INTERNATIONAL CIVIL AVIATION ORGANIZATION
EASTERN AND SOUTHERN AFRICAN OFFICE

DP/ XXXXXX

Air Traffic Management Coordination Meeting for Southern AFI Flight Information Regions (ATM/CM-SAF)
(Johannesburg, South Africa, 3-5 February 2015)

Agenda Item 2. ATM Coordination Issues

> **2.1. ATS/DS Circuits**
> **2.2. VHF-ER & HF Communications**
> **2.3. AFTN/AMHS**
> **2.4. ADS/C - CPDLC**

(Presented by ANGOLA/ANSP))

Summary
This Discussion Paper (DP) provides a brief summary of ongoing CNS/ATM implementation projects undertaken by Angola to improve safety in Luanda FIR and the status of mobile and fixed communications within Luanda ATS units **Ref**: ICAO AFI Air Navigation Plan (Doc.7474/27)   APIRG/19 (Concl./Rec. & Decisions)

1. INTRODUCTION

Pursuant to the ICAO policy regarding the identification and elimination of deficiencies in their respective airspaces concerned, states are urge to implement the CNS requirements in order to support ATM.

In lieu to this purpose and as result of some identified deficiencies, the Angola Government approved a national programme to enhance and provide reliable, safe and continuous air navigation services through the implementation of some CNS requirements, operational ATM solutions and conduct a steady transition plan from AIS to AIM services.

2. DISCUSSION

Paragraphs below provides an overview on the implementation and operational status of fixed and mobile communication in Luanda FIR in order to contribute for the enhancement of

Below are the implementation and operational status of mobile and fixed communication requirements within Luanda airspace to sustain ATS coordination with adjacent ATS units.

2.1. FIXED COMMUNICATIONS

2.1.1. ATS/DS Circuits

Table COM 1A from ICAO Do 7474 (AFI/Air Navigation Plan) indicates the required ATS/DS links that Luanda should implement. Currently Luanda is connected through SADC VSTA Network system with all neighboring SADC States members according to the ICAO AFI Plan recommendation.

The ongoing CNS project will allow the link between Luanda with ASECNA states members (Brazzaville; Accra; Abidjan and Dakar) and Recife using CAFSAT network system.

Meanwhile an Inmarsat phone and dial-up telephone line are in use to provide these links until implementation of CAFSAT network system in Luanda.

Below the last recorded ATS/DS Circuit performance statistics:

Circuits /Link ATS	Type of System	Serviceability (%)	Remarks
FNLU/FAJO	VSAT	100	
FNLU/FBGR	VSAT	100	
FNLU/FCCC	VSAT	U/S	**
FNLU/FYWH	VSAT	100	
FNLU/FLFI	VSAT	100	
FNLU/FZZA	VSAT	100	
FNLU/DGAC	None	95	*
FNLU/GOOO	None	95	*
FNLU/DIAP	None	95	
FNLU/SBAO	None	95	*

* Using INMARSAT as backup Under CAFSAT implementation plan
** Currently the link is unserviceable. ATS coordination is done by INAMARSAT and dial up telephone

2.1.2. AFTN/AMHS Circuits

According to the Table COM. 1 of the AFI/Air Navigation Plan (Doc. 7474/27), Luanda FIR is a tributary centre of Brazzaville. Currently this link still not available due to lack of VSAT connectivity between Luanda and Brazzaville.

The migration from AFTN to the AMHS system was achieved in 2011. The system still not fully operational due to some technical reasons. Efforts are in progress to bring the system functionality according to the requirements and a plan is in progress to implement the CAFAST network system in Luanda to allow the connectivity Luanda/Brazzaville.

ICAO also requires states to record and exchange statistical information pertaining to the serviceability of its AFTN communications circuits. In this regards see below the latest AMHS circuit's performance that are also communicated with ICAO ESAF.

No	SADC VSAT / CIRCUIT	CIRCUIT AVAILABILITY (%)			REMARKS
		October	November	December	
1	Luanda – Johannesburg	99.45	99.87	100.00	
2	Luanda – Brazzaville	99.56	99.80	100.00	
3	Luanda – Accra	98.85	99.64	99.91	

2.2. MOBILE COMMUNICATIONS

2.2.1. VHF-ER Communications

The existing remote VSAT network system that provides two-way air-to-ground VHF communication experienced some technical problems last year. Efforts were made to overcome identified deficiencies with implementation of technical solutions. Technical tests are ongoing to access the integrity of the system. When completed 90 days operational testes shall be carry out supported by NOTAM.

2.2.2. HF Communications

Luanda ATS units provides also two-way HF radio communications services to the airlines using allocated ICAO HF radio band frequencies.

Last year started facing some problems with low quality of HF voice radio communications due to technical problems in the HF communications network system that were affected by the heavy rain occurred in Angola and aircraft started encountering problems to establish two-way (air to ground) HF radio communications with Luanda ATS units in some positions and period of the time while inside Luanda airspace.

Technical actions were taken in order to increase the reliability and quality of the HF voice communications and minimize the impact in the safety to the airlines, through installation of a standalone HF communication system.

Nevertheless airlines were notified to continue reporting their positions in blind with Luanda Flight Information Centre, on the published HF frequencies and also pursue to continue using the in-flight radio broadcast communication procedures in place for AFI Region.

Currently the availability of the system is above 75% but there are ongoing plans to replace the full system.

3. ADS-C/CPDLC

It was realized that 90% of the traffic that operate in the Oceanic Sector are ADS capable and HF communications were not suitable to continue providing reliable ATS services to the airlines due to interference and weather factors.

Take this into consideration and even before the technical shortcoming occurred with HF communications system, Angola installed an ADS-C/CPDLC system for the Oceanic airspace which was completed last year.

Currently the system still on trails but so far the feedback received from the airlines trough IATA is positive however; trails phase still continuing in order to complete readiness of the system and all the legislation concerning the publication of an AIC related to the operation of ADS in Luanda Oceanic airspace.

4. ONGOING CNS/ATM PROJECTS

4.1. Short and Medium Term planned Actions – Within 12 months period

- Delivery and integration of new HF transmitters, which will result as the definitive solution to the HF system;
- Integration and consolidation of the VHF-ER/VSAT/VCCS systems;
- Promote the stabilization and robustness of electric power systems in the remote stations, by expanding the solar panels capacity and replacing the batteries system;
- Installation of new VSAT terminals across the Country in order to provide data communications between Luanda ACC and the majority of the airports in Angola;

4.2. Long Term planned Actions – After 12 months

- Implementation of an operational ATM system which will integrate all future systems;
- Installation of MSSR Radar system in Luanda TMA and continental upper airspace;
- Implementation of MLAT stations to enhance surveillance coverage in the continental airspace;
- Implementation of additional VOR/DME and ILS/DME;

5. CONCLUSIONS

The meeting is invited to:

- Take note on the implementation and operational status of fixed and mobile communications within Luanda FIR;

- To take note on the ongoing efforts being made by Angola trough the implementation of some CNS/ATM projects for Luanda FIR to increase safety and ATM efficiency across of the Region