



**INTERNATIONAL CIVIL AVIATION ORGANIZATION  
AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP  
NINETEENTH MEETING (APIRG/19)  
Dakar, Senegal (28 – 31 October 2013)**

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

**3.4 Communications, Navigation and Surveillance (CNS)**

**VHF/HF/CPDLC SURVEY, 08-29 July 2013**

*(Presented by ASECNA)*

<b>SUMMARY</b>	
This working paper presents the results of the of the air/ground communications survey conducted from 08 to 29 July, 2013 in ASECNA FIRs, in coordination with IATA.	
<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	
<i>Strategic Objective(s)</i>	This Working Paper is related to Strategic Objectives: A, B & E

**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. From 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 to 29 July, 2013 and ASECNA took part in it. The results of this survey are presented below for a common analysis with the users.

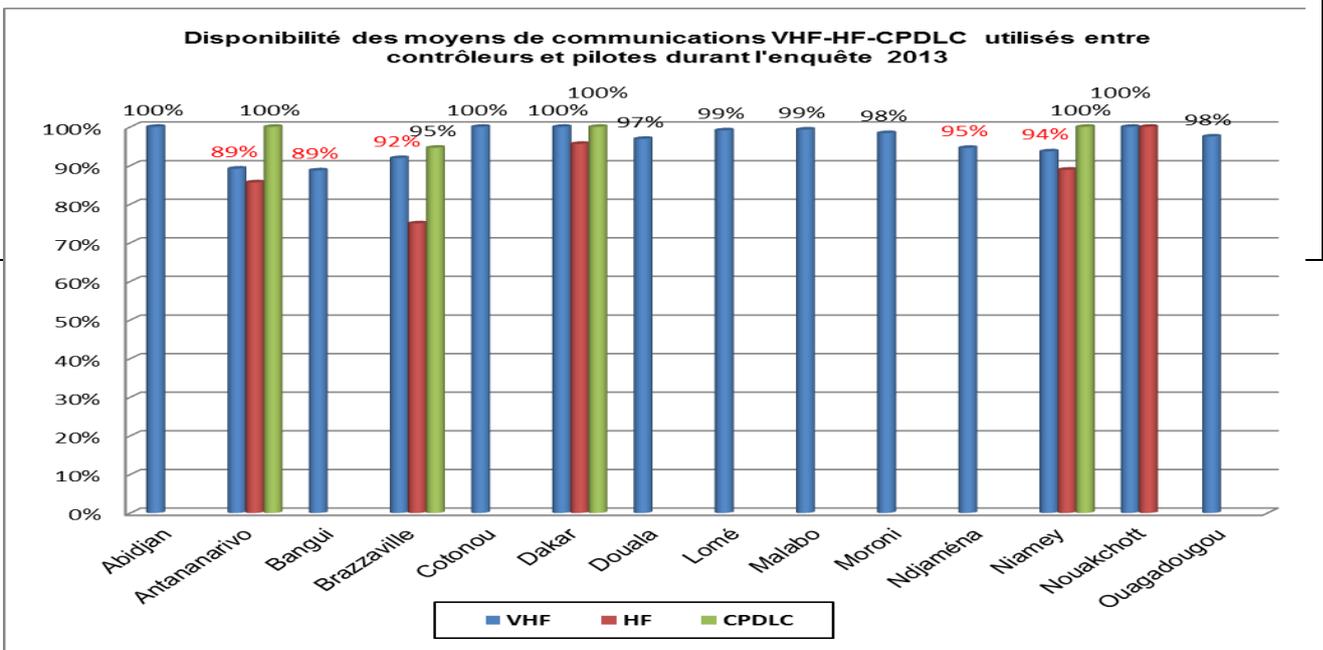
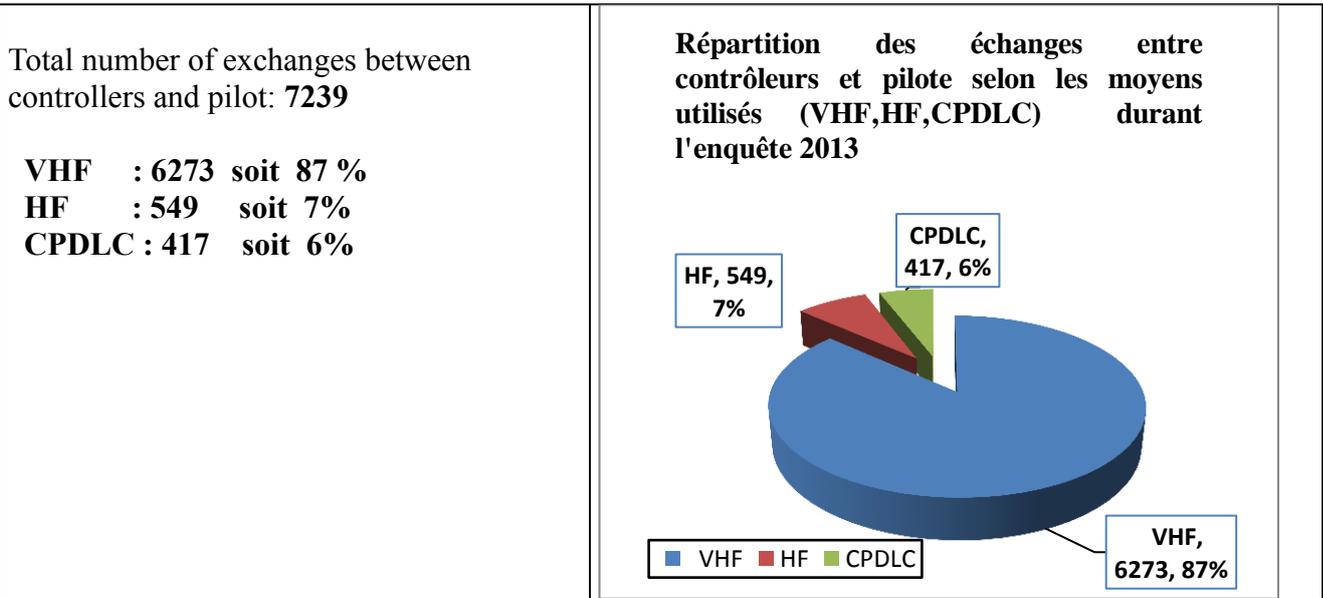
**DISCUSSIONS**

2.1 The status of the VHF coverage in ASECNA FIRs is presented at **Appendix A** to this working paper. More than 56 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 Timbuktu, Gao, Kidal, Tessalit (in Mali) and Bria (in 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 Fourteen (14) centers out of seventeen (17) took part in the survey (Abidjan, Antananarivo, Bangui, Brazzaville, Cotonou, Dakar, Douala, Lomé, Malabo, Moroni, N'Djamena, Niamey, Nouakchott and Ouagadougou). **7239 communication** were exchanged between controllers and pilots and distributed according to the figure 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.

2.4.1 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, UVGADm

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 in 2014-2015. However, interferences from FM stations are still a concern for several centers.

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,

2.4.6 Some ACARS links dysfunctions affected to a lesser extent the quality of service. However, continuous monitoring allowed mitigating the impact.

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 2014-2015 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.

## **2. ACTION BY THE MEETING**

3.1 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.

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# Appendix B

APIRG/19 – IP/16  
24/10/2013  
ANNEE 2012

## DEPORTS VHF DANS LES FIRS ASECNA

