INTERNATIONAL CIVIL AVIATION ORGANIZATION

First Meeting of APIRG Infrastructure and Information Management Sub Group (IIM/SG/1)
(Nairobi, Kenya, 27-30 June 2017)

4.3 Aeronautical Communication Navigation Surveillance and Spectrum Infrastructure and Systems

4.3.1 Aeronautical Communication requirements in support to ATM, AIM & MET services provision

AFI aeronautical communication requirements and deficiencies

(Presented by Secretariat)

SUMMARY
This paper presents the Aeronautical Communication requirements in support to ATM, AIM & MET services provision. **Action by the meeting is at paragraph 3**:
REFRENCE(S): ▪ Doc 9750, *Global Air Navigation Plan* ▪ Doc 7474, *Air Navigation Plan — Africa-Indian Ocean Region* ▪ Report of AFI/RAN 7th meeting ▪ Report of Sp AFI/RAN 8 Meeting ▪ Report on APIRG Meetings ▪ Report on the meeting for the establishment of the APIRG IIM Sub Group.
Related ICAO Strategic Objective(s): A – *Safety,* **B** – *Air Navigation Capacity and Efficiency, **D** – Economic Development of Air Transport, and **E** – Environmental Protection.* **Related ASBU KPIs & B0 Modules:** All applicable to AIM, CNS and MET

1. INTRODUCTION

1.1 The Regional Air Navigation meetings in the AFI region in particular LIM AFI (COM RAC MET, Lomé 1988), 7th Meeting of the AFI/RAN have defined the communication requirements in support to Air Traffic Management, Aeronautical Information Service (AIS) and Aeronautical Meteorological Service.

1.2 The APIRG meetings held generally every 18 months regularly reviews the status of implementation of the Air Navigation Plan in the area of communication, identifies deficiencies related to aeronautical communication and accordingly updates the regional communication strategy with regards to the ATM new requirements.

2 DISCUSSION

2.1 The Aeronautical Communication requirements in support to Air Traffic Management defined by the AFI Regional Air Navigation 7th meeting (Abuja, Nigeria, 12-23 May 1997) were discussed in detail and the AFI Regional Plan. Operational and technical needs and performance were identified for Aeronautical Fixed and Mobile Services

2.2 Aeronautical Fixed Service (AFS)

2.2.1 Aeronautical Fixed Telecommunication Network (AFTN)

The desired AFTN Performances were considered under the following Recommendations:

a) Recommendation 9/3-AFTN Efficiency;
b) Recommendation 9/4-AFTN Performance;
c) Recommendation 9/5-Management of AFTN COM Centers;
d) Recommendation 9/6-Use of Control Protocols between AFTN main centers.

The rationalized AFI AFTN Plan and chart were adopted by Recommendation 9/7-AFTN rationalized plan

The operation of a robust AFTN aims to ensure a reliable transmission of Flight Plans for ATM operation, the Exchange of various Aeronautical Meteorological data (OPMETs) through the AFI Meteorological Bulletins Exchange (AMBEX) system, NOTAMs and Administrative messages.
The regional requirement for MET and AIS data communication were identified under the agenda item 8 and 12

2.2.2 Air Traffic Service/Direct Speech (ATS/DS)

The meeting updated the AFI Plan for ATS/DS and called upon for a wide usage of VSAT technology in order to ensure direct point to point for coordination notification and transfer operations between adjacent ACCs. For this purpose, Recommendation 9/8-Implementation of the ATS/DS circuits Plan called upon for a wide usage of the VSAT technology to support. The ATS/DS Plan was adopted under Recommendation 9/9-ATS/DS Circuits Plan.

2.3 Aeronautical Mobile Service (AMS)

2.3.1 Criteria for En-Route Communication

The AFI/RAN 7th meeting revised the En-Route Air Ground communication Plan in line with the following criteria and principles:

1) VHF communication sustained with long range facilities where needed, should be used to cover ATS routes as possible;
2) Where full VHF coverage is ensured, radiotelephony needs HF (RTF) should be withdrawn;
3) If full VHF coverage is not possible or cannot be guaranteed at any time, HF RTF communication should be ensured

2.3.2 Criteria for Terminal Area Communication

The criteria for the provision of communication for Terminal Area is stated as follow:

1) VHF RTF radiotelephony should be the main communication mean
2) VHF Frequencies should be assigned in accordance with the principles contained in Annex X.

2.3.3 VOLMET HF &VHF and ATIS

AFI/RAN 7 also identified and planned the needs for the transmission of VOLMET HF and VHF, OFIS and ATIS

2.4 Aeronautical evolving communication technologies and Systems

Further to this regional framework, the various meetings of the AFI Planning and Implementation Regional Group (APIRG) continuously refine the AFI communication strategy by considering new technologies and systems. In the framework of the CNS technology roadmap for the implementation of the modules of the ICAO Aviation System Blocks Upgrades (ASBU) new requirements have been identified taking into consideration the emerging digitalized technologies.

2.4.1 Aeronautical Fixed Service (AFS)

In the area of Aeronautical Fixed Service (AFS) the current character oriented protocols in use in AFTN will be replaced by the digitalized oriented protocol by ATS Message Handling System (AMHS). ATS/DS will be supplemented then replaced by the ATS Inter facilities data communication (AIDC) enabling automation of coordination.
Aeronautical Meteorology and Aeronautical Information Service data Exchanges evolving towards the System Wide Information Management (**SWIM**) are demanding more capacity and require more compliance for time sensitive operation.

2.4.2 Aeronautical Mobile Service (AMS)

The Controller Pilot Data Link Communication (CPDLC) operation is made available and has become the main Air/Ground communication media over oceanic or remote continental airspaces resulting in an increase of air navigation safety, capacity efficiency and cost effective operations.
The data link communication is planned to be hosted by HF and VHF systems in order to sustain a robust air ground communication in accordance with the concept of Required Communication Performance stated in ICAO Doc. 9869 Manual on Performance Based communication and Surveillance-PBCS.

2.5 Aeronautical communication deficiencies in the AFI Region

2.5.1 APIRG Sub Groups regularly assesses communication deficiencies and APIRG invites Administration/Organizations to clear out these deficiencies within an agreed timeframe.
2.5.2 Based on information available the tables of deficiencies in the communication field attached at Appendices 1, 2 and 3 have been developed.

3 ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Take note of the information presented in this working paper, recalling the communication requirement to support the provision of ATM AIM and;

b) Identify additional requirements to be considered by the APIRG IIM Sub/Group ;

c) Update the attached tables of AFI Aeronautical COM deficiencies;

d) Agree on further planning and implementation actions to be conducted.

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