



**Twenty First Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group  
(APIRG/21)  
(Nairobi, Kenya, 9 – 11 October 2017)**

**Agenda Item 3: Performance Framework for Regional Air Navigation Planning and  
Implementation**

**2.4. Revision of air navigation performance targets set by the APIRG20 meeting**

***PERFORMANCE OF AERONAUTICAL MOBILE SERVICE***

[Presented by ASECNA]

<b>SUMMARY</b>	
This working paper presents the status of the air/ground communications implementation including the results of the AMS survey conducted from 08th to 22nd February in ASECNA FIRs, in coordination with IATA.	
<b>Strategic Objectives</b>	This Working Paper is related to Strategic Objectives: A, B & E
<b>References</b>	LIM AFI Recommendation 10/8 AFI RAN /7 recommendation 5/2 and conclusion 9/2 APIRG 16 decision 16/19 and conclusion 16/20

**1. INTRODUCTION**

1.1 In accordance with LIM AFI Recommendation 10/8 and AFI RAN /7 Recommendation 9/2, ASECNA has experimented successfully in 1997, its first remote VHF aeronautical air/ground Communication using VSAT with the operational implementation of remote VHF station in Tambacounda, in Dakar FIR and has continued to extend, enhance and densify the VHF coverage, in the various FIRs under its management. Since 2008, the Controller Pilot Data Link Communications (CPDLC) were progressively implemented in all the FIRs in support to VHF and HF communications to improve the air/ground communications.

1.2 Within the framework of the continuous evaluation and improvement of the aeronautical mobile service, joint surveys are regularly conducted with IATA in accordance to APIRG/16 meeting, decision 16/19 and conclusion 16/20. The last VHF-HF-CPDLC survey was conducted from 08<sup>th</sup> to 22 February, 2017 and ASECNA took part in it. The results of this survey are presented in appendix below for a common analysis with the users.

## 2. DISCUSSIONS

2.1 The status of the VHF coverage in ASECNA FIRs is presented at Appendix A to this working paper. More than 60 Remote VHF air/ground communications stations provide a very good coverage of most of the FIRs. However, due to socio-political situation, the Remote VHF air/ground Communications Stations of **Tombouctou, Gao, Kidal, Tessalit (Mali) and Bria (Central African Republic)** were unserviceable during the survey, which affected the results of the survey.

2.2 The HF used as backup mean to VHF and CPDLC in remote area (oceanic and continental) and the ADS-C/CPDLC used as main mean in the oceanic area allow to ensure the continuity of service and provide get a global good availability of aeronautical mobile service.

2.3 Seventeen (17) centers took part in the survey (Abidjan, Antananarivo, Bamako, Bangui, Brazzaville, Cotonou, Dakar, Douala, Lomé, Malabo, Moroni, N'Djamena, Niamey, Nouakchott, Ouagadougou, Libreville et Bissau. **8418 communications** were exchanged between controllers and pilots and distributed according to the figures below.  
**CPDLC is increasing in all the FIRs (increasing of airlines equipped); the use of HF is decreasing but still remains the only mean used in both desert and ocean in the centers not yet equipped CPDLC.**

2.4. Recorded performances:

2.4.1 Regarding the VHF coverage availability, it can be noted:

- a continuous improvement of VHF radio communications in the whole of the FIRs;
- a quality of communications with an average level ranging between 4 and 5;
- lack of coverage due to area located at boundaries of FIR; and
- coverage to be improved at some way points as GATLA, UVGAD, ONUDA, KAFIA, EDGUM, ETC.

2.4.2 The improvement of these critical points has been taken into account in the densification and extension of VHF coverage project to be implemented before 2017 (Cf the table below)

2.4.3 Regarding the HF communications we note:

- a reduction in the use of the HF; and
- quality of communications with an average level from 3 to 5 when the frequencies are operated adequately.

2.4.4 In accordance with recommendation 6/20 special meeting SP AFI/RAN/08 of ICAO, ASECNA centers are equipped with HF frequencies forecast software.

2.4.5 With regard to CPDLC the following can be noted:

- an increase of the use of CPDLC in line with the increase of the aircrafts equipped (60% in Dakar FIR and 25% FIR TANA).
- CPDLC transactions are globally satisfactory with quality at 7 in majority,

2.5 Projects in the VHF field, including extension and densification of the coverage as well as in the field of ADS-C/CPDLC are planned for years 2014-2017 and will significantly improve the VHF coverage in the FIRs managed by ASECNA. In the same way, additional ADS-C/CPDLC projects are **ongoing in eleven (11) centers, to improve the aeronautical mobile service.** (See table below)

<b>FIR</b>	<b>Nb of Remote VHF</b>	<b>VHF coverage rate in 2015</b>	<b>New Remote VHF In progress (before end of 2017)</b>	<b>Remarks</b>
<b>Antananarivo</b>	09	78.63%	<b>03</b>	Coverage of the East part
<b>Brazzaville</b>	08	98.56%	<b>08</b>	Densification of VHF coverage
<b>Dakar</b>	11	98.09%	<b>03</b>	Coverage of the north and East part
<b>Niamey</b>	09	97.74%	<b>03</b>	Coverage of the North East part
<b>N'Djamena</b>	10	94.39%	<b>03</b>	Coverage of the North and North East part

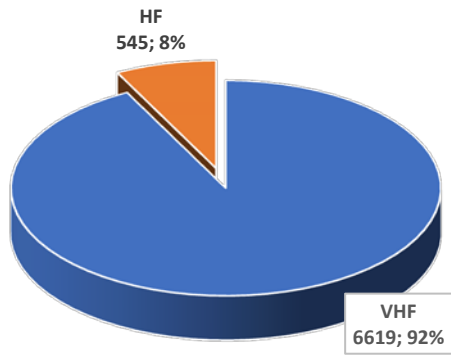
### **3. ACTION BY THE MEETING**

The meeting is invited to:

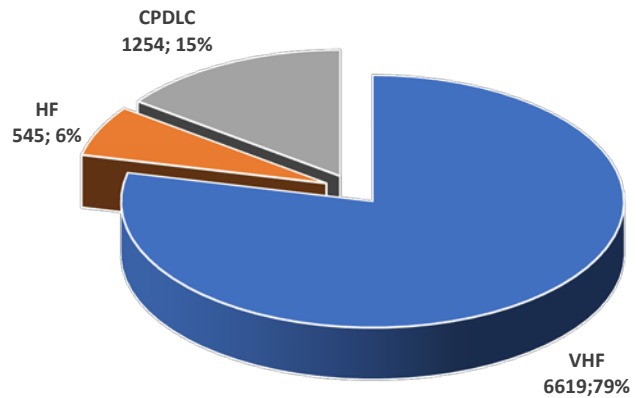
- Take note of the information provided in the working paper; and encourage ASECNA for the continuous efforts in the improvement of the air navigation services.
- Encourage States and/or Organizations to propose and develop mechanisms of cooperation for the improvement of the aeronautical mobile service in the AFI Region.
- Encourage airlines to take appropriate measures to equip aircrafts with ADS-C and CPDLC. This will enhance the level of safety in AFI Region.
- Encourage IATA and ASECNA to conduct regular surveys airlines on the ADS-C/CPDLC performances.

Results of AMS survey

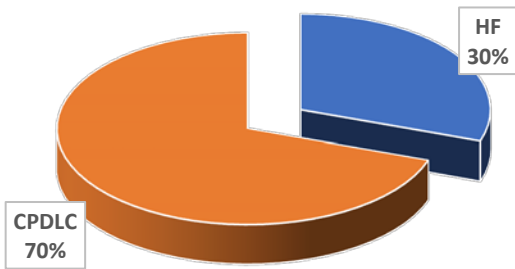
Distribution Exchange between Pilots and Controllers according to the main used (VHF-HF) during 2017 Investigation



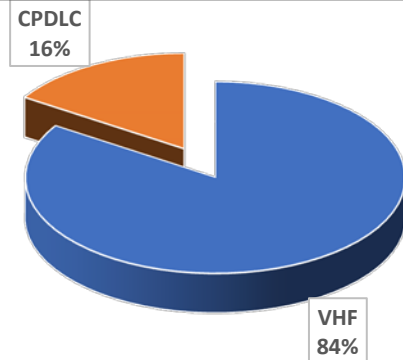
Distribution Exchange between Pilots and Controllers according to the main used (VHJF-HF-CPDLC) during 2017 investigation



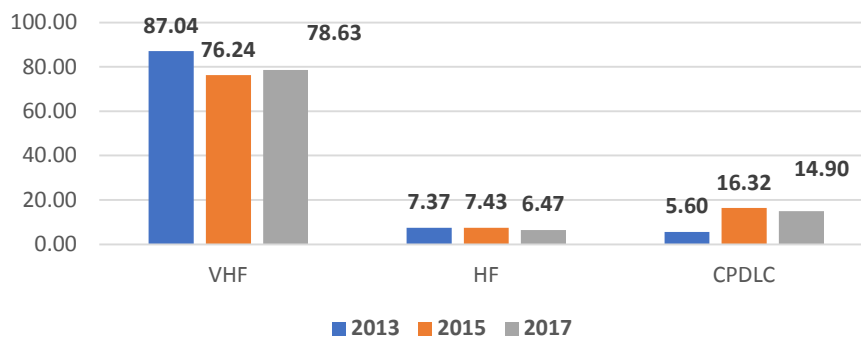
Distribution exchange between Pilotes and controllers according to the main used (HF,CPDLC) during 2017 investigation



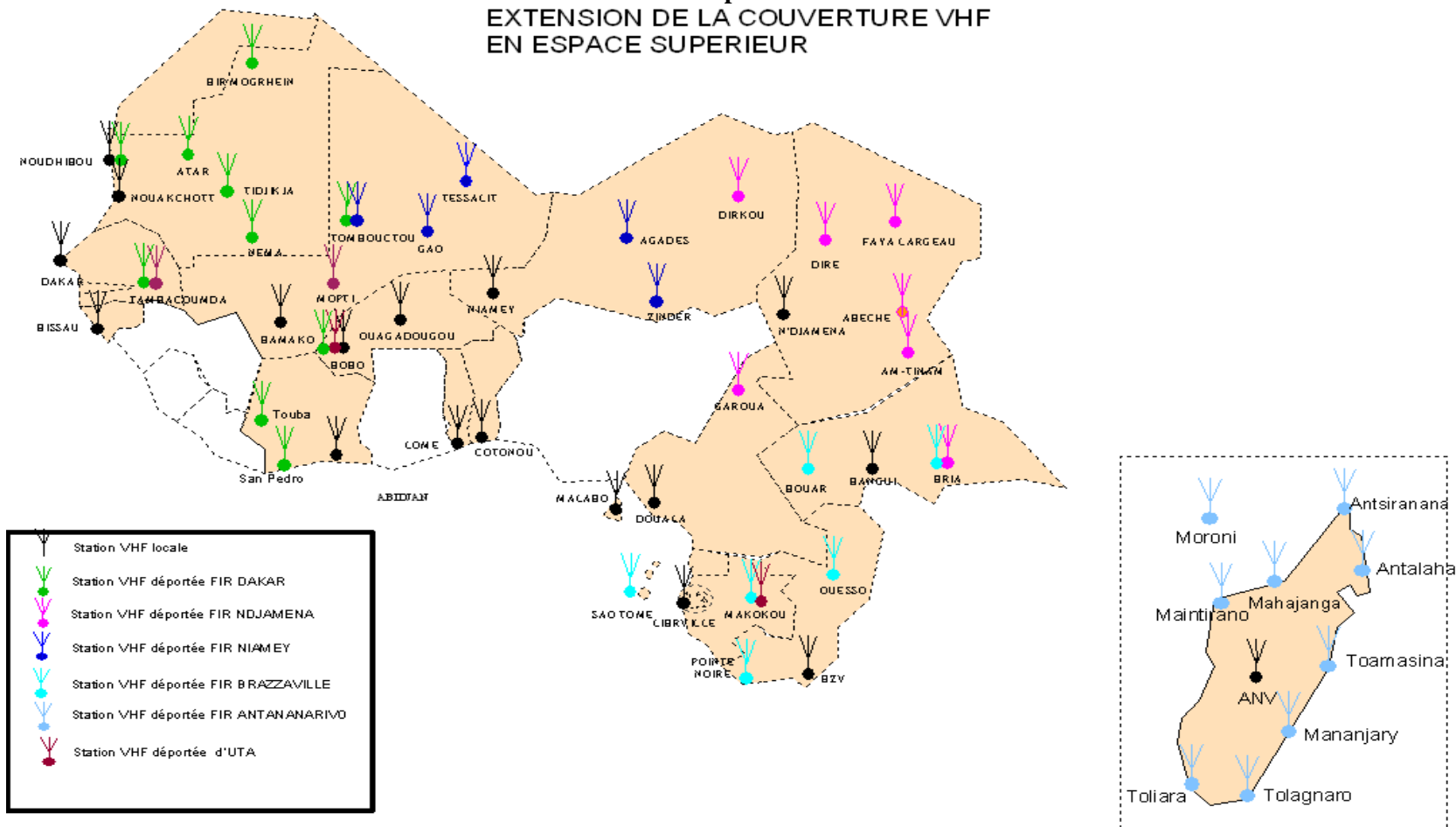
Distribution exchange between Pilotes and controllers according to the main used (VHF,CPDLC) during 2017 investigation



Distribution Exchange between pilots and Controllers according to the main used (VHF-HF-CPDLC) during 2013/2015/2017 surveys



**Extended VHF implementation status**  
**EXTENSION DE LA COUVERTURE VHF EN ESPACE SUPERIEUR**



**FIN.**