

AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP (APIRG)



INFRASTRUCTURE & INFORMATION (IIM) SUB-GROUP AIR / GROUND COMMUNICATION PROJECT 3

QUESTIONNAIRE

Version 1.0

STATE CONTACT NAME	
CONTACT DETAILS (Name and email)	

1. PURPOSE

The purpose of the questionnaire document is to collect data to determine the implementation status of Aeronautical Mobile Service (AMS) through VHF voice, HF voice, VHF Datalink (VDL), HFDL, CPDLC and SATCOM in various AFI states. The collected data shall assist the project team to formulate the relevant recommendations regarding the implementation status of Aeronautical Mobile Service.

The survey will focus on the following as minimum metrics indicated below:

- 1.1 The number of routes covered by VHF voice, HF voice, VHF Datalink (VDL), HF Data Link (HFDL), CPDLC and SATCOM (Implementation status),
- 1.2 The VHF voice, HF voice, VHF Datalink (VDL), HF Data Link (HFDL), CPDLC and SATCOM equipment type, i.e life span, frequency, location, etc and
- 1.3 The VHF voice, HF voice, VHF Datalink (VDL), HF Data Link (HFDL), CPDLC and SATCOM site locations, etc.

2. PROJECT OBJECTIVE

In the framework of the technologies Roadmap for Communication defined in the GANP and the AFI strategy assist States in the implementation of Aeronautical Mobile Service through:

- a) High Frequency/Very High Frequency (HF/VHF) voice Communication
- b) High Frequency/Very High Frequency Data Link communication (HF/VHF DL)
- c) Controller/Pilot Data Link Communication (CPDLC).

In accordance with the operational requirements of ICAO Annex 10 Volumes II & III Aeronautical Telecommunication, Annex 11 Air Traffic Service and the relevant supporting guidance documents (Doc 4444 Procedures for Air Navigation Service (PANS--ATM) Doc 9694 Manual on Air Traffic Services Data link Applications, Doc 10037 Global Operational Data Link Document (GOLD), Doc 9869 Manual on Performance Based Communication and Surveillance (PBCS).

3. PROJECT SCOPE

The provision of air/ground communication between Pilots and ATCOs will cover all Airspaces and Air Traffic Control Centers involved in the provision of air avigation service for international civil aviation.

The implementation scheme will be in accordance with the requirements of the provision of Aeronautical mobile Service (AMS) as defined by the AFI Air Navigation Plan (AFI/RAN Abuja 1997).

4. PROJECT STRATEGY

All tasks will be carried out by Communication experts nominated by AFI States participating in the project, led by the Project-Team Coordinator and under the supervision of the Project Facilitators (ROs/CNS, Dakar and Nairobi) through the IIM SG working methodology. Upon completion of the tasks, the results will be sent to the Project Facilitators as a final document for submission to, and if necessary approval by the APIRG Projects Coordination Committee (APCC). For the purpose of collaborative decision-making, meetings will be held with the areas involved.

5. RATIONALE / JUSTIFICATION

- a) **HF/VHF Voice:** The requirements for HF/VHF are contained in the AFI Air Navigation Plan (ANP), FASID TABLE CNS 2A (Aeronautical Mobile Service and Aeronautical Mobile Satellite service-AMS &AMSS and Stations circuits have been implemented in accordance with this AFI Air Navigation Plan. Significant improvements are noted, notably with the implementation of aeronautical satellite telecommunications. However, the non- availability of Remote VHF encountered from time to time results from the obsolescence of some VSAT Stations.
- b) **HF/VHF and Data Link:** The regional requirements for HF/VHF Data Link remain to be updated by the project Team.
- c) **CPDLC:** The introduction of datalink communication in the region associated with surveillance data processing systems with possible automation of the transfer and coordination of Air Traffic between air traffic Centres (AIDC) require an available digital air/ground communication system. The implementation of CPDLC will bring more accuracy in the exchanged messages and increase the availability of message exchanges between ATCOs and pilots.

6. DATA COLLECTION

The survey will be sub-divided into six sub-sections, i.e VHF voice, HF voice, VHF Datalink (VDL), HF Datalink (HF DL), CPDLC and SATCOM categories to determine the following per State:

- a. The number of implemented stations per state,
- b. Equipment location and coordinates, to determine the theoretical AMS coverage,
- c. Transmitter and Receiver frequency used,
- d. Routes per flight level,
- e. System availability statistics,
- f. Equipment life span
- g. Training requirements,
- h. Supporting tools requirement
- i. Skills capability
- j. Requirement list, i.e the operational need
- k. Infrastructure owned or leased
- l. System readiness, etc.

The gathered information will inform the decision or recommendation the team will commend per state as to which technology to introduce, the solution design, specifications and the transition plan per state.

6.1 VHF VOICE COMMUNICATION NETWORK

VHF VOICE COMMUNICATION REQUIREMENT	DESCRIPTION	RESPONSE
STATIONS/SITES	Indicate the total number of implemented VHF station/sites (Transmitter, Tx and Receiver, Rx) including Transceivers.	a. Transmitter sites = b. Receiver sites = c. Transceiver =
LOCATION	List all VHF sites Coordinates (longitude, latitude and altitude of the station)	Attach Spreadsheet
	List all VHF sites Frequency, i.e Tx, Rx and Transceivers used	
	VHF site antenna performance and characteristics, i.e Location, height, dBi, type, cable loss, etc	
ROUTES	Number of Routes provided at each flight level	
	Number of Routes covered by VHF sites implemented: X%	
AVAILABILITY	Average availability of VHF voice: X%	VHF voice availability = %
EQUIPMENT/SYSTEM	Equipment Life Span per VHF site, if owned	Attach Spreadsheet
	Equipment IP readiness per VHF site	
	Is backup system available or not per VHF site	
	Installed OEM name	
	Leased or owned by state/ANSP	
NETWORK	Supporting network – IP or traditional voice per site	Attach Spreadsheet
MAINTENANCE	Is maintenance outsourced or in-house?	
	Do you have maintenance monitoring system or tool?	
TRAINING	Any VHF voice communication system related training requirements.	
RESOURCES	Indicate the VHF voice communication system skills capability	
TOOLS	List VHF voice communication system special tools required to maintain the VHF voice system.	
CHALLENGES	Any operational challenges with the installed VHF voice communication system per site?	
OTHER (Any other relevant/additional information to note icw VHF voice communication system)	If using terrestrial links or satellite links for VHF coms network	

6.2 HF VOICE COMMUNICATION NETWORK

HF VOICE COMMUNICATION REQUIREMENT	DESCRIPTION	RESPONSE
STATIONS/SITES	Indicate the total number of implemented HF station/sites Transmitter, Tx and Receiver, Rx.	a. Transmitter sites = b. Receiver sites =
LOCATION	List all HF sites Coordinates List all HF sites Frequency, i.e Tx, Rx and Transceivers used HF site antenna performance and characteristics, i.e Location, height, dBi, type, cable loss, etc	Attach Spreadsheet
ROUTES	Number of Routes provided at each flight level Number of Routes covered by HF sites implemented: X%	
AVAILABILITY	Average availability of HF voice: X%	
EQUIPMENT/SYSTEM	Equipment Life Span per HF site, if owned Equipment IP readiness per HF site Is backup system available or not per HF site SELCAL migration readiness per HF site OEM name per installed HF site HF site equipment leased or owned by state/ANSP	Attach Spreadsheet
NETWORK	HF site supporting network – IP or traditional voice per site	
MAINTENANCE	Is HF voice site maintenance outsourced or in-house?	
TRAINING	Any HF voice communication system training requirements	
RESOURCES	Indicate the HF voice communication system skills capability	
TOOLS	List the HF voice communication system special tools required to maintain the HF voice system	
CHALLENGES	Any operational challenges with the installed HF voice communication system per site?	
OTHER (Any other relevant/additional information to note regarding the HF voice communication system)		

6.3 VHF DATALINK (VDL) COMMUNICATION NETWORK

VDL COMMUNICATION REQUIREMENT	DESCRIPTION	RESPONSE
STATIONS/SITES	Indicate the total number of VDL stations/sites implemented	Attach Spreadsheet
	VDL modes (VDL1/2/3 or 4)	
LOCATION	List all sites Coordinates	
AVAILABILITY	Average VDL sites availability: X%	VDL sites Availability:%
EQUIPMENT/SYSTEM	Is the VDL equipment leased or owned by state/ANSP	Attach Spreadsheet
	Indicate VLD equipment Life Span per site, if owned	
	Is backup system available or not per VDL site	
	Indicate OEM name per installed VDL site.	
MAINTENANCE	Is VDL maintenance outsourced or in-house?	
	Do you have VDL maintenance monitoring system or tool?	
TRAINING	Any VDL training requirements.	
RESOURCES	Indicate the VDL the state skills capability	
TOOLS	List the VDL special tools required to maintain the VDL system	
CHALLENGES	Any operational challenges with the installed VDL system per site? Elaborate.	
OTHER (Any other relevant/additional information to note)	If not implemented are there any plans to implement	

6.4 HF DATALINK (HF DL) COMMUNICATION NETWORK

HF DL COMMUNICATION REQUIREMENT	DESCRIPTION	RESPONSE
STATIONS/SITES	Indicate the total number of HF DL stations/sites implemented	Attach Spreadsheet
LOCATION	List all HF DL sites Coordinates	
AVAILABILITY	Average HF DL availability of HF DL:X%	
EQUIPMENT/SYSTEM	Is the HF DL equipment Leased or owned by state/ANSP	
	Indicate the HF DL equipment Life Span per site,	
	Is the HF DL backup system available or not per site	
	Indicate the HF DL system OEM name installed per site	
MAINTENANCE	Is the HF DL maintenance outsourced or in-house?	
	Do you have the HF DL maintenance monitoring system or tool?	
TRAINING	Any HF DL system training requirements.	
RESOURCES	Indicate the HF DL State Skills capability	
TOOLS	Any special tools required to maintain the HF DL system	
CHALLENGES	Any operational challenges with the installed HF DL system per site?	
OTHER (Any other relevant/additional information to note regarding the HF DL communication)	If not implemented are there any plans to implement	

6.5 CPDLC COMMUNICATION NETWORK

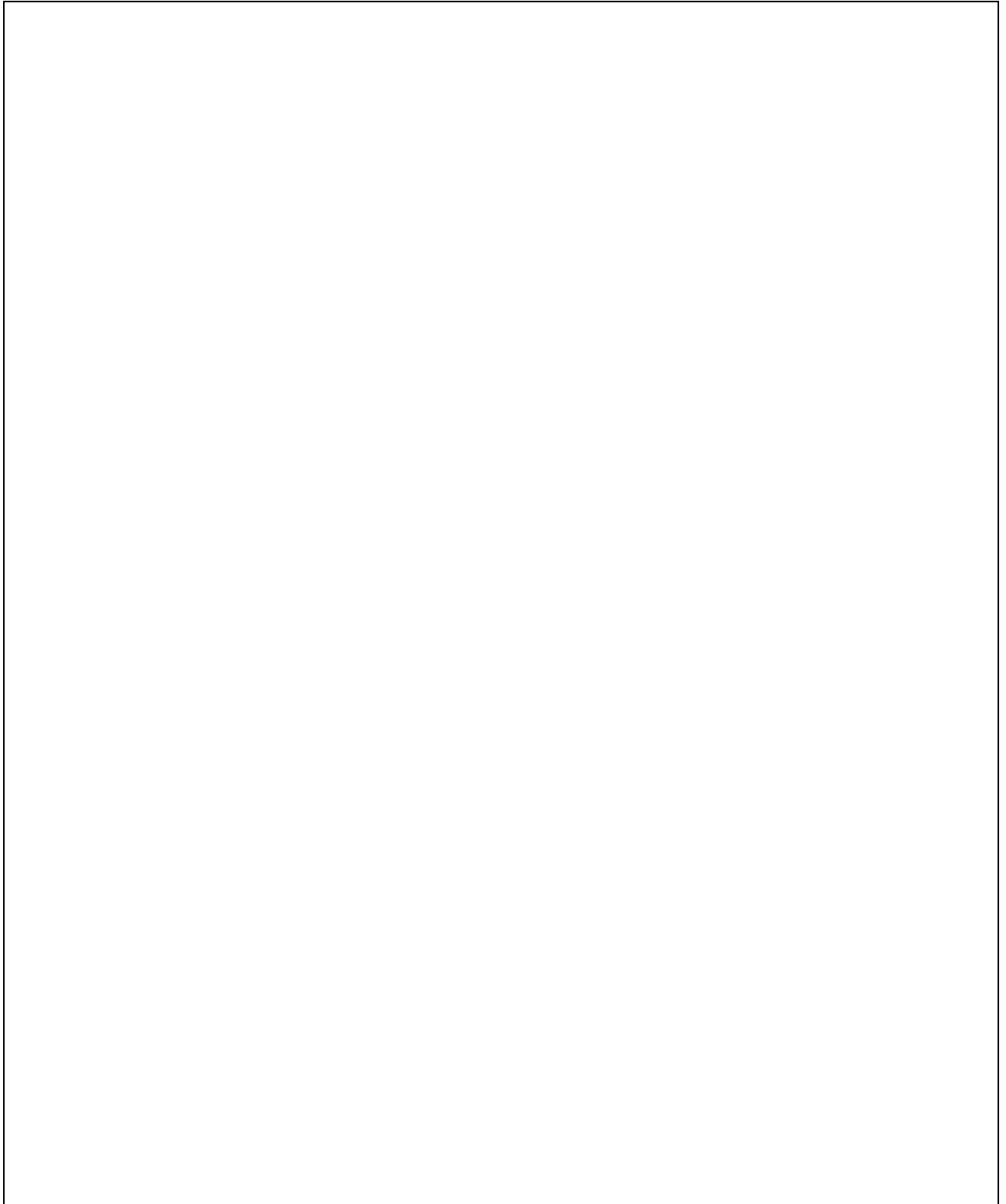
CPDLC COMMUNICATION REQUIREMENT	DESCRIPTION	RESPONSE
SYSTEM	Indicate the CPDLC system readiness. Elaborate	
	Is the CPDLC system required or not? State the operational requirement and if stakeholder engagements required or not?	
	Indicate the total number of ATCs with CPDLC systems installed	
LOCATION	List all CPDLC sites Codes –Logon Codes	
AVAILABILITY	Average availability of CPDLC links:X%	Attach Spreadsheet
EQUIPMENT/SYSTEM	Is the CPDLC equipment leased or owned by state/ANSP. Indicate provided SLA.	
	List equipment Life Span per site	
	Is the CPDLC backup system available or not per site	
	List CPDLC installed system OEM name, eg. SITA, etc?	
MAINTENANCE	Is the CPDLC maintenance outsourced or in-house?	
	Do you have CPDLC maintenance monitoring system or tool?	
TRAINING	Any CPDLC system training requirements. Elaborate.	
RESOURCES	Indicate the CPDLC system skills capability.	
TOOLS	Any special tools required to maintain the CPDLC system	
CHALLENGES	Any operational challenges with the installed CPDLC system per site?	
OTHER (Any other relevant/additional information to note regarding the CPDLC system) a. AMHS/AFTN implemented: X% b. AIDC implemented: X%	If not implemented are there any plans to implement	

6.6 SATCOM COMMUNICATION NETWORK

SATCOM REQUIREMENT	DESCRIPTION	RESPONSE
STATION	Indicate the total number of stations implemented, IP readiness and performance	Attach Spreadsheet
LOCATION	List all sites and INMARSAT codes of each site	
AVAILABILITY	Average availability of SATCOM network. X%	
EQUIPMENT/SYSTEM	Is the system leased or owned by state/ANSP	
	Indicate the equipment life span per site, if owned	
	Is backup system available or not per installed site	
	List the OEM name per installed site.	
MAINTENANCE	Is maintenance outsourced or in-house?	
	Do you have maintenance monitoring system or tool?	
TRAINING	List state training requirements	
RESOURCES	Indicate the skills capability.	
TOOLS	Any special tools required to maintain the SATCOM system	
CHALLENGES	Any operational challenges with the installed SATCOM system per site?	
Other (Any other relevant/additional information to note regarding satellite communication)	If not implemented are there any plans to implement	

7. OTHER

Add any other relevant/additional information to note regarding the AMS, i.e VHF voice, HF voice, VHF Datalink (VDL), HF Datalink (HF DL), CPDLC and SATCOM.

A large, empty rectangular box with a thin black border, intended for providing additional information regarding the AMS, VHF voice, HF voice, VHF Datalink (VDL), HF Datalink (HF DL), CPDLC, and SATCOM.