



**INTERNATIONAL CIVIL AVIATION ORGANIZATION  
AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP (APIRG) PROJECT**

**PROJECT: AIR/GROUND COM PROJECT**

**Coordinator: South Africa**

**DOMAIN : IIM**

(Infrastructure & Information Management)

AFI Region	PROJECT DESCRIPTION	DP N° C	
Sub Domain	Title of the Project	Start	End
Aeronautical Communication (COM)	<b>AIR/GROUND COMMUNICATION: Implementation of Air/Ground communication aimed at ensuring Air traffic control.</b>		
(ICAO Facilitator: WACAF/ESAF ROs/CNS)	<b>Project-Team Coordinator: South Africa</b>  <b>Project Team Experts (13):</b> Côte d'Ivoire, Cameroon, Ghana, Seychelles, Senegal, Kenya, ASECNA, IATA, Nigeria, Botswana, Togo and Uganda		
<b>Objectives</b>	<p>In the framework of the technologies Roadmap for Communication defined in the GANP 6<sup>th</sup> edition and the AFI <b>Communication</b> strategy assist States in the implementation of Aeronautical Mobile Service through:</p> <ul style="list-style-type: none"> <li>a) High Frequency/Very High Frequency (<b>HF/VHF</b>) voice Communication</li> <li>b) High Frequency/Very High Frequency Data link communication (<b>HF/VHF DL</b>)</li> <li>c) Controller/Pilot Data Link Communication (<b>CPDLC</b>)</li> </ul> <p>In accordance with the operational requirements of ICAO Annex 10 Volumes II &amp; III Aeronautical Telecommunication, Annex 11 Air Traffic Service and the relevant supporting guidance documents (Doc 4444</p>		

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	Procedures for Air Navigation Service (PANS--ATM) Doc 9694 Manuel on Air Traffic Services Data Link Applications, Doc 10037 Global Operational Data Link Document (GOLD)		
<b>Scope</b>	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 navigation 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)		
<b>Metrics</b>	<p><b>a) HF/VHF Voice &amp; Data Link:</b></p> <ul style="list-style-type: none"> <li>i. Number of Routes covered by <b>HF/VHF</b> communication: <b>X</b> <ul style="list-style-type: none"> <li>- Average availability of <b>HF/VHF</b> voice: <b>X%</b></li> </ul> </li> <li>ii. Number of HF/VHF DL station implemented <ul style="list-style-type: none"> <li>- Average availability of HF/VHF DL: <b>X%</b></li> </ul> </li> </ul> <p><b>b) CPDLC:</b></p> <ul style="list-style-type: none"> <li>- Number of ATCs with CPDLC systems installed: <b>X</b></li> <li>- Average availability of CPDLC Links: <b>X%</b></li> </ul>		
<b>Outcome</b>	Air/Ground communication supporting enhanced aeronautical operational safety, capacity and efficiency		
<b>Strategy</b>	<p>All tasks will be carried out by COM 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.</p> <p>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).</p> <p>For the purpose of collaborative decision-making, meetings will be held with the areas involved.</p>		

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<b>Rationale/ Justification</b>	<p>a) <b>HF/VHF Voice:</b> 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 &amp;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 technologies.</p> <p>b) <b>HF/VHF and Data Link:</b> The introduction of the regional requirements for HF/VHF Data Link remain to be updated by the project Team</p> <p>c) <b>CPDLC:</b> 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 centers 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.</p>		
<b>Related projects</b>	<p>All APIRG projects specifically related to:</p> <ul style="list-style-type: none"> <li>- B0/1 - Aircraft Communication Addressing Reporting System (ACARS)</li> <li>- B0/3 - VHF Data Link (VDL) Mode O/A</li> <li>- B0/4 - VHF Data Link (VDL) Mode 2 Basic</li> <li>- B0/5 - Satellite Communication (SATCOM) Class C Data</li> <li>- B0/6 - High Frequency Data Link (HFDL)</li> <li>- B1/2 - VHF Data Link (VDL) Mode 2 Multi- Frequency</li> <li>- B1/3 - SATCOM Class B Voice and Data</li> <li>- B1/4 - Aeronautical Mobile Airport Communication System (AeroMACS)</li> <li>- B2/2 - Aeronautical Mobile Aircraft Communication System (AeroMACS) aircraft mobile connection</li> <li>- B2/3 - Link meeting requirements for non-safety critical communication</li> <li>- B0/1 - CPDLC (FANS 1/A &amp; ATN B1) for domestic and procedural airspace</li> <li>- B1/1 - PBCS approved CPDLC (FANS 1/A +) for domestic and procedural airspace</li> <li>- B1/3 - SATVOICE (incl. routine communication) for procedural airspace</li> <li>- B2/1 - PBCS approved CPDLC (B2) for domestic and procedural airspace</li> </ul>		

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	- B2/3 - PBCS approved SATVOICE (incl.routine communications) for procedural airspace		

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU modules	Responsible Party	Status of Implementation <sup>1</sup>	Date of Delivery	Comments
<b>HF/VHF/CPDLC</b>					
Implementation status of HF &VHF stations (Voice & data Link)	- COMI-B0 - COMI-B1 - COMI-B2 - COMS -B0 - COMS-B1 - COMS-B2	AFI COM Project Coordinator		Quarterly	

<sup>1</sup> Grey Task not started yet  
Green Activity being implemented as scheduled  
Yellow Activity started with some delay, but will be implemented on time  
Red Activity not implemented on time; mitigation measures are required

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU modules	Responsible Party	Status of Implementation <sup>1</sup>	Date of Delivery	Comments
Implementation/Operation status of CPDLC Circuits	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		Quarterly	
Teleconferences, Workshops/Seminars, meetings (French and English) on VHF/CPDLC systems operation and their implementation scheme	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		Once a month	
Implementation/sharing and Operation status of Remote VHF/HF systems	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		Quarterly	

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU modules	Responsible Party	Status of Implementation <sup>1</sup>	Date of Delivery	Comments
Assessment/Reporting on the operation of Air ground communication systems and operation	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		Quarterly	
Detailed guidance provided to States not complying with the AFI AMS Plan	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		Quarterly	
List of States with VHF and CPDLC, implemented	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		Quarterly	

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU modules	Responsible Party	Status of Implementation <sup>1</sup>	Date of Delivery	Comments
HFDL / VDL Requirement (Manual / Guidance)	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		2 years	
AFI Communication Strategy	<ul style="list-style-type: none"> <li>- COMI-B0</li> <li>- COMI-B1</li> <li>- COMI-B2</li> <li>- COMS -B0</li> <li>- COMS-B1</li> <li>- COMS-B2</li> </ul>	AFI COM Project Coordinator		2 years	
Project Costing Report	N/A	AFI COM Project Coordinator		2 years	
Resources needed	<ul style="list-style-type: none"> <li>• Adequate human resources to be appointed by States</li> <li>• Funds to conduct meetings, Workshops, Seminars Missions and to translate reports, regional guides and manuals. Likewise, participants must be given facilities to participate in teleconferences and coordination meetings.</li> <li>• Funds for meetings with project Team Members to assess the results and propose corrective actions. States could use their human resources to conduct the foreseen COM tests and monitoring, and, if necessary, cover the financial costs, since the experience gained will result in an improvement of their own systems.</li> </ul>				

PROJECT DELIVERABLE COLOUR	MEANING
Grey	<i>Grey Task not started yet</i>
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Red	<i>Red Activity not implemented on time; mitigation measures are required</i>