



ICAO

**Twenty Second Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/22)
(Accra, Ghana, 29 July – 02 August 2019)**

Agenda Item 4.1: Regional Air Navigation Deficiencies

AERONAUTICAL MOBILE COMMUNICATION SURVEY REPORT 2018

(Presented by IATA)

SUMMARY
<p>This paper presents the report on the last Aeronautical Mobile Communication survey in the AFI conducted by IATA from 8th to 22nd October 2018 that aims to:</p> <ul style="list-style-type: none"> • Determine the coverage and the quality of aeronautical mobile communication i.e. VHF/HF and CPDLC/SATCOM service provisions • Identify deficiencies and develop corrective action plans to be addressed with concerned States/ANSPs (adopt the corrective action plan template attached as Appendix XX) • Continue Efforts to address persistent challenges involving air-ground communications • Support improvement of aeronautical mobile communication and the protection of the aviation frequency spectrum • Support improvement of quality and timely provision of ground-to ground services in particular AIDC to complement the improvements in air-ground communications
<p>REFERENCE(S):</p> <ul style="list-style-type: none"> • Doc 8991 Manual on Air Traffic Forecast • Doc 9750 Global Air Navigation Plan 2016-2030 • APIRG Procedural Handbook • APIRG Decision 16/20 and Conc. 16/21
<p>Related ICAO Strategic Objective(s): A: Safety; B: Air Navigation Capacity and efficiency.</p>

1. INTRODUCTION

1.1 IATA conducts Aeronautical Mobile Communications surveys in the AFI region every 18 months with an objective to determine real VHF/HF coverage and the quality of CPDLC service provision within the region, in order to identify deficiencies and arrive at corrective action plans to address them, in coordination with States and Air Navigation Service Providers (ANSPs).

1.2 The last survey was done on the 2nd February to 22nd 2017 was presented to the Twenty First Meeting of the AFI Planning and Implementation Group (APIRG/21) in October 2017. The meeting commended IATA for its continued support to the assessment of air-ground communications performance in the AFI Region.

1.3 The present document provides an analysis of the data collected during the IATA survey of AFI Air/Ground VHF, HF and CPDLC communications performance and quality of Air Traffic Services from 8th to 22nd October 2018.

1.4 **Airline participation:** The following airlines: Air France (AFR), British Airways (BAW), Delta Air Lines (DAL), KLM Royal Dutch Airlines (KLM), Lufthansa (DLH) and Qatar Airways (QTR), Kenya Airways (KQA), South African Airways (SAA), Flydubai (FDB), Linhas Aéreas de Moçambique (LAM) and Etihad Airways (ETD); provided data representing 659 communication reports on 33 ATS units. The data covers most of the AFI Region.

1.5 **States/Air Traffic Services Units participation:** Only the ATS Unit of Botswana, Seychelles, Uganda, Kenya and ASECNA States participated in the survey. It is commendable that some States have consistently participated and shared their survey results with IATA as required by APIRG 16 Conclusion 16/21 over the years- ‘that States cooperate and provide their support to VHF coverage survey to be carried out by IATA in the AFI Region’.

2. DISCUSSION

2.1 The distribution of the survey data is as depicted in the chart below. VHF represented 91% (against 72% during the last survey) of the data received from airlines while HF represented 9% (against 28% during the last survey) (Fig 1). This may not represent the distribution of usage of VHF compared to HF in the AFI Region. The data received from the flight crew seemed biased to certain areas of the AFI Region where they perceived there were communications challenges. This could explain the low number of data points.

2.2 VHF as well as HF communication coverage is still a challenge in many parts of the AFI Region. The results from the survey show deficiencies across the continent, even in some of the FIRs with no history of endemic communication issues. Some of these FIRs are Addis Ababa, Lusaka and to some extent Dar FIR albeit only at specific point. Other FIRs like Kinshasa, Luanda and Kano have had their fair share of challenges over the years. N’djamena and Niamey showed a slight reduction in level of VHF success rate indicating how challenging the provision of air-ground communication in AFI Region can be as a result of the vastness of remote areas in the continent and the consequent challenges to maintain the remote VHF stations. These challenges have been mitigated by the implementation of CPDLC for example, in Niamey and N’djamena. CPDLC could well be the solution to the challenges in continental Luanda FIR and Kinshasa FIR. Both FIRs concern should benchmark with successes in the other FIRs.

2.3 Although in some cases the data from the survey was not adequate enough for use for inferential purposes, the results of survey provided vital information which has been published for reference and to encourage further investigation and resolution. This is where it was envisaged that data from States/FIRs would provide a platform that will determine correlation or otherwise. Below are a series of maps indicating performance in the Readability, Congestion and Radio status of the VHF/HF coverage in the continent based on the survey results (Fig. 1-3).

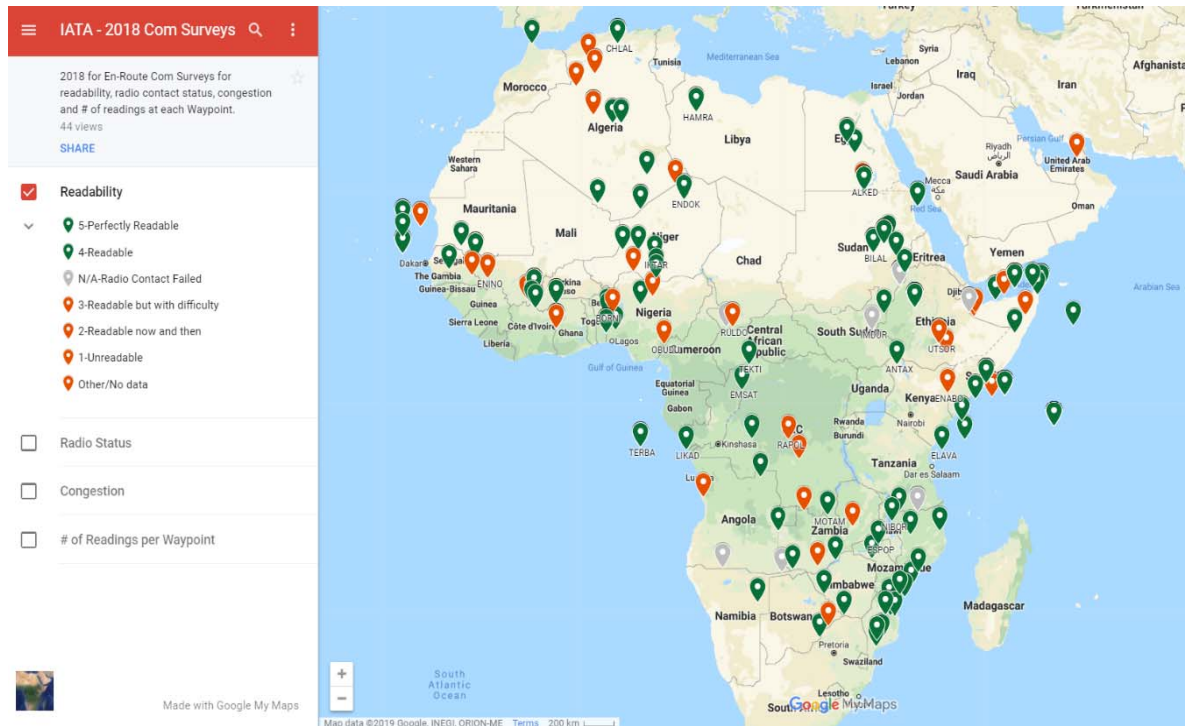


Fig 1: Survey Report 2018 -Readability (Africa)

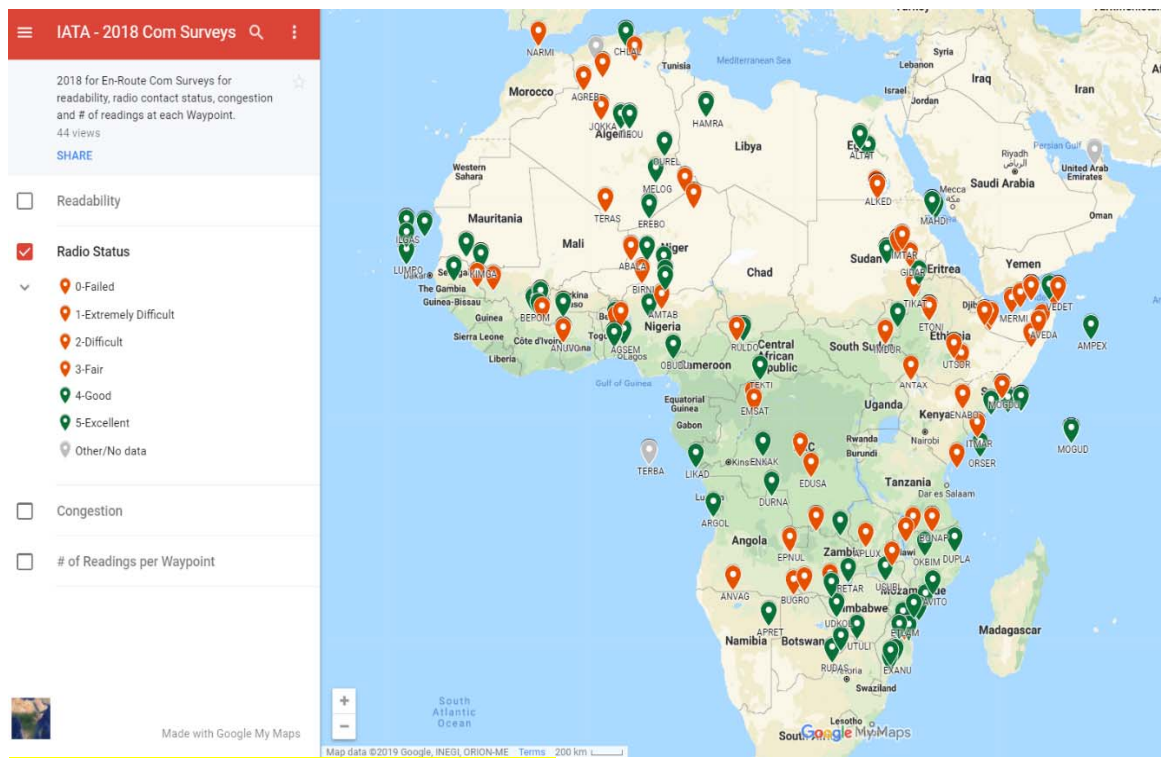


Fig 2: Survey Report 2018 -Radio Status (Africa)

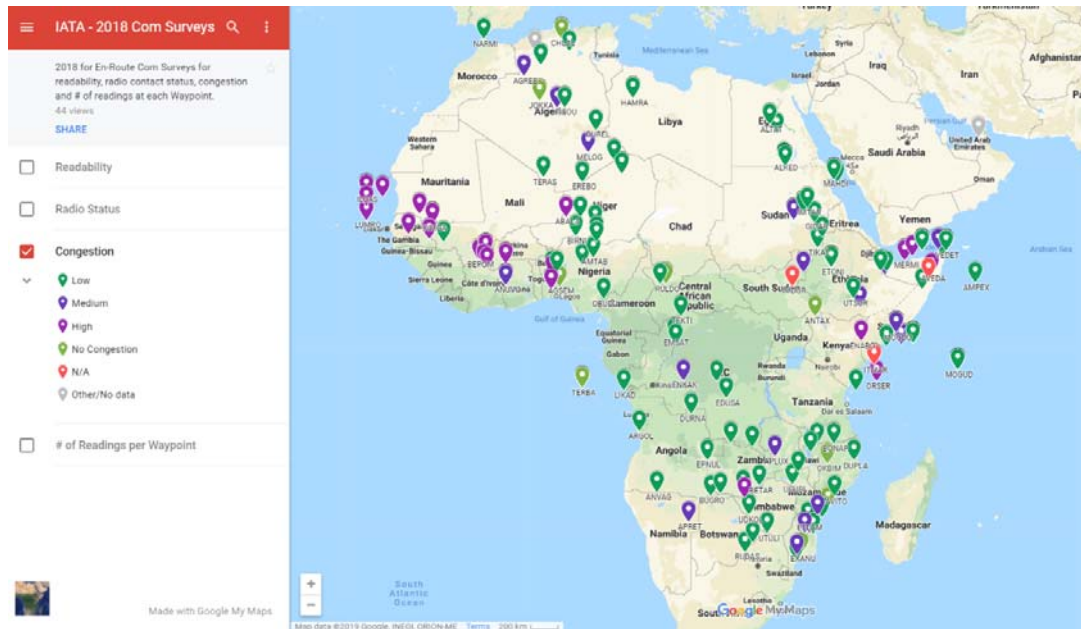


Fig 3: Survey Report 2018 -Congestion (Africa)

2.4 Notes: Successful communication or VHF/HF success rate is described in this survey as:

- Radio Contact Status:
 - 0 – Failed
 - 1 – Extremely difficult
 - 2 – Difficult
 - 3 – Fair
 - 4 – Good
 - 5 – Excellent
 - N/A (when the radio contact failed)
- Readability
 - 1 – Unreadable
 - 2 – Readable now and then
 - 3 – Readable but with difficulty
 - 4 – Readable
 - 5 – Perfectly readable
 - N/A (when the radio contact failed)
- Congestion
 - N/A
 - High
 - Medium
 - Low
 - No Congestion

The tear-drop positions do not necessarily represent single datapoints but a cluster of datapoints. The positions therefore are a representation of deficiencies in communications at the particular geographical areas shown in the maps.

The three parameters namely, Radio Contact Status, Readability and Congestion are based on pilot assessment and therefore may be subjective and relative. However, this is the view of the customer and must be taken as so, a valuable feedback of the quality of service from the customer perspective.

2.5 A detailed analysis of the results by FIR is provided in the Survey Report distributed to the States (**Results of the AFI VHF and HF Communications Survey – 2018**)

In line with the survey results presented above, IATA recommends;

- a) That each State to develop a root cause analysis approach to resolving the reported deficiencies and document a corrective action plan to mitigate and address the identified issues contributing to the deficiencies (Appendix XX).
- b) That States should include the deficiencies in the AFI Air Navigation Deficiency Database (AANDD) based on the final APIRG Report for tracking purposes.
- c) That States provide ICAO and users with the corrective action plans which IATA will review periodically through focused survey on individual States or group of States to establish that the corrective action plans have been implemented. States will only be able to remove the deficiency from the AANDD upon the completion of the focused survey and concurrence of ICAO and IATA, representing users.
- d) That the focused surveys would be reported at APIRG and will replace the periodic survey carried out every 18 months as per APIRG Conclusion 16/20 and 16/21.

3 ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Note the results provided; and
- b) Consider the IATA recommendations mentioned in paragraph 2.5 items a) to d) of this WP as a pragmatic approach that will significantly improve the provision of aeronautical mobile communication service within the AFI Region

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