Risk Assessment (CRA) shall be carried out in order to provide the evidence that the collision risk in RVSM airspace meets the Target Level of Safety required by ICAO. A summary of the results will form one chapter of the AFI RVSM Pre-Implementation Safety Case and the detailed report will appear as an Annex.

6.3 National Safety Plans

Guidance shall be given to the States to explain the necessary activities to provide evidence about the safe implementation of RVSM on the national level. Using the guidance material National Safety Plans should be produced by the States, submitted to the National Regulator as appropriate and shall be summarised by the RVSM Safety Sub-Program in to order to form one section of the AFI RVSM Pre-Implementation Safety Case.

6.4 AFI RVSM Pre-Implementation Safety Case

The AFI RVSM Pre-Implementation Safety Case shall provide the assurance that the objectives stated in the AFI RVSM Safety Policy Document are met. Evidence will be provided that (i) all identified hazards and risks are managed and mitigated, (ii) the collision risk meets the ICAO Target Level of Safety and (iii) States show they will safely implement RVSM through the development of national safety documentation.

6.5 AFI RVSM Post-Implementation Safety Case

The required contents of the Post-Implementation Safety Case will be developed as a result of the pre-implementation safety activities. However, the main objective will be to confirm assumptions and estimations being made in order to determine if in an operational RVSM environment the safety objectives can be met. It is expected that

the document demonstrates *inter alia* that safety is continuously ensured, the aircraft approval process is effective, the target levels of safety are being met, operational errors do not increase and ATC procedures introduced for RVSM remain effective.

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Appendix Q

AFI RVSM STRATEGY/ACTION PLAN FOR IMPLEMENTATION OF REDUCED VERTICAL SEPARATION MINIMA IN THE AFRICA-INDIAN OCEAN REGION

OCTOBER 2005

Prepared by the Secretary of the RVSM/TF

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
	Program Management				
1	**Agree on structure of TF to enable efficient handling of specialist technical tasks**	**21/11/03**	**Completed**	**Secretariat Support Team: ASECNA, SA, IATA, Nigeria, Tunisia**	**Completed 21 Nov 2003**
2	**RVSM SIP Report**	**21/11/03**	**Completed**	**RVSM/ITF2**	**Completed 21 Nov 2003**
3	**RVSM/RNAV/RNP TF/2 Meeting**	**21/11/03**	**Completed**	**RVSM/ITF2**	**Completed 21 Nov 2003**
4	**Identify resources for performing specialist technical tasks**	**21/11/03**	**Completed**	**RVSM/ITF2**	**Completed 21 Nov 2003**
5	**Investigate methods of funding any outside assistance required**	**31/03/04**	**Completed**	**ICAO/IATA**	**To address future funding as/when required**
6	**Finalize the RVSM Implementation Strategy/ Action Plan**	**31/12/03**	**Completed**	**ICAO**	**Sent 05 Dec 2003**
7	**Circulate RVSM Implementation Strategy/Action** **Plan for comments from States**	**5/01/04**	**Completed**	**ICAO**	**Sent 05 Dec 2003**
8	**a) Doc 7030 amendment Proposal** **b) Circulate proposal to States** **(c) ANC Approval**	**01/06/04** **15/06/04** **May 06**	**Completed** **Completed** **In Progress**	**ICAO** **ICAO** **ICAO**	*** Completed 31 May** *** Approval draft by (TF/6)** ***Approval final draft by TF/9 March 2006**
9	**States comments on RVSM implementation Strategy/Action Plan**	**31/-3/04**	**Completed**	**States, ICAO RVSM/ITF3**	**Completed 31 March 04**
10	**Regional RVSM informational Website**	**31/03/04**	**Completed**	**IACO/IATA/States**	**Completed 1 Feb 04**
11	**RVSM Seminar/RVSM ITF3**	**19-22/04/04**	Completed	**ICAO**	**Completed on Time**
12	**RVSM Seminar /RVSM/ITF/4**	26-30/07/04	Completed	**ICAO/RVSM ITF/4**	**Completed on Time**

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
13	**Coordination and harmonization of procedures with adjacent Regions**	**Ongoing**	**Ongoing**	**ICAO and AFI RMA**	**Continuous contact**
14	**States to send AIC to notify their intention to Implementation of RVSM**	**Oct 05**	**In Progress**	**ICAO/States**	**Continuous**
15	**Confirm target AIRAC implementation date (AIP Supplement to be published)**	**Oct 05**	**In progress**	**ICAO/States**	**TF8 to review requirement**
16	**Regional RVSM implementation status reports**	**Ongoing**	**Ongoing**	**ICAO**	**Monthly**
17	**State Readiness Assessment, CRA, PISC, Doc.7030**	**March 2006**	**In Progress**	**ICAO**	**TF/9**
18	**RVSM/ARTF/5**	**15-16/11/04**	**Completed**	**ICAO/RVSM ITF/5**	
19	**RVSM/ARTF/6**	**25-27/05/05**	**Completed**	**ARTF/6**	
20	**RVSM/ARTF/7 ATS/AIS/SAR/SG/8**	**08-09/08/05 10-12/08/5**	**Completed Completed**	**ARTF/7 ATS SG/8**	
21	**RVSM/ARTF/8 and RVSM Seminar**	**10-14/10/05**	**Completed**		
22	**RVSM/ARTF/9 meeting**	**March 06**	**In Progress**	**ARTF**	
23	**RVSM TF/10 meeting and GO/NO GO meeting**	**June 06**	**In Progress**	**States and Stakeholders**	**TF/10 to confirm date**
24	**Publish Trigger NOTAM**	**June 06**	**In Progress**	**States**	**TF/10 and GO/NO GO meeting to confirm date**
25	**Develop switch over plan**	**TBA ARPO**		**ICAO**	**TF8**

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
	Aircraft Operations and Airworthiness				
26	**Regional OPS/Airworthiness RVSM Guidance Doc**	**21/11/03**	**Completed**	**ICAO**	**Sent 05 Dec 2003 to states for action.**
27	**Develop regional Pilot Training RVSM Guidance Material**	**30/04/04**	**Completed**	**IATA**	**Sent to States for action May 2004.**
28	**Aircraft Operational approval process guidelines**	**31/05/04**	**Completed**	**States, ICAO**	**Sent to States for action June 2004.**
29	**Aircraft RVSM Approval Survey**	**On Going**	**In progress**	**ICAO/States**	**Continuous**
30	**Ensure aircraft/operator approval process**	**On Going**	**In progress**	**ICAO/ARMA/IATA**	**Airworthiness training to be provided for State authorities**
	Air Traffic Management				
31	**National RVSM plan**	**31/03/04**	**Ongoing**	**States, ICAO**	**States to complete by June 2006.**
32	**National Safety Plan Validation Panel**	**12-23-09-05**	**In progress**	**ARMA/IATA/ICAO**	
33	**APIRG/15 Consideration of TF Reports**	**25-30-9-05**	**Completed**	**ICAO**	
34	**Regional ATC OPS Manual**	**31/03/04**	**Completed**	**ICAO**	**Sent to States – 05/05/04**
35	**Determine the limits of RVSM airspace**	**30/06/04**	**Completed**	**States/ICAO**	**TF4 verified limits.**
36	**Regional ATC Training Program & Guidance Material**	**June 06**	**On Going**	**States**	**Instructor training completed. Refresher Retraining necessary for all ops staff**
37	**Simulations to assess ATC workload and possible need for airspace/air route Sector changes**	**March 06**	**In Progress**	**States**	**In National RVSM Plan**

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
38	**Letters of Agreement**	**March 2006**	**Completed**	**States**	**Specimen LOA sent to States.**
39	**Military aviation preparation**	**March 06**	**In progress**	**States**	**In National RVSM Plan**
40	**National RVSM Regulatory Material**	**March 06**	**In progress**	**States, ICAO**	**To Identify requirements**
41	**States assess the impact of RVSM implementation on controller automation systems and plan for upgrades/ modifications**	**Sept 05**	**In progress**	**States**	**In National Plan**
42	**Collect weather and turbulence data for analysis**	**31 /05/05**	**Completed**	**ARMA ICAO/States**	**TF/7**
43	**a) States to conduct local ATC RVSM training** **b) Re-training for all operational Staff**	**May 06** **July 2006**	**In progress**	**States**	**TF/10 and GO/NO GO meeting June 2006**
	RVSM Safety Assurance				
44	**Conduct preliminary data collection and readiness assessment**	**On Going**	**In progress**	**ARMA/ICAO**	**Ongoing**
45	**Develop AFI RVSM Safety Policy**	**30/06/04**	**Completed**	**RVSM/ARTF4**	**Sent to States for publication July 2004.**
46	**a) Develop National RVSM Safety Plan**	**30/06/04**	**Completed**	**ICAO**	**Sent to States for Action July 2004**

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
	b) Conduct NSP workshops facilitated by ATC experts	**July 05**	**Completed**	**ICAO/IATA/ATNS/ ASECNA**	**Nairobi & Dakar July 2005**
	c) Submit NSP's for validation	**31/08/05**	**In Progress**	**States**	**TF7**
	d) Submit final NSP's after validation comments have being taken into account	**31/08/05**		**States**	**TF7**
	e) Once NSP's are implemented, DCA's to confirm State readiness to Implement RVSM in writing	**June 06**		**States**	**TF7**
	f) Update State readiness document	**June 06**		**ICAO**	
47	**RVSM Functional Hazard Assessment (FHA)**	**4-8/04/05**	**Completed**	**ARMA/ICAO**	**3 FHA meetings conducted Final FHA 4-8/04/05. Report Completed May 2005 and adopted.**
48	**Validate Functional Hazard Assessment**	**31/05/05**	**Completed**	**RVSM ARTF/6**	**TF/6/25-27/05/05**
49	**Update activities on NSPVP, PISC, CRA, Doc.7030**	**10-12/10/05**	**Completed**	**TF/8**	**October 2005**
50	**RVSM Collision Risk Assessment**	**March 06**	**In progress**	**ARMA/ICAO/IATA**	**Revised assessment**
51	**Validate Collision Risk Assessment**	**March 06**	**In progress**	**RVSM ARTF/9**	
52	**Develop AFI Pre-Implementation Safety Case**	**March 06**	**In Progress**	**ARMA/ICAO/IATA**	**TF9 review PISC progress**
53	**AFI Pre-Implementation Safety Case: APIRG/ANC**	**May 06**	**In Progress**	**ARPO/ANC/IATA**	
54	**RVSM Implementation**	**28/09/06**		**States**	**Tentative target date**

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
	Monitoring Agency				
55	**Evaluate options for setting up AFI RMA**	**21/11/03**	**Completed**	**RVSM/ITF2**	**Completed on time**
56	**Identify an AFI RMA**	**21/11/03**	**Completed**	**RVSM/ITF/2**	**Completed on time**
57	**Establish an AFI RMA.**	**31/03/04**	**Completed**	**South Africa/ICAO**	**Completed on time**
	Post Implementation Safety Case (POSC)				
58	**Validate implementation readiness template**	**15/11/04**	**Completed**	**ICAO/ARMA**	
59	**Data collection to continue for submission to ARMA**	**Monthly**	**In Progress**	**States**	
60	**Evaluate system safety after implementation plus 3, 6, 12 and 24 months**			**ARMA**	
61	**Monitor system safety in adjacent Regions**			**ARMA**	

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Appendix R

AFI SWITCH OVER PLAN
FROM CVSM TO RVSM

Implementation Date: September 28, 2006 – 09:01 UTC

(Draft)

OCTOBER 2005

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APPENDICES – 11

1. Introduction

1.1. The passage to the RVSM is the process of Switching over from a 2000 ft vertical separation (CVSM) environment to a 1000 ft vertical separation (RVSM) environment.

1.2. AFI Region States plan to implement RVSM in all the AFI Region on September 26, 2006 at 09:01 UTC.

1.3. The implementation of RVSM in AFI Airspace will:

i) increase the capacity of airspace by providing the cruising aircraft, six supplementary flight levels between FL 290 and FL 410.

ii) reduce operating costs for customers.

iii) provide more flexibility for air traffic control to manage en-route traffic;

iv) provide a continuous RVSM environment from AFI Region towards the surrounded areas.

2. Switch over Organization and Management

2.1.Transition to RVSM

2.1.1. The transition to RVSM is based on this Switch over Implementation Plan, completed by the Appendix A attached to the document.

2.1.2. This switch over plan describes the provisions made by each center to ensure a switch over in accordance with the requirements of its National Safety Plan. It covers the operational aspects during the switch over period.

2.1.3. The plan establishes the directives and procedures for the transfer to RVSM environment between FL 290 and FL 410 within the airspace under the responsibility of the ACC of (name of the centre).

2.1.4. The centres which do not manage airspace between the indicated flight levels, will however establish this plan with the mention that all the operating specifications of the switch over are carried out on their authority by the ACC of (name of the centre).

2.2.Organization

2.2.1. For the needs of switch over to RVSM, a National Switch over Coordination and Monitoring Centre is created at each ACC. [T07] (Task n° 07 of Appendix A)

2.2.2. The centres which do not manage airspace between the indicated flight levels, will however establish this centre with the mention that all the operating specifications of the switch over are carried out on their authority by the ACC of (name of the centre).

2.2.3. ICAO will establish in Dakar and Nairobi a Regional Centre of Monitoring and Coordination of RVSM switch over operations. [T06]

2.3. Responsibilities, Attributions and Operation

2.3.1. The National Centers will be physically located near the ATS organism concerned. The National and Regional Centres will be equipped with suitable means of communication allowing the exchanges of information between them. The minimum equipment for a centre should include: an AFTN terminal, a telephone line and a fax line. [T08]

2.3.2. The role of the National Centre is to coordinate with the Regional Centre (ICAO) and the National Authority in charge of Civil aviation, all the actions related to the sure implementation of the switch over plan. It will inform ICAO on all the actions undertaken in coordination either with the adjacent ACCs or with the Authority within the implementation of RVSM. It will daily collect statistics during the period of its activation and retransmit them to Authority and to ICAO.

2.3.3. National and Regional Centres will be activated from September 25, 2006 at 18:00 UTC to September 30, 2006 at 13:00 UTC. [T09]

2.3.4. The implementation of this centre doesn't replace the normal activities of the official structures in place that will continue to operate as before.

2.3.5. Each centre will issue by AIC its contacts according to Appendix A attached to the switch over plan, for the needs of customers and other centres. . [T10]

2.3.6. The activities of the centre are coordinated by a team led by the NPM (National Program Manager). This team will include moreover the responsible of air traffic management, the chief of the ACC, a weather forecaster and a technician of maintenance. The note of the implementation of this Committee is attached. [T11]

2.3.7. Just as the centre is implemented, operational tests will be carried out with the regional and the adjacent centres in accordance with the appendix A. [T12]

2.3.8. The role of the ICAO regional centres is to supervise the activities of switch over and to provide to the national centres last essential information to a sure transition. In return, these regional centres will receive all the data from States and will inform the other States for coordination when necessary. A final report on the switch over will be elaborated for the attention of the national centres.

2.4. Documentation

2.4.1. The reference documents are:

2.4.1.1. The National Safety Plan
2.4.1.2. The switch over plan validated by each State
2.4.1.3. dangers and their attenuations

2.5. Procedures

2.5.1. As from the date specified in appendix A of the switch over plan, all the flight plans will indicate RVSM status of the aircraft accomplishing the flight. The centres will issue a NOTAM for this purpose. [T13]

2.5.2. The centre will carry out the tests of communication with the regional and the adjacent centres according to the chronogram established in the RVSM switch over plan. [T16]

2.5.3. From September 25, 2006 at 18:00UTC, the national monitoring centre of the switch over will be activated and every hour, a " normal operation" message will be sent by AFTN to the regional centre of coordination if there is no information or action affecting the switch over. If not, by fax or telephone, the regional centre will be immediately informed of any unfavourable tendency and by all together, suitable measures will be implemented.

2.5.4. The ACC will issue a NOTAM at the date indicated into the appendix A of the switch over plan in order to prohibit the flight levels 310, 350 and 390 from September 28 at 03:00UTC until September 28, 2006 at 15:59UTC. This will allow evacuating the aircraft already flying at these CVSM levels, in opposite direction of these flight levels in RVSM. [T15]

2.5.5. The local control office or the competent ATS organism will make sure that the flight plans to be transmitted or received from September 28 at 03:00UTC until September 28, 2006 at 15:59 UTC, respect strictly the requirements of the NOTAM indicated above. If not, the FPL will be rejected and the sender or the applicant will be informed by the same way. [T31]

2.5.6. From 09:01UTC on September 28, 2006, all RVSM flight levels except the levels 310, 350 and 390 come into effect. They will be normally allocated by ACC. [T36]

2.5.7. From 16:01UTC, all the RVSM flight levels come into effect and are likely to be allocated by the ACC. [T37]

2.5.8. The emergency cases are treated in accordance with the table of the indexed risks and the corresponding attenuations according to the item 9.

2.5.9. LOAs/LOPs integrating RVSM requirements, including those existing with the military air traffic management centres, will be revised and signed in accordance with the RVSM Manual at the deadlines indicated in appendix A. The amended documents will be available to controllers and soldiers in ACCs concerned; and familiarization briefing on the new procedures will be organized when necessary for the personnel concerned. [T14]

2.6. Quality assurance

2.6.1. The Civil aviation Authority will make sure that all the official documents including the letters of agreement duly signed are quite available in the operational structures. [T22]

2.6.2. The Civil aviation Authority will make sure, on September 24, 2006, that all the requirements of this switch over plan are in place, particularly the activation of the national monitoring centre. [T34]

2.6.3. The Civil aviation Authority will send a fax, on September 24, 2006, to ICAO to confirm the correct operation of the national device. [T33]

3. Communications and monitoring

3.1 The RVSM switch over national centre will daily transmit to the regional centre all the data concerning the flights between flight levels 290 and 410 according to the table below:

Statement of the traffic of.... . SEPTEMBER 2006							
call sign	Departure	Destination	ATS Route	Entry FL	Exit FL	Type of acft and RVSM status approval	Remarks

3.2 The RVSM switch over national centre will be opened H24 and reachable at any time by all the customers at the following addresses:

- AFTN :
- TELEPHONE :
- FAX :
- E-MAIL (if possible) :

The above-mentioned information will be issued by NOTAM according to appendix A of the switch over plan.[T10]

3.3. After the implementation, the exploitation of RVSM will be systematically controlled by the national centre which will daily diffuse information related to this implementation.

3.4 A list of the key persons by State is provided in appendix. [T23]]

4. Maintenance and engineering

4.1. All the systems in place are in conformity with RVSM.

4.2 There is no other requirement related to communication between the units concerned by the implementation of RVSM.

4.3 From September 22, 2006, a daily situation of the operating condition of the equipment contributing to the implementation of RVSM is produced by the ACC. [T25]

4.4 The operating condition of the equipment is daily transmitted to the national centre that retransmits it to the regional centre. [T26]

5. Resources

5.1. The ACCs staffing will be adjusted, where required, to provide extra personnel including Subject Matter Experts during the Switch over period [T27].

5.2. The maintenance technicians staffing will be adjusted, where required, to provide extra personnel including Subject Matter Experts during the Switch over period. [T28].

5.3. The weather forecaster staffing will be adjusted, where required, to provide extra personnel including Subject Matter Experts during the Switch over period. [T29].

5.4. The Subject Matter Experts will provide, when necessary: [T30].

- Briefings and assistance to operational personnel (Air Traffic Controllers, local control officers, maintenance technicians, weather forecaster and so on…) that will be on duty immediately prior to, and during switch over.

- Non stop briefings and assistance to operational staff working in RVSM airspace

A shift system will be implemented to ensure the management of the RVSM regional and national monitoring centres according to the table below:

Date / Schedule	Sept 25th.	Sept 26TH.	Sept 27TH.	Sept. 28TH	Sept. 29TH	Sept. 30TH
00h - 06h		E	A	B	C	D
06h- 13h		A	B	C	D	E
13h - 20h	A	B	C	D	E	
20h -24h	E	A	B	C	D	

Equip A: Chief of maintenance unit (Responsible). Members: two agents concerned by RVSM process
Equip B: Chief of Telecommunication unit (Responsible). Members: two agents concerned by RVSM process
Equip C: Chief of Air Navigation unit (Responsible); Members: two agents concerned by RVSM process
Equip D: Chief of Air Traffic Management (Responsible); Members: two agents concerned by RVSM process
Equip E: Chief of meteorological unit (Responsible); Members: two agents concerned by RVSM process

6. Transfer procedures from CVSM to RVSM airspace

6.1. A refresher seminar will be organized for the attention of all personnel concerned two months before the effective RVSM implementation. The date is indicated in the Switch over Plan. [T17]

6.2. A NOTAM issued at the date indicated to the Switch over Plan requires to all the users to indicate their RVSM status from the date of August 31, 2006. All the users will conform to it. [T18]

6.3. The flight levels 310, 350 and 390 will not be accepted within flight plan as from September 28 at 03H00UTC until September 28, 2006 at 15H59UTC. A NOTAM will be issued for this purpose. [T15]

6.4. In coordination with the adjacent centres, the new Flight Levels Allocation System (FLAS) in the centre will be also diffused by NOTAM at the latest on September 10, 2006. [T21]

6.5 With the exception of flight levels 310, 350 and 390, all the other RVSM flight levels are applicable from September 28, 2006 at 03h01UTC. [T36]

6.6. The allocated or coordinated RVSM flight levels will be systematically read back. The controller will particularly make sure that the pilot and/or the controller of the adjacent centres have same information as him. [T38]

6.7 The flight levels 310, 350 and 390 will be normally usable from September 28, 2006 at 16h01UTC. [T37]

6.8 The Letters of Agreement in force between the centres will be available for controllers in ACCs . [T05]

6.9. The RVSM homologation status of all aircraft that fly or would fly the RVSM airspace must be established and compared with the suffix of flight plan ("W"), with the strips and the information indicated on the display systems. Only the military, customs and police aircraft are regarded as State aircraft, and also authorized to operate in AFI RVSM airspace independently of their RVSM status.

6.10 The non-RVSM aircraft (except for the State aircraft) will be prohibited of flight in the sections between Flight Levels 290 and 410 from September 28, 2006 at 03H00.A NOTAM will be issued for this purpose. [T17bis]

6.11. The ferry flights of State aircraft are accepted in AFI RVSM airspace, and considered as non- RVSM flights, whatever the status of homologation of the various aircraft concerned. As such, they must ask a special treatment by the ATC, and profit from a minimum of vertical separation of 600 m (2 000 ft) between them and any other operative aircraft in AFI RVSM airspace.

7. Interface: European and Southern American RVSM Airspace

7.1. The RVSM is already implemented in Europe and Latin America as well as in the EUR/SAM corridor. Requirements in force ensure the transition between these airspaces and the others in AFI Region where the RVSM was not yet implemented. As from September 28, 2006, all AFI Region applies the RVSM. All transition requirements become null and void. The coordination procedures remain in conformity with the LOAs requirements. The requirements enacted above ensure a transition without risk.

8. Military civil coordination

8.1. All the operational documents relating to the RVSM will be accessible to military Authorities. These documents are: the NSP, the Switch over Plan, all the NOTAMS and AICs related to the RVSM as well as the procedures related to the State aircraft. [T05]

8.2. The military Authorities will also take part in the refresher course envisaged in the Training Plan. [T17]

8.3 If part of the airspace is managed by the military Authorities, coordination procedures including RVSM requirements must be implemented. Particularly, a Letter of Agreement defining the limits of responsibility and the coordination of the procedures must be signed and accessible to the parts concerned, at the latest date of August 15, 2006. [T14]

8.4. A particular campaign to increase the military hierarchy awareness will be organized on September 02, 2006 in order to encourage the Military Authorities to reduce to the maximum their flight during the switch over period to avoid the increase in traffic and consequences that would generate on RVSM implementation. A training seminar with their intention will be organized. [T19]

9. Emergencies

9.1. An emergency affecting an aircraft flying in AFI RVSM airspace is a part of unforeseen circumstances having direct incidences on the aptitude of one or several aircraft to respect the Required Navigation Performance in the vertical plan to fly in RVSM airspace. This incapacity can come from the technical failures of the air or ground equipments (RDPS/ADS...) or of the severe weather phenomena.

9.2. The pilots inform the ATC, as soon as possible, of any circumstance that prevent them from respecting the Required Navigation Performance in the vertical plan to operate in RVSM airspace. In similar case, the pilot must obtain a revised ATC clearance before beginning any variation compared to the airways and/or at the cleared Flight Levels, as far as possible. If it cannot obtain a revised ATC clearance before such a variation, the pilot must obtain it afterwards as soon as possible.

9.3. The ATC must provide all the possible assistance to a pilot undergoing an emergency in flight. The later interventions of the ATC will be based on the intentions of the pilot, the

general situation of the air traffic and the evolution in real time of the emergency. The RVSM Letters of Agreement/Procedures requirements envisage to immediately relay information to adjacent ATC centres and when necessary to activate the corresponding Flights Levels (FLAS) for the emergency cases.

9.4. Maintenance in ACCs will be reinforced from 25th to 30th September 2006 to bring when necessary correction to any possible detected dysfunctions. [T34]

9.5. The requirements in ACCs will avoid any change in the equipment configuration during all the month of September 2006. [T20]

9.6. If an emergency in flight requires the suspension of the RVSM, a minimum of vertical separation of 600 m (2 000 ft) is applied between all the aircraft operating in the part of RVSM airspace where the RVSM is suspended, independently of the RVSM homologation status for the aircraft. However all the "RVSM" cruising Flight Levels (290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400 and 410) remain assignable by the ATC, according to:

a) the cruising Flight Levels Tables published with Appendix 2, Appendix 3.a) of the ICAO; and/or
b) the Flight Levels Allocation System , or The Emergency Flight Levels Allocation System, if necessary; and/or
c) the Letters of agreement between centres. [T39]

9.7. The indexed hazards in similar circumstances and their mitigations appear in the following table:

#	Severity/ Consequence	Risk	Hazard description	Mitigations control

APPENDICES –

Appendix 1:
ACC of.....

Airspace

RVSM Airspace boundaries to be defined

ADJACENT ACCs Interface

ACC 1:

- ACC address (RSFTA and ATS/DS status between the two centres
- Contact of the national centre (RSFTA, telephone and fax and address of the person in charge)
- transfer Points of responsibility with this centre by specifying the agreed flight levels .

ACC 2 :

Checklist

Equipment /automatization: - Lists of the equipment taking part in the RVSM implementation and their operating condition

Resources:

- Switch over period staffing as controllers, technicians of maintenance and weather forecasters
- Monitoring centre staffing

Appendix 2 –

Key-persons in the centre

Name and first name	Responsibility in Switch over operation	Mobile Telephone

Appendix 3-

National Committee of the implementation of RVSM

Appendix 4 : Cruising Levels Table

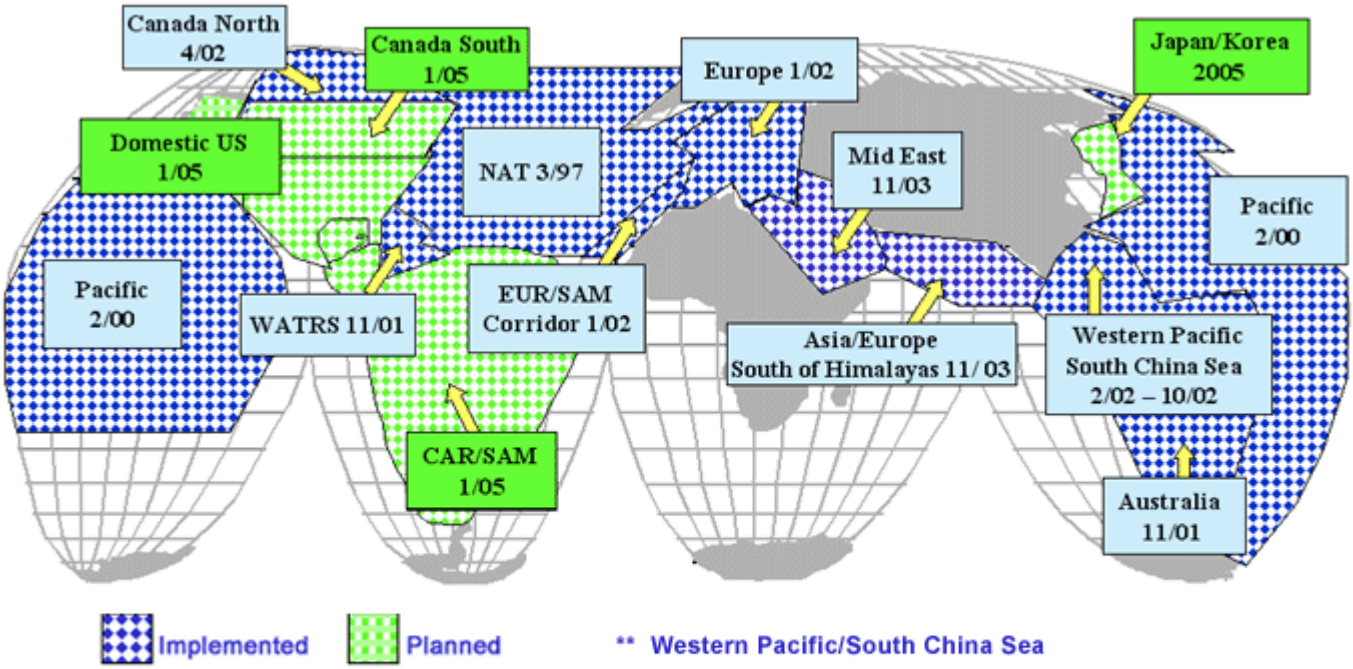
- Reference : Annex 2 of ICAO, Appendix 3a.

Cruising levels as per direction of flight – FL280 to FL430	
Route from 180 degrees to 359 degrees*	**Route from 000 degrees to 179 degrees ***
← **FL 430 (non RVSM level above RVSM airspace)**	
	FL 410 →
← **FL 400**	
	FL 390 →
← **FL 380**	
	FL 370 →
← **FL 360**	
	FL 350 →
← **FL 340**	
	FL 330 →
← **FL 320**	
	FL 310 →
← **FL 300**	
	FL 290 →
← **FL 280 (non RVSM level below RVSM airspace)**	

***** *Except in airspaces where, on the basis of regional air navigation accords, other flight levels can be authorized or indirect ATS routescan be established with appropriate transition procedures.*

The application of ICAO cruising levels table in an RVSM environment inverses the direction of the flight at FL310, FL350 and FL390. These flight levels are infact West-East cruising levels in RVSM environment whereas they are East-West cruising flight levels in non-RVSM environment.

Appendix 5 : State of RVSM implementation in the World (FAA document)



RVSM Status Americas - Europe		
North Atlantic:	March 1997	FL 330-370
	October 1998	FL 310-390
	Jan 24, 2002	FL 290-410
West Atltanic Route Syst (WATRS):	Nov 1, 2001	FL 310-390
	Jan 24, 2002	FL 290-410
Europe Tactical (UK, Ireland,Germany, Austria)	April 2001	FL 290-410
Europe-wide	Jan 24, 2002	FL 290-410
South Atlantic:	Jan 24 2002	FL 290-410
Canada Northern Domestic	April 2002	FL 290-410
Canada Southern Domestic	Coordinate with US domestic	
Domestic US - *Proposed Implementation*	January 20, 2005	FL 290-410
Caribbean/South America	January 20, 2005	Consult AIPs
RVSM Status Asia/Pacific		
Pacific:	February 2000	FL 290-390
*FL 410 is available for non-RVSM approved flights	Tactical Use	FL 400-410
Australia:	November 2001	FL 290-410

Western Pacific/South China Sea	Feb 21, 2002	Consult AIPs
Mid East:	11/2003	Consult AIPs
Asia-Europe/South of Himalayas:	11/2003	Consult AIPs

NB : In the AFI Region, the GO/NO–GO Decision for the implementation of RVSM foreseen on 20/01/2005 will be reviewed on 19/11/04

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APPENDIX S

STRATEGIC ASSESSMENT TABLES FOR THE AFI REGION

TABLE A

OPMET (Kbytes)

OPMET	**2005**	**2006**	**2007**	**2008**	**2009**
AFI	653K	654K	661K	667K	674K

BUFR(Kbytes)

BUFR	**2005**	**2006**	**2007**	**2008**	**2009**
AFI	0K	0K	40K	40K	40K

AIS(Kbytes)

AIS	**2005**	**2006**	**2007**	**2008**	**2009**
AFI	0K	20K	20K	20K	20K

SADIS STRATEGIC ASSESSMENT TABLES
CURRENT AND PROJECTED DATA VOLUMES 2006-2009

Note.— 1 octet = 1 byte = 1 character

Table 1. AFI— OPMET data volumes

OPMET data	*Current 2005*	*Projected 2006*	*Projected 2007*	*Projected 2008*	*Projected 2009*
ALPHANUMERIC DATA					
Number of **FC bulletins** issued per day	151	155	160	165	170
Average number of stations per FC bulletin	5	5	5	5	5
Number of **FT bulletins** issued per day	313	315	320	325	330
Average number of stations per FT bulletin	3	3	3	3	3
Number of **SA bulletins** issued per day	1557	1560	1570	1580	1590
Average number of stations per SA bulletin	4	4	4	4	4
Number of **SP bulletins** issued per day	4	5	5	5	5
Number of **SIGMET bulletins** issued per day	8	10	10	10	10
Number of **FK/FV bulletins** issued per day	0	0	0	0	0
BINARY DATA					
Number of other bulletins issued per day (please specify header(s))	0	0	0	0	0
Average number of stations per bulletin	0	0	0	0	0
TOTALS					
Total number of OPMET bulletins per day	2033	2045	2065	2085	2105
Average size of OPMET bulletin (bytes)	321	320	320	320	320
Total estimated OPMET data volume per day (bytes)	653K	654K	661K	667K	674K

Table 2. AFI — BUFR data volumes

Graphical information in the BUFR-code form	***Current 2005***	***Projected 2006***	***Projected 2007***	***Projected 2008***	***Projected 2009***
WMO Header			**Not available**		
Time(s) of issue of data (UTC)			Misc.	Misc.	Misc.
Average size of message (bytes)			20K	20K	20K
Data level			Misc.	Misc.	Misc.
Validity times of data (in hours after the time of issuance)			6, 12, 18	6, 12, 18	6, 12, 18
TOTALS					
Total number of BUFR messages per day	0	0	2	2	2
Average size of messages (bytes)	0	0	20K	20K	20K
Total estimated volume of BUFR messages per day (bytes)	0K	0K	40K	40K	40K

Note. — Provision is made for the distribution of BUFR-encoded volcanic ash advisories in graphical format (VAG) *commencing 2007*

Table 3. AFI — AIS data volumes

AIS	*Current 2005*	*Projected 2006*	*Projected 2007*	*Projected 2008*	*Projected 2009*
ALPHANUMERIC AIS DATA (e.g. NOTAMs, ASHTAMs)		**ASHTAMs and NOTAMs related to volcanic ash**			
Bulletin type		ASHTAM	ASHTAM	ASHTAM	ASHTAM
Number of bulletins issued per day		2	2	2	2
Average size of each bulletin (bytes)		5K	5K	5K	5K
Bulletin type		NOTAM	NOTAM	NOTAM	NOTAM
Number of bulletins issued per day		2	2	2	2
Average size of each bulletin (bytes)		5K	5K	5K	5K
CHART AIS DATA (e.g. AIP CHARTS)					
Header number/Chart type (e.g. AIP)					
Time(s) of issue of chart (UTC)					
Average size of chart (bytes)					
Validity time of chart VT (UTC)					
Header number/Chart type (e.g. AIP)					
Time(s) of issue of chart (UTC)					
Average size of chart (bytes)					
Validity time of chart VT (UTC)					
TOTALS					
Total number of AIS bulletins per day	0	4	4	4	4
Average size of AIS bulletin (byte)	0	5K	5K	5K	5K
Total number of AIS charts issued per day	0	0	0	0	0
Average size of AIS chart (byte)	0	0	0	0	0
Total estimated volume of AIS data per day (bytes)	0K	20K	20K	20K	20K

Note.— Provision is made for the distribution of ASHTAMs and NOTAMs related to volcanic ash commencing 2006.

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APPENDIX T

TABLE MET 7 / TABLEAU MET 7
IMPLEMENTATION OF SADIS IN THE AFI REGION /
MISE EN OEUVRE DU SADIS DANS LA RÉGON AFI

SATELLITE DISTRIBUTION SYSTEM / SYSTÈME DE DISTRIBUTION PAR SATELLITE			
State / Etat	**WAFS User / Usager WAFS**	**Location of VSAT / Emplacement du VSAT**	**Equipment operational / Equipement Opérationnel**
1	**2**	**3**	**4**
Algeria	NMS	Dar-El-Beida	1W
Benin	NMS	Cotonou/Aéroport Cajehoun	1W
Botswana	NMS	Gaborone/S.S. Khama Airport	1W
Burkina Faso	NMS	Ouagadougou/Aéroport	1W
Burundi	NMS		
Cameroon	NMS	Douala/Airport	1W
Central African Republic	NMS		
Chad	NMS	N'Djamena/Aéroport	1W
Congo	NMS	Brazzaville/Maya Maya Aéroport	1W
Côte d'Ivoire	NMS	Abidjan/F.H. Boigny Aéroport	1W
Dem. Rep.Congo	NMS	Kinshasa/Aeroport N'Jili	1W
Egypt	NMS	Cairo International Airport	1W
Equatorial Guinea	NMS	Malabo/Aéroport	1W
Eritrea	NMS		
Ethiopia	NMS CAA	Addis Ababa/Bole Intl. Addis Ababa	1W 1W
Gabon	NMS	Libreville/Aéroport MBa	1W
Gambia	NMS	Banjul/Yundum Intl.	1W
Ghana	NMS	Kotoka International Airport	1W
Guinea	NMS	Conakry/Aéroport Gbessia	1W
Kenya	NMS NMS	Nairobi/Jomo Kenyatta Intl. Mombasa Airport	1W 1W
Liberia	NMS		

SATELLITE DISTRIBUTION SYSTEM / SYSTÈME DE DISTRIBUTION PAR SATELLITE			
State / Etat	**WAFS User / Usager WAFS**	**Location of VSAT / Emplacement du VSAT**	**Equipment operational / Equipement Opérationnel**
1	**2**	**3**	**4**
Madagascar	NMS	Antananarivo/Aéroport IVATO	1W
Malawi	NMS		
Mali	NMS		
Mauritania	NMS		
Mauritius	NMS	Mauritius/Sirs. Rangoolam Intl.	1W
Mozambique	NMS	Maputo Airport	1W
Niger	NMS EAMAC	Niamey/Aéroport Diori Hamani Niamey EAMAC	1W IW
Nigeria	NMS	Lagos Airport	1W
Rwanda	NMS	Kigali Airport	1W
Sao Tome & Principe	NMS		
Senegal	NMS NMS	Dakar – /Aéroport L.S. Senghor Dakar – /Aéroport L.S. Senghor	1W 2W
Seychelles	NMS	Mahé/Seychelles Intl.	1W
Sierra Leone	NMS		
Somalia	NMS		
South Africa	NMS NMS	Pretoria/NMS Pretoria/NMS	2W 1W
Swaziland	NMS	Mbabane/NMS	1W
Tanzania	NMS	Dar Es Salaam	1W
Togo	NMS	Lome/Tokoin	1W
Tunisia	NMS		
Uganda	NMS	Entebbe/Intl.	1W
Zambia	NMS	Lusaka/Intl.	1W
Zimbabwe	NMS	Harare Airport	1W

NMS – National MET Services / Service Météorologique National

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APPENDIX U

PROCEDURES FOR TEST ON THE RECEPTION OF VOLCANIC ASH ADVISORIES IN THE AFI REGION

1. The test would be run during 2006 (to be agreed between VAAC, Toulouse and ICAO Regional Offices in the AFI Region). The exact date and the hour of the test have to remain secret in order to ensure that the MWO and CC issuing acknowledgement receipt from the test VAA are really reacting to the reception of this advisory.

2. The test will be initiated by the issuance of a VAA from the Toulouse VAAC. The VAA bulletin will be clearly marked as TEST bulletin. The format of the VAA test message is provided at Appendix 4.5C-2, 3**.**

3. For the purpose of this test, it is proposed that the each MWO, ACC and FICs) serving flight FIRs that will receive the VAA issue an administrative message to acknowledge the reception of the VAA. The format of feedback message expected from ACC, FIC and MWO is described in Appendix C.

4. If you require further information, please contact by email: Mr Philippe HUSSON (VAAC Toulouse) philippe.husson@meteo.fr; or Mr Patrick SIMON (EUR IROG for the AFI Region) patrick.simon@meteo.fr.

AFI VOLCANIC ASH TEST PROCEDURE, JUNE 2005

Format of the test VAA

1. The format for the TEST VAA that will be provided by the Toulouse VAAC can be seen below. ***DD*** is the day of the month; ***HH*** the hour of issuance.

FVAF01 LFPW ***DDHH***00
VOLCANIC ASH ADVISORY
ISSUED: 200506***DD***/HH00Z
VAAC: TOULOUSE
VOLCANO: FICTITIOUS
LOCATION: NIL
AREA: NIL
SUMMIT ELEVATION: NIL
ADVISORY NUMBER: 2005/01
INFORMATION SOURCE: NIL
AVIATION COLOUR CODE: NIL
ERUPTION DETAILS: NIL
OBS ASH DATE/TIME: NIL
OBS ASH CLOUD: NIL
FCST ASH CLOUD+6H: NIL
FCST ASH CLOUD+12H: NIL
FCST ASH CLOUD+18H: NIL
NEXT ADVISORY: NO FURTHER ADVISORIES

REMARKS:

THIS IS A VAA TEST MESSAGE APPLICABLE TO THE WHOLE ICAO AFI REGION. EACH METEOROLOGICAL WATCH OFFICE, AREA CONTROL CENTRE AND FLIGHT INFORMATION CENTRE SERVING FLIGHT INFORMATION REGIONS WITHIN THE AFI REGION RECEIVING THIS MESSAGE SHOULD ISSUE AN ADMINISTRATIVE MESSAGE USING THE WMO HEADER NOAF33 LFPW AND SEND IT TO THE AFTN ADDRESS LFZZMAFI TO ACKNOWLEDGE THE RECEPTION OF THIS VAA MESSAGE=

AFI VOLCANIC ASH TEST PROCEDURE, JUNE 2005

Format of the administrative message to acknowledge the reception

1. The MWOs, area control centres and flight information centres serving flight information regions that will receive the VAA will issue an administrative message to acknowledge the reception of the VAA. The format of this message is provided below. ***DD*** is the day of the month.

2. The message described below has to be sent by AFTN to the IROG Toulouse address by using its AFTN address LFZZMAFI.

3. ***aftn_address***, in the first line after the WMO heading, should be replaced by the AFTN address of the recipient.

4. ***decription***, in the first line after the WMO heading, should be replaced by the name of the organism who has received the VAA.

5. ***HHMMmm*** is the reception hour of the VAA bulletin, if the VAA has been received.

NOAF33 LFPW ***DD***1300
FROM : ***aftn_address***, ***description***
TO: LFZZMAFI
ACK RECEPTION TEST VAA FROM VAAC TOULOUSE AT ***HHMMmm***=

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APPENDIX V

AFI METEOROLOGICAL REGIONAL PROCEDURES

Introduction

1. This part of the AFI Basic ANP contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related MET as developed for the AFI Region and considered to be the minimum necessary for effective planning of MET facilities and services. A detailed description/list of the facilities and/or services to be provided by States in order to fulfill the requirements of the Basic ANP is contained in the AFI FASID. During the transition and pending full implementation of the future CNS/ATM systems, it is expected that the existing requirements will gradually be replaced by the new CNS/ATM related requirements. Further, it is expected that some elements of the CNS/ATM systems will be subject to amendment, as necessary, on the basis of experience gained in their implementation.

2. The SARPs to be applied are contained in Annex 3 – *Meteorological Service for International Air Navigation*.

3. Background information on the importance of understanding and effective application of the Basic Plan is contained in the *Report of the Seventh Africa-Indian Ocean Regional Air Navigation Meeting* (Doc 9702), supplemented by information appropriate to the AFI Region contained in the reports of the other RAN meetings.

4. RAN meetings recommendations or conclusions, APIRG conclusions and ICAO operations groups conclusions, shown in brackets below the heading, indicate the origin of all paragraphs following that heading. RAN meetings recommendations or conclusions, APIRG conclusions and ICAO operations groups conclusions, shown in brackets below the paragraph, indicate the origin of that particular paragraph.

Meteorological service required at aerodromes and requirements for
MWOs (FASID Tables MET 1A and MET 1B)

5. The service to be provided at the international aerodromes, listed in the Appendix to Part III of the Basic AFI ANP, is set out in FASID Table MET 1A.

6. The service to be provided for FIRs, upper flight information regions (UIRs), control areas (CTAs) and search and rescue regions (SRRs) is set out in FASID Table MET 1 B.

7. Hourly routine observations should be made at all aeronautical meteorological stations, to be issued as local routine reports and METARS, together with special observations to be issued as local special reports and SPECI.

8. Aerodrome forecast (in meteorological code form) (TAF) should normally be issued at 6-hour intervals, with the period of validity beginning at one of the main synoptic hours (00, 06, 12, 18 UTC). The period of validity should be of 24 hours' duration to meet the requirements indicated in FASID Table MET 1 A. The filing time of the forecasts should be two hours before the start of the period of validity.

9. The minimum and maximum forecast temperature, together with their respective times of occurrence should be included in TAF for certain aerodromes, as agreed between the meteorological authorities and the operators concerned.

10. Trend forecasts should be provided at the aerodromes, as indicated in FASID Table MET 1A.

11. Meteorological service should be provided on a 24-hour basis, except as otherwise agreed between the meteorological authority, the air traffic services authority and the operators concerned.

12. At aerodromes with limited hours of operation, METAR should be issued at least 1,2 hour(s) prior to the aerodrome resuming operations to meet pre-flight and in-flight planning requirements for flights due to arrive at the aerodrome as soon as it is opened for use. Furthermore, TAF should be issued with adequate periods of validity so that they cover the entire period during which the aerodrome is open for use.

13. When a MWO is temporarily non-functioning or is not able to meet all its obligations, its responsibilities should be transferred to another MWO, and a NOTAM should be issued to indicate such a transfer and the period during which the office is unable to fulfil all its obligations.

14. Details of the service provided should be indicated in AIPs, in accordance with the provisions of Annex 15.

15. As far as possible, English should be among the languages used in meteorological briefing and consultation.

16. FASID Tables MET 1A and MET 1B should be implemented as soon as possible, with the understanding that only those parts of the briefing and documentation called for in column 7 of FASID Table MET 1A that are required for current operations need to be available, and that the implementation of new MWO or changes to the area served by existing MWO indicated in FASID Table MET 1B, columns 1 and 3 respectively, should take place coincidentally with the implementation of, or changes to, the FIR/UIR/CTA/SRR concerned.

Aircraft observations and reports
(FASID Table MET 1B)

17. The meteorological authority should adopt the approved list of ATS/MET reporting points, as it relates to points located within and on the boundaries of the FIR for which the State is responsible. Those ATS/MET reporting points should be published in the AIP, under GEN 3.5.6 – *Aircraft reports*, of the State concerned.

> *Note. – The approved list of ATS/MET reporting points is published and kept u- to-date by the ICAO Regional Offices concerned, on the basis of consultations with ATS and MET authorities in each State and the provisions of Annex 3 in this respect.*

18. The meteorological watch office (MWO) designated as the collecting centre for air reports received by voice communications within the FIR/UIR for which they are responsible, is shown in FASID Table MET 1B, column 1.

SIGMET and AIRMET information
(FASID Tables MET 3 A and 3 B)

19. The period of validity of SIGMET messages should not exceed 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the validity period should be extended up to 6 hours and an outlook should be added giving information for an additional period of up to 12 hours concerning the trajectory of the volcanic ash cloud and positions of the centre of the tropical cyclone, respectively.

20. In order to assist MWOs in the preparation of the outlook included in SIGMET messages for tropical cyclones, TCACs, Réunion has/have been designated to prepare the required advisory information and disseminate it to the MWOs concerned in the AFI Region. FASID Table MET 3A sets out the area(s) of responsibility, the period(s) of operation of the TCAC(s) and the MWOs to which the advisory information should be sent. Advisory information should be issued for those tropical cyclones in which the surface wind speed averaged over 10 minutes is expected to equal or exceed 63 km/h (34 kt).

21. In order to assist MWOs in the preparation of the outlook included in SIGMET messages for volcanic ash, VAAC Toulouse has been designated to prepare the required advisory information and disseminate it to the MWOs and ACCs concerned in the AFI Region following notification/detection of the ash cloud. FASID Table MET 3 B sets out the area(s) of responsibility of the VAAC(s) and the MWOs and ACCs to which the advisory information should be sent.

22. In order for the VAACs to initiate the monitoring of volcanic ash from satellite data and the forecast of volcanic ash trajectories, MWOs should notify the relevant VAAC immediately upon receipt of information that a volcanic eruption has occurred or volcanic ash has been observed in the FIR for which they are responsible. In particular, any special air reports of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud, received by MWOs should be transmitted without delay to the VAAC concerned. Selected State volcano observatories have been designated for direct notification of significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash in the atmosphere to their corresponding ACC, MWO and VAAC. FASID Table MET 3C sets out the selected State volcano observatories and the VAACs, MWOs and ACCs to which the notification should be sent.

23. AIRMET messages are not required to be issued by MWOs.

Exchange of OPMET information
(FASID Tables MET 2A and 2B)

International OPMET data banks

24. The International OPMET data bank(s) in Toulouse Brussels* and Vienna* has/have been designated to serve States in the AFI Region to access OPMET information which is required but not received.

Note. – A list of the OPMET information available at the international OPMET data banks designated to serve the AFI Region, together with the procedures to be used in communicating with the data banks are contained in the Catalogue of International OPMET data available at the OPMET data bank of Toulouse, Brussels* and Vienna* published by the ICAO Regional Offices concerned.*

*Note. – * Until such time that Dakar and Pretoria data banks are implemented.*

Exchange of METAR, SPECI and TAF

25. METAR, SPECI and TAF, which should be available at MWOs, ACCs and FICs, are contained in FASID Table MET 2A. This table should be updated, as necessary, by the ICAO Regional Offices concerned on the basis of changes in the pattern of aircraft operations and in accordance with the Statement of Basic Operational Requirements and Planning Criteria (BORPC), in consultation with those States and international organizations directly concerned.

26. The exchanges indicated in FASID Table MET 2A should be implemented as soon as possible to meet the requirements of current aircraft operations. The availability at MWOs of the required OPMET information should be continuously reviewed. Any changes in this respect (i.e. additional OPMET information needed or OPMET information no longer required) should be notified to the corresponding meteorological authority which, in turn, should amend its corresponding address lists and inform the ICAO Regional Offices.

Exchange of SIGMET information and air reports

27. The exchange requirement for SIGMET and special air-reports are contained in FASID Table MET 2 B. This table should be updated, as necessary, by the ICAO Regional Offices concerned on the basis of changes in the pattern of aircraft operations, and in accordance with the BORPC, and in consultation with those States and international organizations directly concerned.

28. Each MWO should arrange for the transmission to all aerodrome meteorological offices within its associated FIR of its own SIGMET messages and relevant SIGMET messages for other FIRs, as required for briefing and, where appropriate, for flight documentation.

29. Each MWO should arrange for the transmission to its associated ACC/FIC of SIGMET messages and special air reports received from other MWOs.

30. Each MWO should arrange for the transmission of routine air reports received by voice communications to all meteorological offices within its associated FIR. Special air reports which do not warrant the issuance of a SIGMET should be disseminated by MWO in the same way as SIGMET messages, in accordance with FASID Table MET 2B.

World area forecast system (WAFS)
(FASID Tables MET 5, MET 6 and MET 7)

30. FASID Table MET 5 lists the AFI Region requirements for WAFS forecasts to be provided by WAFC London.

31. The levels for which forecasts of SIGWX in chart form are to be provided by the WAFC London and the areas to be covered by these charts are indicated in FASID Table MET 5.

Note. – WAFCs will continue to issue forecasts of SIGWX in chart form until 30 November 2006.

31. FASID Table MET 6 sets out the responsibilities of WAFCs London for the production of WAFS forecasts. For back-up purposes, each WAFC should have the capability of producing WAFS forecasts for all required areas of coverage.

32. The projection of the WAFS forecasts in chart form and their areas of coverage should be as indicated in FASID Charts MET 4, MET 5 and MET 6 associated with FASID Table MET 6; their scale should be 1:20 X 10^6, true at 22.5° in the case of charts in the Mercator projection, and true at 60° latitude in the case of charts in the polar stereo-graphic projection.

Note. – WAFCs will continue to issue forecasts of SIGWX in chart form until 30 November 2006.

33. WAFS products should be disseminated by WAFC London, using the SADIS, and FTP internet service covering the reception area shown in FASID Chart CNS 4.

34. The amendment service to the SIGWX forecasts issued by WAFCs London should be by means of amended BUFR files disseminated through SADIS.

35. Each State should make the necessary arrangements to receive and make full operational use of WAFS products disseminated by WAFC London. FASID Table MET 7 lists the authorized users of the SADIS satellite broadcast in the AFI Region and location of the operational VSATs.

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APPENDIX W

Appendix 2 – the Saly Declaration

Search and Rescue (SAR) funding Conference

(Saly-Portudal, 25 – 28 October 2004)

Conference Declaration

THE CONFERENCE

NOTING that the provision of assistance to aircraft in distress is a responsibility of all ICAO Contracting States under article 25 of the Convention on International Civil Aviation (Chicago Convention);

RECOGNIZING that States party to the Chicago Convention have the responsibility to rapidly and effectively respond to aircraft and persons in grave and imminent danger regardless of nationality, circumstance and location;

RECOGNIZING the economic and social benefits that can be derived from an efficient SAR system;

RECOGNIZING that implementing efficient SAR funding mechanisms is essential to significantly improve the overall efficiency of SAR services in Africa; and

REASSERTING the ICAO position that all that part of the services allocable to civil aviation of any permanent civil establishment of equipment and personnel maintained for the purpose of providing a search and rescue service should be taken into account in determining the total costs of air navigation services.

A. CONCLUDES THAT:

1. Optimal organisation, management and regulation of SAR services has a profound and positive effect on the cost and the efficiency of SAR service provision.

2. In particular, the extent of required resources can be reduced if the following principles are applied:

    a) Implementing sound SAR needs assessment, based on risk;
    b) Signing and updating domestic and international SAR agreements;
    c) Implementing preventive SAR and appropriate regulatory measures;
    d) Using assets on a shared basis;
    e) Using staff on an incremental basis;
    f) Establishing regionalized SAR provision;
    g) Establishing joint aviation/maritime operational centres, possibly multi-functional; and
    h) Using volunteer organisations whenever available.

3. Yet, providing efficient SAR services requires the allocation of funds to provide for, *inter alia*, fixed coordination facilities (including communication equipment), personnel (including

training), life support equipment (including droppable supplies) and SAR unit operating costs (for both actual operations and training exercises).

B. THEREFORE RECOMMENDS THAT STATES SHOULD:

1. Further build Government awareness of SAR funding requirements;

2. Optimize the use of existing SAR equipment / facilities within a State / region as a means of major cost-effectiveness improvements.

3. Avoid duplication between aviation and maritime SAR systems within a State or a group of States by making efforts to harmonize aviation and maritime SAR policy, practices and procedures with a view, ultimately, to establishing joint aviation / maritime SAR systems.

4. Allocate sufficient resources to the training of SAR Coordinators and operational staff to build and maintain reasonable SAR efficiency within a State or group of States.

5. Allocate funds to the organization of SAR exercises for the improvement of the SAR system and reduction of lives lost in the conduct of live SAR.

6. Implement letters of agreement between neighbouring and proximate States.

7. Elevate SAR as a community service obligation.

8. Produce effective SAR empowering documentation.

9. Prescribe robust regulatory frameworks and properly structure their SAR systems in the context of well ordered and competently enforced aviation regulations in conformity with ICAO standards and recommended practises.

10. Establish, wherever technically and operationally appropriate, joint aeronautical / maritime rescue coordination centres or rescue sub-centres.

11. Explore all possible sources of funds for SAR activities, including air navigation charges.

12. Explore the establishment of sub-regional SAR systems from both an operational and financial perspective.

13. Explore the creation of a cooperative SAR funding mechanism at the sub-regional level.

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APPENDIX X

FOLLOW-UP ACTION ON RESOLUTIONS OF THE 35th SESSION OF THE ASSEMBLY AS THEY RELATE TO AIR NAVIGATION MATTERS

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 16/1 (16-3 to 16-5, WP/342 and Plenary Action Sheet No. 1) **[A35-7]**	Unified strategy to resolve safety-related deficiencies	Council, subsidiary bodies and the Secretary General to act in accordance with the relevant clauses of the Resolution. Council to further develop practical means to facilitate the sharing of safety information among Contracting States. Council to develop a procedure to inform all Contracting States, within the scope of Article 54 j) of the Chicago Convention, in the case of a State having significant compliance shortcomings with respect to ICAO safety-related SARPs. Secretary General to investigate ways in which the identification of measures may be undertaken at national and regional levels to support States' development of ATM safety oversight capabilities and procedures.	ANC to review and agree on the methodology being developed by the Secretariat for the implementation of the unified strategy, review and agree as the action proposed in AN-WP/7977, and make recommendations to the Council as necessary. **Update**: Secretariat presented a methodology/progress report on the implementation of the unified strategy in June 2005 (AN-WP/8032 and C-WP/12475 refers).	Secretary General to: a) urge all Contracting States to share with other Contracting States critical safety information which may have an impact on the safety of international air navigation and to facilitate access to all relevant safety information;	States: To share critical safety information with other States
				b) encourage Contracting States to make full use of available safety information when performing their safety oversight functions, including during inspections as provided for in Article 16 of the Convention;	States: To make use of available safety information when performing safety oversight functions
				c) develop, for approval by the Council, practical means to facilitate the sharing of such safety information among Contracting States;	To note
				d) urge Contracting States of the need for surveillance of all aircraft operations, including foreign aircraft within their territory and to take appropriate action when necessary to preserve safety;	States: To do surveillance of all aircraft operations, including foreign aircraft within their territory

[1] The A35 Resolution number (as designated in Resolutions adopted by the 35th Session of the Assembly — Provisional Edition, October 2004) is shown in square parentheses.

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 16/1 (16-3 to 16-5, WP/342 and Plenary Action Sheet No. 1) **[A35-7]** **(continued)**				e) develop, for approval by the Council, a procedure to inform all Contracting States, within the scope of Article 54 j) of the Chicago Convention, in the case of a State having significant compliance shortcomings with respect to ICAO safety-related SARPs;	To note
				f) promote the concept of regional or sub-regional safety oversight organizations;	PIRGs: To promote the concept of regional/ subregional safety oversight organizations
				g) continue to foster coordination and cooperation between USOAP and audit programmes of other organizations related to aviation safety, and specifically with IATA and Eurocontrol;	To note
				h) urge Contracting States to develop regional and sub-regional cooperation and, whenever feasible, partnership initiatives with other States, industry, air navigation service providers, financial institutions and other stakeholders to strengthen safety oversight capabilities in order to foster a safer international civil aviation system and to better discharge their individual responsibilities;	States: To develop regional and subregional cooperation and to strengthen safety oversight capabilities
				i) encourage States to foster the creation of regional or sub-regional partnerships to collaborate in the development of solutions to common problems to build their individual safety oversight capability;	States: To foster the creation of regional/subregional partnerships

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 16/1 (16-3 to 16-5, WP/342 and Plenary Action Sheet No. 1) **[A35-7]** **(continued)**				j) encourage all States able to do so to participate in, or provide tangible support for, the strengthening and furtherance of regional safety oversight organizations; k) invite Contracting States to use the services of the ICAO Technical Cooperation Bureau (TCB) to resolve deficiencies identified by the USOAP; l) invite Contracting States experiencing difficulties in financing measures necessary to correct safety-related deficiencies identified through USOAP to take advantage of the funding opportunity offered by the International Financial Facility for Aviation Safety (IFFAS); m) implement a unified strategy based on the principles of increased transparency, cooperation and assistance; n) foster, where appropriate, partnership among States, users, air navigation service providers, industry, financial institutions and other stakeholders to analyse causes, establish and implement sustainable solutions in order to assist States in resolving safety-related deficiencies;	States: To provide tangible support for strengthening and furtherance of regional safety oversight organizations To note States: To take advantage of IFFAS if experiencing difficulties in financing measures to correct safety-related deficiencies: PIRGS/States: To implement a unified strategy PIRGS/States: To foster partnership among States, users, air navigation service providers, industry and financial institutions to analyse causes in resolving safety-related deficiencies

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 16/1 (16-3 to 16-5, WP/342 and Plenary Action Sheet No. 1) **[A35-7]** **(continued)**				o) adopt a flexible approach for the provision of assistance through the ICAO Regional Offices to support regional and sub-regional organizations responsible for safety oversight tasks and to implement an efficient system to monitor implementation of the unified strategy; p) investigate ways in which the identification of measures may be undertaken at national and regional levels to support States' development of ATM safety oversight capabilities and procedures; and q) develop ways in which all relevant information from the Audit Findings and Differences Database (AFDD) could be made available to all Contracting States through the use of the ICAO secure website.	To note To note To note
Resolution 16.2/1 (16.2-2 to 16.2-4, WP/342 and Plenary Action Sheet No. 1) **[A35-6]**	Transition to a comprehensive systems approach for audits in the ICAO USOAP	Council, subsidiary bodies and the Secretary General to act in accordance with the relevant clauses of the Resolution. Secretary General to make the final safety oversight audit reports available to all Contracting States and also to provide access to all relevant information derived from the Audit Findings and Differences Database (AFDD) through the secure website of ICAO.	ANC to review proposals as necessary and make recommendations to the Council. **Update**: Secretary General presented a progress report on comprehensive systems approach to the Council in June 2005 (C-WP/12471 refers).	Secretary General to: a) further expand USOAP to include the safety-related provisions contained in all safety-related Annexes to the Convention on International Civil Aviation (Doc 7300) as of 2005; b) restructure the ICAO Universal Safety Oversight Audit Programme, as of 1 January 2005, to adopt a comprehensive systems approach in conducting safety oversight audits in all Contracting States;	 To note To note

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 16.2/1 (16.2-2 to 16.2-4, WP/342 and Plenary Action Sheet No. 1) **[A35-6]** **(continued)**				c) restructure the safety oversight audit reports to reflect the critical elements of a safety oversight system;	To note
				d) adopt a more flexible approach in the implementation of the Programme on a long-term basis;	To note
				e) continuously ensure the maintenance of the quality assurance mechanism established to monitor and assess Programme quality;	To note
				f) call on all Contracting States able to do so to assign qualified and experienced technical staff to ICAO on a long-term secondment basis with a view to enabling the Organization to continue to successfully implement the Programme;	States: To assign qualified and experienced technical staff to ICAO on a long-term secondment basis
				g) urge all Contracting States to submit to ICAO, in a timely manner, and keep up-to-date, all the information and documentation associated with the preparation and conduct of an audit, to ensure the effective and efficient implementation of the Programme;	States: To submit to ICAO, in a timely manner, and keep up-to-date, all information and documentation associated with an audit
				h) urge all Contracting States to cooperate with ICAO and, as much as practicable, to accept audit missions as scheduled by the Organization in order to facilitate the smooth functioning of the Programme;	States: To cooperate with ICAO to accept audit missions as scheduled by the Organization

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 16.2/1 (16.2-2 to 16.2-4, WP/342 and Plenary Action Sheet No. 1) **[A35-6]** **(continued)**				i) urge all Contracting States to accept the primacy of USOAP audit results as meeting the established international Standards, Recommended Practices and Procedures, when considering the need for additional or supplementary safety oversight audits by States; and j) continue to report to Council at every other session and to the next ordinary session of the Assembly on the overall implementation of the Programme.	States: To accept the primacy of USOAP audit results as meeting the established international SARPs To note
Para 17:2 (17-1, WP/343)	Harmonization and efficiency guiding the standard making process	Council and Air Navigation Commission (ANC) to take into consideration the proposals contained in A35-WP/74 in their future work on enhancement of ICAO Standards.	ANC to continue its work to enhance ICAO Standards taking into account Resolving Clause 3 of A35-14, Appendix A, the action proposed in A35-WP/36 and the proposal contained in A35-WP/74.		
Para 17:3 (17-1, WP/343)	Policy and criteria for making determinations regarding the "commercial air transport" or non-commercial "general aviation" nature of international aircraft operation	Council, subsidiary bodies and the Secretary General to collect information on studies conducted by Contracting States and international organizations on the subject and to take action as required.	ANC to consider the Secretariat review and advise the Council as appropriate.	Secretary General (ATB in coordination with ANB and LEB) to collect and review the work currently conducted by Contracting States on making a determination regarding the "commercial air transport" or non-commercial "general aviation" nature of international aircraft operation. A Council decision will then be sought on whether a draft policy and criteria on the subject should be developed by ICAO	To note

EXECUTIVE COMMITTEE

Resolution[1]	Subject	Preliminary action approved by Council (C-WP/12316 Revised, C-DEC 173/1)	Suggested follow-up action		
			ANC	Secretary General	PIRGs/States
Resolution 19/1 (19-2 to 19-4, WP/343 and Plenary Action Sheet No. 1) **[A35-12]**	Protection of the health of passengers and crews and prevention of the spread of communicable disease through international travel	States to be informed of the content of this Resolution and urged to implement existing SARPs related to the health of passengers and crews. Council, subsidiary bodies and the Secretary General to act in accordance with the relevant clauses of the Resolution.	ANC to monitor and present reports to Council as necessary.	Secretary General to: a) inform States of the content of the Resolution and draw their attention in particular to resolving clauses 1 and 5;	To note
				b) urge States to implement existing SARPs related to passenger and crew health	States: To implement existing SARPs related to passenger and crew health
				c) review existing SARPs related to passenger and crew health and develop new ICAO provisions as necessary; and	To note
				d) develop SARPs to address contingency plans to prevent the spread of communicable diseases by air transport	To note
Resolution 19/2 (19-4, WP/343 and Plenary Action Sheet No.1) **[A35-13]**	Non-chemical aircraft disinsection of the cabin and flight deck for international passenger flights	Council, subsidiary bodies and the Secretary General to act in accordance with the relevant clauses of the Resolution.	ANC to monitor and present reports to Council as necessary.	Secretary General to: a) assist WHO in evaluating non-chemical approaches to aircraft disinsection; and	To note
				b) encourage the exploration of non-chemical approaches to aircraft disinsection.	To note
Para 19:7 (19-2, WP/343)	Recommendation to adopt a harmonized contingency phased response plan to address any future recurrence of SARS or similar communicable diseases.	States to be informed of this recommendation and requested to adopt the contingency plan as appropriate.	ANC to monitor and present reports to Council as necessary.	Secretary General to: a) inform States of the recommendation; and	To note
				b) urge States to adopt a contingency plan as appropriate.	States: To adopt a contingency plan as appropriate

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APPENDIX Y

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE AERODROME OPERATIONAL PLANNING SUB-GROUP (AOP/SG)

1. **Terms of reference**

a) **In the field of aerodrome operational planning:**

To keep under review the adequacy of the requirements contained in the ICAO Regional ANP, taking into account changes to aircraft operations, new operational requirements and/or technological developments, and to propose amendments as required.

b) **In the field of aerodrome services:**

To identify, assess and track critical deficiencies in the provisions of aerodrome installations, equipment and services with priority to:

1) aerodrome power supply;
2) visual aids;
3) rescue and fire fighting;
4) aerodrome fencing;
5) bird hazards;
6) aerodrome emergency planning; and
7) pavement surface condition.

2. **Work Programme:**

No.	Task description	Priority	Target Date
1	Review, at each AOP/SG Meeting, the content of the Table AOP 1 and, where necessary, after coordination with users and operators, and introduce the respective changes through the established procedures. (AFI/7 RAN Meeting Conclusion 3/2)	A	Continuing
2	Develop a database on deficiencies in the AOP field including their safety assessment according to the ICAO approved procedures and at each AOP/SG meeting, review and update the database and identify requirements for possible technical cooperation. (AFI/7 RAN Meeting Conclusions. 14/1 and 14/2 and Recommendation 14/3)	A	Continuing
3	Review the severity of the bird hazard and the status of implementation of appropriate bird hazard reduction measures in the Region .(AFI/7 RAN Meeting Conclusion 4/7)	A	Continuing
4	Review States efforts to allocate the necessary resources to ensure the establishment of preventive maintenance at their aerodromes in order to provide adequate maintenance of facilities, installations and services. (AFI/7 RAN Meeting Conclusion 4/10)	A	APIRG/16
5	Review the need and monitor the measurement and reporting by States of the surface condition and unevenness on movement areas at aerodromes in the AFI Region. (AFI/7 RAN Meeting Recommendation 4/4)	B	APIRG/16

No.	Task description	Priority	Target Date
6	Review the provision of rescue and fire fighting services and emergency planning at international aerodromes in the AFI Region and monitor the switch over to the use of environmentally friendly materials for fire fighting. (AFI/7 RAN Meeting Conclusion 4/6)	A	APIRG/16
7	Review and monitor the impact of the introduction of the NLAs in the AFI Region in particular the requirements with respect to alternate aerodromes.	A	APIRG/17
8	Review, assess and provide guidance on the impact of the operations of the new larger aeroplanes at aerodromes in the AFI Region.	A	APIRG/16
9	Review and monitor the implementation of new approach and landing systems in order to ensure smooth transition and optimization of the performance of the systems implemented. (Input to CNS/ATM planning process)	A	APIRG/16
10	Review and monitor the status of implementation of visual aids in the AFI Region and of provision of resources for ensuring preventive maintenance, human factors and progress in technology development in order to achieve increased safety and capacity. (AFI/7 RAN Meeting Conclusion 4/1, Rec. 14/7)	A	APIRG/16
11*	Review and monitor the traffic growth in the AFI Region in order to develop appropriate guidance for the development of planning criteria.	B	APIRG/16
12	Monitor the work being conducted by the ICAO Air Navigation Commission on the impact of new larger aeroplanes at aerodromes and assess the particular circumstances pertaining to the aerodromes in the AFI Region.	A	APIRG/16
13	Taking into account human factors, study problems and make specific recommendation related to AOP personnel, with a view to ensuring the best services (AFI/7 RAN Meeting, Recommendation 14/7)	A	Continuing
14	Review and monitor the implementation of the requirement for aerodrome certification (Annex 14, Vol. I Chapter 1.4)	A	APIRG/16
15	Review and monitor the implementation of the requirement for safety management system at aerodromes. (Annex 14, Vol. I para. 1.4.6)	A	APIRG/16

Priority:

A High priority tasks, on which work should be accelerated;

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

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

* This task will be a subject of coordination with the Traffic Forecasting Task Force.

3. **Composition:**

Angola, Algeria, Burkina Faso, Cameroon, Cape Verde, Congo, Côte d'Ivoire, Egypt, Gambia, Ghana, Guinea, Kenya, Malawi, Morocco, Nigeria, Senegal, South Africa, Togo, Tunisia, Uganda, Zambia, ACAC, ACI, ASECNA, IATA and IFALPA.

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APPENDIX Z

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE ATS/AIS/SAR SUB-GROUP

1. **Terms of Reference**

a) To identify, State by State, those specific shortcomings and problems that constitute major obstacles to the provision of efficient ATM, AIS and SAR services and to recommend specific measures to eliminate them.

b) To keep under review, the adequacy of requirements in the ATM, AIS and SAR fields, taking into account, inter alia, changes to aircraft operations and new operational requirements or technological developments.

2. **Work Programme**

No.	Task Description	Priority	Target Date
1	Analyse the operational implications of the introduction of ICAO CNS/ATM systems in the fields of ATS, SAR, AIS/MAP and MET matters, and propose any required actions with a view to ensuring their smooth integration in the operational environment.	A	Continuing
2	Taking into account human factors, study problems and make specific recommendations related to ATS and AIS personnel, with a view to ensuring the best services to users. (AFI/7 Recommendation 14/7)	B	Continuing
3	Study the requirements for civil/military coordination procedures, including ~~the~~ promotion of the implementation of the concepts of joint use of airspace, free flight, flexible tracks etc. and, in addition, consider reducing and/or eliminating prohibited, restricted and danger areas. (AFI/7 Recommendation 5/3)	A	Continuing
*4	Determine the framework within which air traffic data collection statistical analysis and forecasting should be carried out.	C	Continuing
5	Review the requirements and monitor the programme of implementation of area control service. (AFI/7 Rec 5/21)	A	Continuing
6	Review the existing ATS route network, including RNAV routes, on a systematic basis with a view to achieving an optimum flow of air traffic, while keeping flight distances of individual flights to a minimum. (AFI/7 Recommendation 5/8)	A	Continuing
7	Consider problems, and make specific recommendations relating to ATS interface routes with other regions.	A	Continuing
8	Monitor achievements and progress in the implementation of RNAV/RNP, RSP and RTSP in the AFI Region and provide recommendations in the light of acquired experience.	A	Continuing
9	Monitor developments in SSR planning criteria and review the allocation of SSR codes in the Region to ensure there is no duplication with adjacent Regions. (AFI/7 Recommendation 5/20)	A	Continuing
10	Review the ATS requirements for navigation. (AFI/7 Recommendation 10/4)	A	Continuing
11	Review the ATS requirements for communication including extension of VHF coverage. (AFI/7 Recommendations 5/13, 5/12 and LIM AFI	A	Continuing

No.	Task Description	Priority	Target Date
	Recommendation 10/36)		
12	Identify the ATS requirements for ~~S~~surveillance (RADAR, ADS, Voice, etc.) (AFI/7 Rec 11/1)	A	Continuing
13	Carry out studies and develop recommendations aimed at effectively facilitating the existing contingency plans, reducing air traffic incidents, implementing ~~of~~ ACAS, ATIS, pressure-altitude reporting transponders, Digital Flight Information Service (D-FIS), RVSM, MSAW/CFIT, COSPAS/SARSAT and safety oversight programs in the AFI Region.	A	Continuing
14	Develop standard auditing and proficiency maintenance procedures to be used by States to assess the capability/competence of any ATS unit as well as to monitor the implementation of uniform proficiency assessment for ATS personnel. (AFI/7 Conclusion 5/27)	A	Continuing
15	Review the requirements and monitor the implementation of SAR services.	B	Continuing
16	Review the requirements and monitor the implementation of AIS and MAP services.	B	Continuing
17	Analyse, review and monitor shortcomings and deficiencies in the fields of ATS, AIS/MAP and SAR.	A	Continuing

Priority:

A High priority tasks, on which work should be accelerated;

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

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

* This task will be a subject of coordination with the Traffic Forecasting Task Force.

3. **Composition**:

Algeria, Angola, Burkina Faso, Cameroon, Congo, Côte d'Ivoire, D.R. of Congo, Egypt, Ethiopia, France, Gabon, Ghana, Guinea, Kenya, Madagascar, Malawi, Mauritania, Morocco, Niger, Nigeria, Senegal, Spain, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, ASECNA, IATA, IFALPA and IFATCA.

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APPENDIX Z-A

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE APIRG COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS) SUB-GROUP

1. **Terms of reference**

a) Ensure the continuing and coherent development of the AFI Regional ANP in the fields of aeronautical CNS, including the development of CNS elements of the AFI CNS/ATM Implementation Plan in the light of new developments, in harmony with the Global ANP for CNS/ATM Systems and the plans for adjacent regions;

b) Identify, review and monitor deficiencies that impede or affect the provision of efficient aeronautical telecommunications, and recommend appropriate corrective action;

c) Prepare, as necessary, CNS/ATM cost-benefit analyses for the implementation options of C, N and S elements; and

d) Study, as necessary, institutional arrangements for the implementation of C, N and S systems in the AFI Region.

2. **Work programme**

Item	Task description	Priority	Target date
1	Analyze, review and monitor the implementation and operation of the aeronautical fixed service (AFTN, ATS/DS), mobile service (AMS) and radio navigation service (ARNS); identify deficiencies affecting aeronautical telecommunications; and propose measures for their elimination, as required.	A	Continuing
2	Follow-up on the integration/interoperability of VSAT networks in the AFI Region	A	Continuing
3	Follow up on and monitor the implementation of VHF coverage in the AFI Region in accordance with AFI/7 Recommendation 5/12.	A	APIRG/16
4	Analyse and review the report of the ATN Planning Task Force on the transition from AFTN to ATN.	A	APIRG/16
5	Follow-up on the upgrading of the transmission speed and the implementation of bit-oriented protocols for main AFTN circuits.	A	APIRG/16
6	Coordinate and follow-up on the ICAO position for the ITU-WRC meetings.	A	Continuing
7	Continue, in coordination with the ATM Sub-Group, the evolutionary development of the AFI CNS/ATM Systems Implementation Plan (AFI/7 Conclusion 13/1).	A	Continuing
8	In coordination with the ATM Sub-Group, develop, as necessary, comprehensive business cases for competing CNS/ATM elements implementation options for the routing areas.	B	Continuing

Item	Task description	Priority	Target date
9	Coordinate plans developed by States, international organizations~~,~~ as well as airlines and industry for the implementation of the regional CNS/ATM Systems Implementation Plan.	B	Continuing
10	Update on a regular basis, Chapter 2 and the tables of Part II of the Global Plan (Doc 9750).	B	Continuing
11	Review work being done by MIDANPIRG on the Egyptian initiative for a multi-mission satellite-based system dedicated to CNS/ATM services, and provide advice thereon.	B	APIRG/16
12	Monitor CNS/ATM systems research and development, trials and demonstrations within the AFI Region and information from other regions.	B	Continuing
13	Give further consideration, as necessary, to the concept of multinational ICAO AFI air navigation facility/service addressed in the AFI/7 Report under Agenda Item 14 (AFI/7, Conclusion 10/6 c)).	C	Continuing
14	Maintain current the database on CNS elements of CNS/ATM planning and implementation in the AFI Region.	B	Continuing
15	Continue the development of the AFI Aeronautical Surveillance Plan, and monitor its implementation.	A	APIRG/16

Priority:

A High priority tasks on which work should be accelerated;

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

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

3. Composition:

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

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APPENDIX Z-B

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE METEOROLOGY SUB-GROUP (MET/SG)

1. Terms of Reference

a) To keep under review~~,~~ the adequacy of meteorological facilities and services to meet new technological developments in the air navigation field, and to make proposals, as appropriate, for implementation by States to APIRG.

b) To identify, State by State, those specific deficiencies and shortcomings that constitute major obstacles to the provision of efficient and reliable meteorological facilities and services in order to meet the requirements of air navigation in the AFI Region, and to recommend specific measures for their elimination.

2. Work Programme

No.	Task description	Priority	Target Date
1	Establish and maintain detailed lists, State by State, of the specific deficiencies of facilities for the provision of atmospheric measurements pertaining to surface wind, pressure, visibility/runway visual range, cloud base, temperature and dew point temperature considered critical for flight safety.	A	Continuing
2	Monitor the exchange of OPMET information through the AMBEX scheme in the AFI Region and amongst the AFI and ASIA/PACIFIC and EUR Regions	A	Continuing
3	Plan for the introduction of efficient inter-regional OPMET exchanges in coordination with the CNS Sub-Group, as required	B	Continuing
4	Monitor the degree of implementation of VSATs for the reception of WAFS products. (AFI/7 Recommendation 14/12)	B	Continuing
5	Monitor the quality of WAFS high significant weather charts in the AFI Region and provide feed back to London WAFC, as appropriate	B	Continuing
6	Monitor the implementation of regional procedures for the issuance of volcanic ash and tropical cyclone advisories (AFI/7 Recommendations 7/3 and 7 /4)	A	Continuing
7	Review, on a continuing basis, the contents of Tables MET 1A and 1B and Tables MET 2A and MET 2B to ensure their validity in light of operational requirements, and develop proposals to update them, if necessary.	B	Continuing
8	Review the meteorological procedures in the introductory text to Part VI – *Meteorology of the Basic AFI Regional Plan/FASID* (Doc 7474), as well as ~~M~~meteorological-related issues in other sections of the Plan and relevant regional supplementary Meteorology procedures (SUPPs) in Doc 7030, in the light of procedures employed in other regions and develop amendment proposals as appropriate, coordinating where necessary with other APIRG Sub-Groups.	A	Continuing
9	Monitor developments in the CNS/ATM systems with regard to meteorological requirements in the AFI Region and in coordination with the AFI ATM Sub-Group.	B	Continuing

No.	Task description	Priority	Target Date
10	Develop guidelines for the use of GRIB and BUFR codes in the AFI Region.	A	Continuing
11	Monitor the implementation in the AFI Region of quality assurance/performance relating to the MET field.	A	Continuing
12	Monitor training and qualification of aeronautical MET personnel	A	Continuing

Priority:

A High priority tasks on which work should be accelerated;

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

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

3. **Composition**

Algeria, Burkina Faso, Cameroon, Congo, Côte d'Ivoire, Egypt, Eritrea, Ethiopia, France, Gabon, The Gambia, Ghana, Guinea, Kenya, Madagascar, Malawi, Morocco, Niger, Nigeria, Senegal, South Africa, Spain, Tunisia, United Kingdom, Tanzania, Zambia, ASECNA, IATA and WMO.

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APPENDIX Z-C

TERMS OF REFERENCE, FUTURE WORK PROGRAMME AND COMPOSITION OF THE AFI GNSS IMPLEMENTATION TASK FORCE

1. **Terms of reference**:

Carry out studies on technical and institutional issues for the progressive implementation of GNSS in the AFI Region, in accordance with the AFI GNSS strategy.

2. **Work Programme**:

Item	Fescription	Responsibility	Target Date
1	Further develop~~ment of~~ the AFI GNSS strategy.		Ongoing
2	Define detailed system architecture to meet APV-I over continental AFI and adjacent islands, taking into account, as appropriate, developments in other regions; and perform an AFI SBAS APV-I definition and design phase, including: ▪ Definition of a programme organization ▪ Development and ~~I~~issue of detailed mission requirements (service levels). ▪ Definition of service area ▪ Preliminary system defiinition and design ▪ Issuance of system requirement document ▪ Preparation of a system development plan ▪ Initial trials/systems tests performed in order to support the design phase. ▪ For this purpose, the possibility of cooperation agreements with the EGNOS Operators and Infrastructure Group (EOIG) will be explored by the candidate AFI SBAS providers. ▪ In this context, an AFI GNSS pre-operational test bed will be implemented to validate the objectives, design parameters and algorithms for Phase II and III of the AFI GNSS strategy.	ESA	Q1 2006
3	Follow up on and assist with, if required, the trials on the test beds in zones A, B and C.	GNSS/TF	June 2006
4	Develop of action plan for implementation of the AFI SBAS.	ASECNA	Next Meeting
5	Identify and address as appropriate, all actions necessary, including funding contributions from AFI service Providers, legal and institutional aspects, for the timely implementation of the AFI GNSS strategy (AFI/7, Conclusion 10/6 d))	South Africa* (ASECNA)	Next Meeting

Item	Fescription	Responsibility	Target Date
6	Provide cost-benefit analysis for operational SBAS system.	ASECNA* (ESA, IATA)	Next Meeting
7	Undertake simulations, planning and identification of sites for RIMS of the operational SBAS system.	ESA	February 2006
8	Review the report of the COM Working Group.	GNSS/TF	Next Meeting
9	Review, in due course, the requirements for the implementation of GBAS at identified locations, in accordance with the AFI GNSS strategy.		To de determined

* Main responsibility

3. **Composition**:

Algeria, Cameroon, Egypt, France, Ghana, Kenya, Nigeria, Senegal, South Africa, Sudan, Tunisia, ASECNA, ESA, IATA, ICAO

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