Establishment of Harmonized Policies for the ICT Market in the ACP Countries

Cross-Border Frequency Coordination: A Harmonized Calculation Method for Africa (HCM4A)

Central Africa Assessment Report

HIPSSA

Harmonization of ICT Policies in Sub-Saharan Africa

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Foreword

Information and communication technologies (ICTs) are shaping the process of globalisation. Recognising their potential to accelerate Africa's economic integration and thereby its greater prosperity and social transformation, Ministers responsible for Communication and Information Technologies meeting under the auspices of the African Union (AU) adopted in May 2008 a reference framework for the harmonization of telecommunications/ICT policies and regulations, an initiative that had become especially necessary with the increasingly widespread adoption of policies to liberalise this sector.

Coordination across the region is essential if the policies, legislation, and practices resulting from each country's liberalization are not to be so various as to constitute an impediment to the development of competitive regional markets.

Our project to 'Support for Harmonization of the ICT Policies in Sub-Sahara Africa' (HIPSSA) has sought to address this potential impediment by bringing together and accompanying all Sub-Saharan countries in the Group of African, Caribbean and Pacific States (ACP) as they formulate and adopt harmonized ICT policies, legislation, and regulatory frameworks. Executed by the International Telecommunication Union (ITU), co-chaired by the AU, the project has been undertaken in close cooperation with the Regional Economic Communities (RECs) and regional associations of regulators which are members of the HIPSSA Steering Committee. A global steering committee composed of the representatives of the ACP Secretariat and the Development and Cooperation – EurepeAid (DEVCO, European Commission) oversees the overall implementation of the project.

This project is taking place within the framework of the ACP Information and Telecommunication Technologies (@CP-ICT) programme and is funded under the 9th European Development Fund (EDF), which is the main instrument for providing European aid for development cooperation in the ACP States, and co-financed by the ITU. The @CP-ICT aims to support ACP governments and institutions in the harmonization of their ICT policies in the sector by providing high-quality, globally-benchmarked but locally-relevant policy advice, training and related capacity building.

All projects that bring together multiple stakeholders face the dual challenge of creating a sense of shared ownership and ensuring optimum outcomes for all parties. HIPSSA has given special consideration to this issue from the very beginning of the project in December 2008. Having agreed upon shared priorities, stakeholder working groups were set up to address them. The specific needs of the regions were then identified and likewise potentially successful regional practices, which were then benchmarked against practices and standards established elsewhere.

These detailed assessments, which reflect sub-regional and country-specific particularities, served as the basis for the model policies and legislative texts that offer the prospect of a legislative landscape for which the whole region can be proud. The project is certain to become an example to follow for the stakeholders who seek to harness the catalytic force of ICTs to accelerate economic integration and social and economic development.

I take this opportunity to thank the European Commission and ACP Secretariat for their financial contribution. I also thank the Economic Community of West African States (ECOWAS), West African Economic and Monetary Union (UEMOA), Economic Community of Central African States (ECCAS), Economic and Monetary Community of Central Africa (CEMAC), East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Common Market for Eastern and Southern Africa (COMESA), Southern African Development Community (SADC), Intergovernmental Authority on Development (IGAD), Communication Regulators' Association of Southern Africa (CRASA), Telecommunication Regulators' Association of Central Africa (ARTAC), United Nations Economic Commission for Africa (UNECA), and West Africa Telecommunications Regulators' Association (WATRA), for their contribution to this work. Without political will on the part of beneficiary countries, not much would have been achieved. For that, I express my profound thanks to all the ACP governments for their political will which has made this project a resounding success.

Brahima Sanou
BDT, Director

Acknowledgements

The present document represents an achievement of a global activity carried out under the HIPSSA project ("Support to the Harmonization of ICT Policies in Sub-Saharan Africa") officially launched in Addis Ababa in December 2008.

In response to both the challenges and the opportunities of information and communication technologies' (ICTs) contribution to political, social, economic and environmental development, the International Telecommunication Union (ITU) and the European Commission (EC) joined forces and signed an agreement aimed at providing "Support for the Establishment of Harmonized Policies for the ICT market in the ACP", as a component of the Programme "ACP-Information and Communication Technologies (@CP-ICT)" within the framework of the 9th European Development Fund (EDF). i.e., ITU-EC-ACP Project.

This global ITU-EC-ACP Project is being implemented through three separate sub-projects customized to the specific needs of each region: Sub-Saharan Africa (HIPSSA), the Caribbean (HIPCAR), and the Pacific Island Countries (ICB4PAC).

As members of the HIPSSA Steering Committee co-chaired by the African Union's Commission (AUC) and the ITU, the African Union's Commission (AUC) and the African Telecommunication's Secretariat (ATU) provided guidance and support to the team of consultants, Mr Shola Taylor from Kemilinks Consulting for the Global Report, Mr Zoltan Zsuffa on HCM Europe, Mr Hilaire Mbega for Central Africa, Mr Andrew Kisaka for East Africa, Mr Carlos Alais for Southern Africa and Mr Ahmed Boreau for West Africa, who prepared the draft document. This draft document is to be reviewed, discussed and validated by broad consensus by participants of a workshop to be organised in collaboration with AUC and ATU.

ITU would like to thank the focal point delegates from the member states ICT and telecommunications ministries and regulators, from regional organisations' commissions and secretariats and regulators associations among them the Association of Regulators of Information and Communications Service of Eastern and Southern Africa (ARICEA), Association of African Telecommunications Regulators (ARTAC), Communication Regulators' Association of Southern Africa (CRASA), East African Community (EAC), East Africa Communications Organizations (EACO), Economic Community of Central African States (ECCAS), Economic Community of West African Countries (ECOWAS), Southern African Development Community (SADC), and West Africa Telecommunications Regulatory Assembly (WATRA), for their hard work and commitment in contributing to the data collection efforts of this unprecedented study. The contributions from the AUC and ATU are gratefully acknowledged.

Without the active involvement of all of these stakeholders, it would have been impossible to produce a document such as this, reflecting the overall requirements and conditions of Central Africa while also representing international best practice.

The activities have been implemented by Ms Ida Jallow, responsible for the coordination of the activities in Sub-Saharan Africa (HIPSSA Senior Project Coordinator), and Mr Sandro Bazzanella, responsible for the management of the whole project covering Sub-Saharan Africa, Caribbean and the Pacific (ITU-EC-ACP Project Manager) with the overall support of Ms Hiwot Mulugeta, HIPSSA Project Assistant, and of Ms Silvia Villar, ITU-EC-ACP Project Assistant. The work was carried out under the overall direction of Mr Cosmas Zavazava, Chief, Project Support and Knowledge Management (PKM) Department. The document was developed under the direct supervision of the then HIPSSA Senior Project Coordinator, Mr Jean-François Le Bihan, and has further benefited from the comments of the ITU Telecommunication Development Bureau's (BDT) Technology and Network Development (TND) and ITU Radiocommunication Bureau (BR). Support was provided by Mr Andrew Rugege, Regional Director, ITU Regional Office for Africa Region. The team at ITU's Publication Composition Service was responsible for its publication.

Executive Summary

This assessment study includes a survey and a comparative analysis on the theme of Cross-border frequency coordination-Harmonization Calculation Method for Africa (HCM4A).

The study focuses on existing administrative and technical procedures relating to bilateral and multilateral cross borders frequency agreements. 9 countries in Central Africa region are reviewed in this regional report: Burundi (BDI), Cameroon (CME), Chad (TCD), Central African Republic (CAF), Congo (COG), DR Congo (COD), Equatorial Guinea (GNE), Gabon (GAB), and Sao Tome and Principe (STP).

The methodology used to conduct the survey was through questionnaires, which were distributed to all targeted countries. Each country nominated its focal point to fill the questionnaires and follow up questions were asked by telephone, personal contacts and emails. Although a lot of efforts were devoted to obtain various data from the countries, the data obtained may not be fully comprehensive but mostly sufficient to draw some conclusions. The report is divided into two main parts: the regional report and all the national reports.

Each report is articulated around sections which are: Spectrum management framework (Legal basis, table of frequency allocations), cross border frequency coordination (responsibility for cross border frequency coordination, cross border frequency coordination framework, bilateral/multilateral agreement, interference problems and cross border frequency coordination experiences, coordination agreements required, data exchange formats, tools and data bases used), observations, conclusions and recommendations, contacts.

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GLOSSARY

ECCAS	Economic Community of Central African States
CEMAC	Communauté économique et monétaire de l'Afrique Centrale / Central African Economic and Monetary Community
ARTAC	Association des Régulateurs des Télécommunications de l'Afrique Centrale / African Telecommunications Regularors' Association
DTM	Digital Terrain Model
DVB-H	Digital Video Broadcasting - Handheld
FAP	Frequency Allocation Plan
FM	Frequency Modulation
GDP	Gross Domestic Product
GHz	Gigahertz
GSM	Global System for Mobile Communications
HD	High Definition
HCM4A	Harmonized Calculation Method for Africa
IMT	International Mobile Telephony
ITU	International Telecommunications Union
MHz	Megahertz
TV	Television
UHF	Ultra High Frequency
VHF	Very High Frequency
HIPSSA	Harmonization of ICT Policies in Sub Sahara Africa
NTFA	National Table of Frequency
REC	Regional Economic Community
RIO	Regional Integration Organization
BDI	Burundi
CME	Cameroon
CAF	Central African Republic
TCD	Chad
COG	Congo

Glossary

COD	Democratic Republic of Congo
GNE	Equatorial Guinea
GAB	Gabon
STP	Sao Tome and Principe
ARCT	Agence de Régulation et de Contrôle des Télécommunications - BDI
ART/TRB	Agence de Régulation des Télécommunications - CME and CAF / Telecommunications Regulatory Board - CME
OTRT	Office Tchadien de Régulation des Télécommunications – TCD
ARPCE	Agence de Régulation des Postes et des Communications Electroniques – COG
ARPTC	Autorité de Régulation de la Poste et des Télécommunications du Congo – COD
ORTEL	Órgano Regulador de las Telecomunicaciones – GNE
ARTEL	Agence de Régulation des Télécommunications – GAB
ANINF	Agence Nationale des Infrastructures Numériques et des Fréquences – GAB
AGER	Autoridade Geral de Regulação – STP

INTRODUCTION

This report is part of a series of reports in the HCM4A global activity of the HIPSSA Project addressing the Support for Harmonization of ICT Policies in Sub-Sahara Africa.

HIPSSA is a program in partnership between the International Telecommunication Union (ITU) and European Commission (EC), covering all African, Caribbean and Pacific countries.

The HIPSSA project aims at developing and promoting harmonized policies and guidelines for the ICT market as well as building human and institutional capacity in the field of ICT through a range of targeted training, education and knowledge sharing measures.

It is a part of a global jointly funded ITU-EC project, covering all ACP countries with sub projects in Sub-Sahara Africa, Caribbean and the Pacific. The project will address the regulatory challenges facing the beneficiary countries with the goal of creating an environment conducive to massive investments in ICT infrastructure and ICT-enabled applications, which the countries will adopt for day to day use in their economic and social activities.

Within the framework of the HIPSSA project, Harmonised Calculation Method for Sub-Sahara Africa (HCM4A) is an important activity that has been identified as a key component of the project.

Based on the study's results, HCM4A intends to produce a multilateral agreement including a harmonised calculation process characterised by transparency and accuracy and accepted by all the participating countries. The relevant administrative procedure and technical provisions will be very helpful for the cross border frequency coordination in sub-Sahara Africa.

In particular this report presents the outcome of a survey carried out in Central Africa regarding a Harmonised Calculation Method (HCM) to facilitate cross-border frequency coordination among different countries in the region.

A method of similar characteristics has been implemented successfully in Europe among 17 countries, and based on this; the objective of the survey is to analyse the feasibility of implementing similar methodology not just in Central Africa but in the whole Sub-Sahara Africa.

This Harmonized Calculation Method for Africa (HCM4A) as it has been denominated intents to cover the whole of Sub-Saharan Africa and for that purpose four stages have been considered:

- Assessment phase: reviewing existing bilateral and multilateral cross-border frequency coordination agreements in Sub-Sahara Africa,
- Creation of a Technical Working Group to review the results of the assessment and the proposed multilateral agreement,
- Validation workshop and adoption meeting of the draft agreement if in line with the conclusion of the assessment,
- Development of HCM software adaptation based on the HCM4A Agreement if adopted, software release and training workshops.

Therefore the final purpose is to create a cross-border frequency coordination multilateral agreement and tool to:

- Prevent and easily solve radio interference across borders,
- Take account of other neighbouring stations before putting their own stations into operation,

- Set an harmonized standard that all the countries involved accept on a mutually beneficial approach by consensus,
- Provide a solid basis for bilateral and multilateral agreements,
- To enable the creation of bilateral preferential frequency agreements at border zones: who can operate what and with which interference ranges.

This report thus covers only the first assessment phase analysing the frequency coordination situation across borders in the following 10 Central Africa countries: Burundi, Cameroon, Central African Republic, Chad, Congo, The Democratic Republic of Congo, Equatorial Guinea, Gabon and Sao Tome and Principe

Rwanda is dealt with under the East Africa Region and Angola under Southern Africa but results of all regions will be brought together to give to the regional economic organization ECCAS and the regional regulators' associations ARTAC a complete view of their region.

As in the case of Central Africa other regional experts have addressed the other components of the sub-Saharan Africa: West; East and Central Africa.

In order to carry out the assessment phase of Central Africa the regional expert needed to compile information related to the matter under consideration.

With that purpose the regional expert has:

- Liaised with regional organizations among others Regional Economic Communities (REC) and Regional Regulators' Association (RRA) to receive their views regarding regional practices and challenges in terms of cross-borders frequency coordination.
- Established a list of persons of contact with each national government agency in charge of frequency allocation and management in the sub-region he was assigned to.
- Conducted interviews with the contacted persons and drafted corresponding reports
- Collected existing bilateral or multilateral cross-border frequency coordination agreements from the earlier identified contact persons.
- Reviewed and compared the existing agreements and presented the results of his analysis in summary tables and drafted an overview of the situation in the sub-region.
- Collected the existing spectrum management database format including frequency coordination data.
- Summarized the existing frequency coordination calculation methods and coordination agreements.

Based on the above-mentioned points the present report has been prepared and it consists of two parts.

Part 1: presents the regional report of Central Africa, considering the current regional initiatives towards harmonized cross-border frequency coordination and provides a comparative analysis of the regional survey ending with conclusions and recommendations.

Part 2: presents the report of every country based on the results of the survey carried out.

This part includes a general profile of every country from the geographical, economic and telecommunications point of view. It presents as well the spectrum management framework for every country and investigates the national table of frequency allocations, to see the possible differences that could be encountered at the borders of the different counties. Similarly it analyses the frequency coordination status of the countries under consideration, particularly with regard to the existing bilateral and multilateral agreements. Consequently the coordination agreements required are indicated for every country. As in the case of the regional report it ends with conclusions and recommendations in every case.

Introduction

To facilitate the work towards following the three stages, each national report includes the details of the persons nominated by each country to be the focal points for the HMC4A.

This report has several annexes to Part 1 and 2, which are included separately in a CD accompanying the report. Those annexes are clearly identified at the end of the regional report and at the end of each national report.

The final consolidated global report including the survey outcome of East Africa, Central Africa, Southern Africa and West Africa will be presented and reviewed during a workshop of a Technical Working Group to be formed under the aegis of the African Union Commission and ATU in 2012.

Main Findings

The most important finding of this particular report is that it is feasible to adapt the European Harmonized Calculation Method to Central Africa.

Apart from Sao Tome and Principe, all the countries in Central Africa are experiencing cross border frequency interferences. Many big cities in the region are only separated by a river as border line.

But it appears that very few administrations are involved in concrete approaches aiming at resolving interferences with neighbours. The reasons can be found in the inadequacy of professional training and the lack of necessary technical tools. But the political goodwill seems to exist and which may be exploited to find solutions.

The main services concerned involved in cross border interference activities are land mobile and broadcasting. So it should be important to extend the HCM project to sound and Television broadcasting fields.

Part 1: Regional Report
Central Africa Region

1 REGIONAL OVERVIEW

The project which focuses on Sub-Sahara Africa aims at supporting Regional Economic Communities (REC), Regional Integration Organizations (RIO) and their respective member countries to develop and promote use of harmonized ICT policies and regulatory frameworks in relation to ICT markets in the sub region.

Therefore it is targeted to establish harmonized policy, legal and regulatory frameworks at the regional and continental levels in order to create an enabling environment that would attract investment and to foster the sustainable development of competitive African Telecom/ICT regional markets, infrastructures.

One possible scenario would be that a potential multilateral cross border frequency agreement and the included Harmonized Calculation Model (HCM) would be adopted by all the concerned countries in the sub regions.

The conclusion of this report will be shared with the regional organizations with a view for them to contribute actively to their validation at the technical level and to the development of the related guidelines that countries may wish to commit themselves to, at the political level.

In Central Africa ECCAS, CEMAC and ARTAC are the main regional organizations.

ECCAS

At a summit meeting in December 1981, the leaders of the Central African Customs and Economic Union (UDEAC) agreed on principles to form a wider Economic Community of Central African States. ECCAS was established on 18 October 1983 by the UDEAC members and the members of the Economic Community of the Great Lakes States (CEPGL) (Burundi, DR Congo and then Rwanda) as well as Sao Tomé and Principe. Angola remained an observer until 1999, when it became a full member.

ECCAS aims to achieve collective autonomy, raise the standard of living of its populations and maintain economic stability through harmonious cooperation. Its ultimate goal is to establish a Central African Common Market.

At the Malabo Heads of States and Governments Conference in 1999, four priority objectives for the organization were identified:

- to develop capacities to maintain peace, security and stability, which are essential prerequisites for economic and social development;
- to develop physical, economic and monetary integration;
- to develop a culture of human integration; and
- to establish an autonomous financing mechanism for ECCAS.

CEMAC

The Economic and Monetary Community of Central African states or CEMAC from its acronym in French, *Communauté Économique et Monétaire de l'Afrique Centrale* is an organization of 6 states of Central Africa established by Cameroon, Central African Republic, Chad, Republic of Congo, Equatorial Guinea and Gabon to promote economic integration among countries that share a common currency, the CFA franc. UDEAC was officially superseded by CEMAC in June 1999.

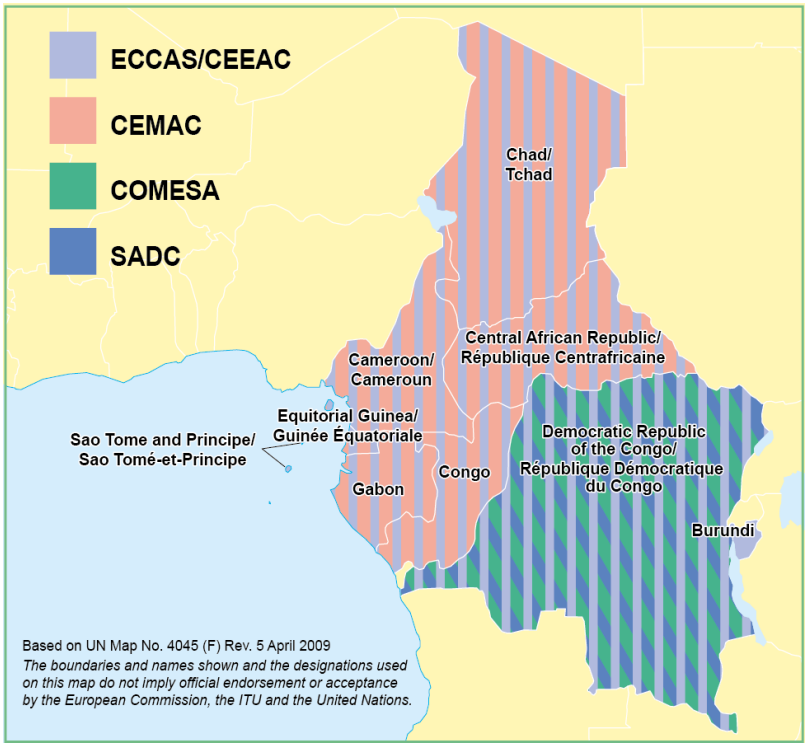
CEMAC's objectives are the promotion of trade, the institution of a genuine common market, and greater solidarity among peoples and towards under-privileged countries and regions.

ARTAC

The Central Africa Telecommunications Regulators Assembly (ARTAC-or Assemblée des Régulateurs des Télécommunications de l'Afrique centrale) is composed by 5 registered members (Cameroon, Gabon, Central African Republic, Congo, Chad). Though Equatorial Guinea, Sao Tome and Principe, Burundi, Rwanda, and Angola are not yet registered as members, they can attend ARTAC meetings.

ARTAC focuses on the need for Central Africa to evolve a harmonized regulatory identity to boost investment and investor confidence and to more effectively regulate and monitor telecommunications service.

Figure 1: Map of ECCAS and CEMAC memberships and overlaps with other regional organisations



1 Regional initiatives towards harmonized cross border frequency coordination

Some activities and initiatives have been organized by Central African regional organizations within the framework of their action plan relating to cross border frequency coordination:

- Seminar on Cross Border Frequency Management organized by ARTAC in Kinshasa (DR Congo) from 27-31 August 2007.
- Workshop on Cross Border Frequency Management in Central Africa:
  - The workshop took place in Douala (Cameroon) from 30 - 31 October 2008 and was organized jointly by ITU/BDT and ARTAC.

  - 49 participants attended the meeting from 8 central African Countries (Burundi, Cameroon, Gabon, Chad, Central African Republic, Congo, Equatorial Guinea, and Democratic Republic of Congo).
  - Two sub regional organizations also attended the workshop: ECCAS and CEMAC.
- Missions carried out by experts from Central Africa with the aim to gather information relating to specific bilateral cross border interferences:
  - Study mission on GSM cross border frequency management in Bangui (14-18 October 2008), Brazzaville (20-23 October 2008), and Kinshasa (23-26 October 2008) by M. Pierre–François KAMANOU at the request of ITU Central Africa Area Bureau.
  - Study mission on broadcasting cross border frequency coordination in Brazzaville and Kinshasa (06-14 December 2010) by Mr. Hilaire MBEGA at the request of ITU Central Africa Area Bureau.
- Follow up of bilateral GSM cross border frequency agreement between Cameroon and Chad organizing meetings of relevant committees.
- Follow up of interference matters in the sub-region according to the ARTAC action plan identifying interference area and organizing meeting of experts.

2 Regional cross border frequency coordination agreements

Some negotiations for cross border frequency agreements are still on going. Only one concrete agreement has been signed so far between Cameroon and Chad. Other initiatives in the region are as follows:

- Coordination meetings took place between Burundi, Rwanda and Tanzania. Elaboration of agreements is still on-going initiated by Burundi under the aegis of ARTAC.
- A coordination Agreement between Cameroon and Chad signed on 3 September 2009 under the aegis of ARTAC.
- Congo is now working on this matter with colleagues from neighbouring countries.
- An agreement is in the process of elaboration initiated by DR Congo.

3 Regional survey comparative analysis

3.1 Frequency Coordination across borders

3.1.1 Regional cross border coordination responsibilities.

It is mainly incumbent upon ARTAC to conduct regional cross border coordination in Central Africa. Regional organizations such as CEMAC and ECCAS can also bring their contributions.

- ARCT (Agence de Régulation et de Contrôle des Télécommunications) in Burundi.
- The Telecommunications Regulatory Board (TRB / ART) in Cameroon whose activities are coordinated by the Ministry of Post and Telecommunications.
- The « Agence de Régulation des Télécommunications »(ART) in Central African Republic.
- The « Office Tchadien de Régulation des Télécommunications » (OTRT) in Chad.
- The « Agence de Régulation des Postes et des Communications Electroniques » (ARPCE) in Congo.

- The « Autorité de Régulation de la Poste et des Télécommunications du Congo »(ARPTC) in DR Congo.
- The “Órgano Regulador de las Telecomunicaciones” (ORTEL) in Equatorial Guinea.
- The « Agence Nationale des Infrastructures Numériques et des Fréquences » (ANINF) in Gabon.
- The "Autoridade Geral de Regulação" - AGER (General Regulation Authority) in Sao Tome and Principe.

3.1.2 Regional Cross Border Frequency Coordination Framework

At the regional level, cross border frequency coordination exists within the framework of ECCAS, CEMAC, and especially ARTAC.

The Council of Ministers of ECCAS and CEMAC has adopted some relevant provisions:

- REGULATION N°21/08-UEAC-133-CM-18 of 19 December 2008 Relating to Harmonization of electronic communications regulation policies within CEMAC member States (REGLEMENT N°21/08-UEAC-133-CM-18 du 19 Décembre 2008 Relatif à l’Harmonisation des réglementations et des politiques de régulation des communications électroniques au sein des Etats membres de la CEMAC). Article 5 of this Rule states that one of the missions of the national regulation bodies is to ensure the frequency spectrum management, control and assignment while article 3 mentions as one objective to facilitate the setting up of transnational networks and service interoperability within the Community.
- DECISION N°45/08-UEAC-133-CM-18 of 19 December 2008 to set up Technical Committee of Regulation of electronic communications within CEMAC member States. (DECISION N°45/08-UEAC-133-CM-18 du 19 Décembre 2008 Portant création du Comité Technique de Régulation des communications électroniques des Etats membres de la CEMAC). Article 2 of this Decision states the main missions of the Committee:
  - to further cooperation among the national regulatory bodies of member States;
  - to set up an information database on common questions relating to electronic communication control and regulation among member States.
  - to advice CEMAC sub structures in the field of electronic communications.

ARTAC statutes emphasize (Article 3 - Objectives) on:

- Facilitating exchanges of ideas, opinions, and experiences among the members in all the fields of telecommunications regulation sector.
- Realization of harmonized service standards in the sub region and adoption of harmonized qualitative and technical standards in the field of applications and telecommunications equipment in the sub region.
- Collaboration and cooperation with ECCAS, CEMAC, ATU, and ITU.

At the national level some regulatory bodies have cross border frequency coordination framework:

- A Committee is in charge of problems relating to frequency coordination on the Cameroon-Chad border.
- Congo is now working on this matter.
- Two ANINF websites (Agence Nationale des Infrastructures Numériques et des Fréquences) have been created in Gabon.

3.1.3 Regional Table of Frequency Allocations

At the regional level there is no common Regional Table of Frequency Allocations.

At the national level:

- ARCT is updating a National Table of Frequency Allocations in Burundi (NTFA). There are no notable differences with the ITU's Table of Frequency Allocations.
- A project has been launched since 2010 by MINPOSTEL to acquire a NTFA in Cameroon.
- Central African Republic has a NTFA nearly similar to the ITU's Table of Frequency Allocations.
- The NTFA is in the process of being elaborated in Chad according to the ITU's Table of Frequency Allocations.
- The NTFA is in the process of approval by the Government in Congo.
- The NTFA is in the process of elaboration in DR Congo.
- Sao Tome uses ITU table of frequency allocation.

3.1.4 Coordination Procedures

A common regional coordination procedure does not exist.

At the national level:

- There is an Act creating a Committee in charge of the control of the Coordination Agreement application between Chad and Cameroon.
- In Cameroon the procedure in place, handles internal and across the border interferences without any distinction. Telecommunication Regulatory Board instructions exist relating to the coordination procedure.

3.1.5 Interference problems and cross border frequency coordination experiences

Some cases of interferences had been identified by ARTAC during organized seminars and workshops.

Table 1: Interference cases in Central Africa

Interference Area (countries)	Affected Operators	Interfering sources (countries/operators)
Bangui (RCA)	Telecel, Moov,NationLink, Orange	Vodacom et Zain (RDC)
Brazzaville (Congo)	MTN, Zain	Vodacom, Tigo, CCT (RDC)
N'djamena (Tchad)	Zain, Tigo	Orange, MTN (Cameroun)

All countries in the Central Africa sub region noted down cases of frequency interferences with neighbours especially in the land mobile and broadcasting services.

3.2 Analysis of different data exchange format used in the region

Central African countries use nearly the same data exchange format:

- Internet and on paper confirmation (official letters using post offices) by Cameroon.
- Internet (mail, FTP) by Central African Republic.

- Data exchanges by Internet (mail) by Chad.
- CD/DVD, Internet, paper by Equatorial Guinea.
- CD, Internet, USB keys by Gabon.
- CD / DVD / Internet by Sao Tome.

3.3 Analysis of the tools and databases used in the region

- Different tools are in use in the Central Africa sub region.
- Self-developed software called GESREP by Gabon.
- Spectrum management tool Ellipse by DR Congo.
- ITU SMS4DC software tool by Congo.
- TEMS Investigation, radio parameters measuring tool for interference investigation by Chad.
- Excel and administrative management software to assign frequencies BY Central African Republic.
- Recent acquisition of ITU SMS4DC software (February 2011) by Cameroon.

4 Observations

The Central African sub region suffers from lack of:

- Specialized and active regional cross border frequency coordination framework.
- Common regional table of frequency allocations.
- Common regional coordination procedure.
- Training relating to the mastering of spectrum management software tools.

5 Regional conclusions and recommendations

It is strongly recommended to Central Africa RECs and RIOs to create a specialized permanent technical sub regional working group. The main tasks of this group among others should be to resolve the above-observed inadequacies.
ECCAS, CEMAC and ARTAC as stakeholders are the future beneficiaries of the HCM4A project. Attending the third General Assembly of ARTAC in Ndjamena on 30 – 31 May 2011 allowed for the gathering of most of the regional information and to explain to Central Africa representatives the aim of the project. Information relating to CEMAC was obtained through Internet due to unsuccessful mails and phone calls.
All the three African regional organizations should have a key role to play for the achievement of the Harmonized Calculation Method for Africa above all ARTAC.

The lack of operator's organization in the sub region and even in the national level is a handicap to help resolving cross border frequency interferences.

6 Regional Contacts

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Part 2: National Reports

Republic of Burundi

Country profile

The Republic of Burundi, is a landlocked country in the Great Lakes region of Eastern Africa bordered by Rwanda to the north, Tanzania to the east and south, and the Democratic Republic of the Congo to the west. Its size is just under 28,000 km² with an estimated population of almost 9,1million inhabitants. The capital is Bujumbura. Although the country is landlocked, much of the south-western border is adjacent to Lake Tanganyika.

French and Kirundi are the official languages and Swahili is widely spoken along Lake Tanganyika and in the Bujumbura area.

- GDP per capita: $US 180 in 2010;
- Real growth rate: 3.9 % in 2010
- Inflation rate in 2010: 8%

Figure 2: Map of Republic of Burundi

1 Burundi Spectrum Management Framework

The "Office National des Télécommunications (Onatel)" is a state-owned corporation in charge of the provision of telecommunications services in Burundi. Onatel is accountable to the « Ministère des Transports, Postes et Télécommunications ».

ICT sector is liberalized in Burundi.

- Fixed Telephony: Onatel (copper wire) and U COM (CDMA).
- Mobile phone network: Africell PLC Company in GSM 900 MHz bands, Econet Wireless Burundi PLC in 90O / 1800 MHz bands, Lacell Su in 1800 MHz bands (Smart Mobile), Onamob / Telecel (operating cellular network in Burundi as a joint venture with Onatel) in 900 MHz bands, U-COM Burundi S.A. in 900 MHz bands, Hits telecom (network not yet installed).
- Internet: In addition to the 06 mobile operators also ISP, 04 other structures are involved in internet activities (Cbinet, Usan, Spedernet and Osa).
- Sound broadcasting: The "Radio Télévision Nationale du Burundi" is the state-owned sound operator. 19 local stations and 2 foreign have broadcasting licenses.
- Television broadcasting: The "Radio Télévision Nationale du Burundi" is the state-owned television operator in addition to 3 private stations.

1.1 Legal basis

- Decree-Law No 1/011 of 04 September 1997 to govern Organic Provisions on Telecommunications.
- Decree No 100/182 of 30 September 1997 to establish the statutes of the "Agence de Régulation et de Contrôle des Télécommunications"(ARCT)".
- Ministerial Order No 520/730/ 540/231 of 09 April 1999 to fix operating conditions of activities in the telecommunications sector.

1.2 National Table of Frequency Allocations

ARCT is updating a National Table of Frequency Allocations (NTFA). There are no notable differences between the current National Table of Frequency Allocations and the ITU one.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

Burundi is member of the East Africa Community (EAC). Inside EAC there are guidelines relating to bilateral and multilateral coordination. Burundi is waiting for the adoption of the relevant document.

2.2 Cross Border Frequency Coordination Framework

Coordination meetings took place between Burundi, Rwanda and Tanzania. Elaboration of agreements is still underway.

2.3 Bilateral / Multilateral agreement

The situation is more or less clear with the EAC countries (Rwanda, Tanzania). It is still necessary to work with DR-Congo to establish cross-border frequency coordination.

Country	Frequency Bands	Service	Periodicity of Meetings
RWANDA	1) 87,5-108 MHZ 2) Bande III, IV et IV (GE-06)	Broadcasting	At least once a year (2009 and 2010).
TANZANIA	1) 87,5-108 MHZ 2) Bande III, IV et IV (GE-06)	Broadcasting	At least once a year (2009 and 2010).
DR Congo	-	-	-

2.4 Interference problems and cross border frequency coordination experiences

In 2009, a case of sound broadcasting interference at the Mutumba site (Burundi) was observed. Contacts were taken with Rwanda's Administration who stopped using the relevant frequency. Similar works were done with Tanzania.
Compromise solutions are on the way with Rwanda for digital broadcasting terrestrial frequencies.

Country	Frequency Bands	Service	Periodicity of Meetings
RWANDA	1) 87,5-108 MHZ 2) Bands III, IV & IV 3) 900 Mhz, 1800 Mhz, 2,5 Ghz, 3.5 Ghz, 4) 6 Ghz, 7Ghz, 8 Ghz, , 13 Ghz, 15 Ghz, 18 Ghz	Broadcasting Broadcasting Mobile Fixed	Once a year
TANZANIA	1) 87,5-108 MHZ 2) Bands III, IV and IV 3) 900 Mhz, 1800 Mhz, 2,5 Ghz, 3.5 Ghz, 4) 6 Ghz, 7Ghz, 8 Ghz, , 13 Ghz, 15 Ghz, 18 Ghz	Broadcasting Broadcasting Mobile Fixed	Once a year
DR Congo	1) 87,5-108 MHZ 2) Bande III, IV et IV 3) 900 Mhz, 1800 Mhz, 2,5 Ghz, 3.5 Ghz, 4) 6 Ghz, 7Ghz, 8 Ghz, , 13 Ghz, 15 Ghz, 18 Ghz	Broadcasting Broadcasting Mobile Fixed	Once a year

2.5 Coordination agreements required

The country does not have a frequency registrar for storing the co-ordination results. After successful coordination the operator proceeds to the switching on of the station.

ARCT does not have predefined coordination category (preferential, shared, etc.)

2.6 Data Exchange Format

Burundi does not have any specific data formats for the exchange of relevant information. CD and DVD are usually used for data exchange format and method.

2.7 Tools and database used

For coordination or registration no specific type of ITU tools, database, and propagation model is used.

No other developed of purchased tool is provided for coordination or interference resolution.

The typical digital terrain data parameters necessary for interference calculations (elevation or morphological data, geographical projection system, resolution of the terrain close to the borders, point or line where the calculation is made, resolution of maps to determine the relevant terrestrial profiles) are not used.

3 Observations

ARCT suffers from lack of:

- Professional spectrum management software tool which can help to acquire typical digital terrain data parameters necessary for interference calculations (elevation or morphological data, geographical projection system, resolution of the terrain close to the borders, point or line where the calculation is made, resolution of maps to determine the relevant terrestrial profiles)
- Specific data formats for the exchange of relevant information.
- A frequency register for storing the co-ordination results.
- Predefined coordination category (preferential, shared, etc.).
- Specific frequency coordination framework.
- Signed bilateral or multilateral agreement with neighbouring countries.

4 Conclusions and recommendations

It is strongly recommended to Burundi to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. ARCT must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

The country always participates in international conferences and workshops. An efficient framework should be helpful in the process of managing cross border coordination. Capable human resources and good will are present for that issue.

5 Contacts

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Republic of Cameroon Report

Republic of Cameroon

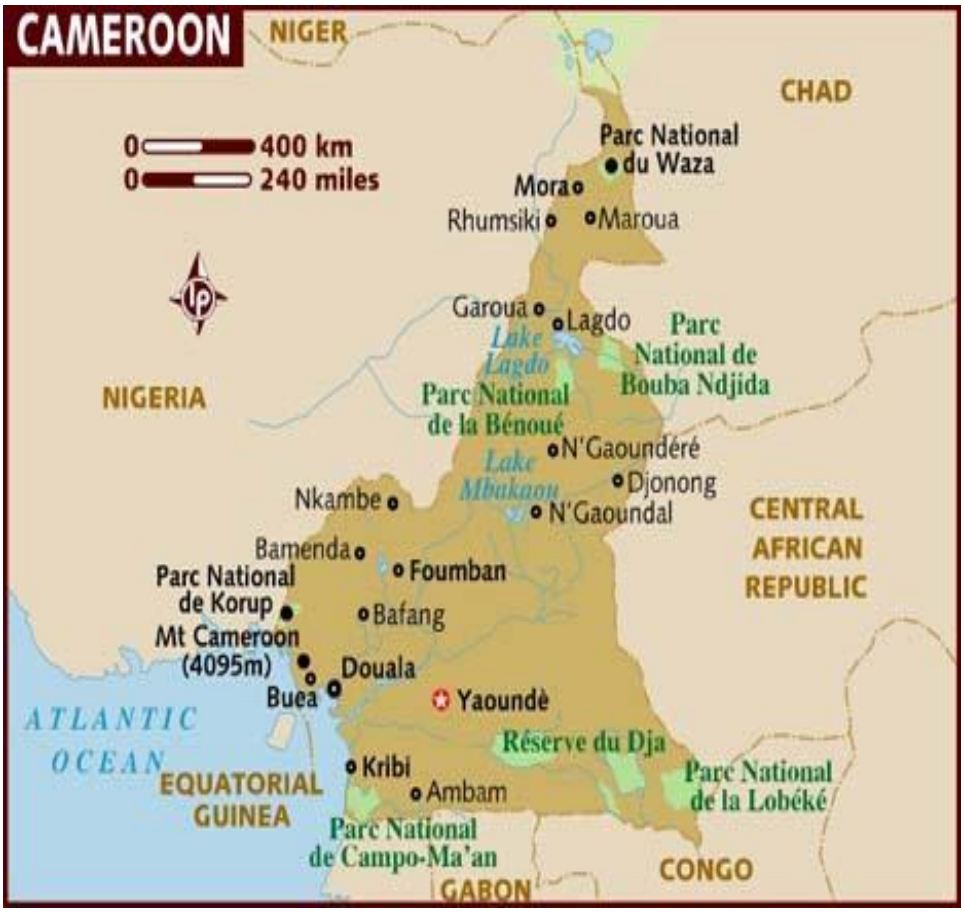
Country profile

Cameroon, officially the Republic of Cameroon is a country of central and western Africa with a surface area of 475,650 km2. The capital is Yaounde. It is bordered by Nigeria to the west; Chad to the northeast; the Central African Republic to the east; and Equatorial Guinea, Gabon, and the Republic of the Congo to the south. Cameroon's coastline lies on the Bight of Bonny, part of the Gulf of Guinea and the Atlantic Ocean. The country is called "Africa in miniature" for its geological and cultural diversity. Natural features include beaches, deserts, mountains, rainforests, and savannahs. French and English are the official languages, although French is more commonly spoken. There are also numerous African dialects.

Cameroon macro-economic statistics are as follows:

- Population: 19,406,100 inhabitants;
- GDP per capita: $US 1,100;
- Real growth rate: 4% in 2010.
- Inflation rate in 2010: 3%

Figure 3: Map of Republic of Cameroon



1 Cameroon Spectrum Management Framework

The Ministry of Posts and Telecommunications (MINPOSTEL) is the structure governing the sector strategy for telecommunications in Cameroon.

The Telecommunication Regulatory Board (Agence de Regulation des Télécommunications - ART) takes care of the regulation of telecommunications and the Internet, while the Ministry of Communication (MINCOM) takes care of the regulation of broadcasting frequencies and of the contents.

On June 2009 an inter-ministerial board for frequency bands allocation (CIABAF - Comité Inter-Ministériel d'Attribution des Bandes de Frequences) was brought into function under the supervision of MINPOSTEL. The board is responsible of national frequency bands allocation; and it gathers all ministries and bodies involved in frequency use and management.

The major stakeholders spearheading the telecommunications market are:

- The historical operator, Cameroon Telecommunications (CAMTEL), government-owned and holding a provisional concession agreement, is the provider of fixed (PSTN, ADSL) and wireless telephony (CDMA), internet (ADSL, WiFi), and international satellite services (VSAT), optical transmissions, value added services.
- The private mobile GSM telecommunications (Mobile Telecommunications Network - MTN, Orange) providing also Internet connections (WiFi, WIMAX), value added services.
- More than 30 operators of network open to the public and more than 20 telecommunications service providers.

The functions of ART are, among other things:

- To decide on the issuing of rates (network access costs, call rates, subscription fees);
- To control activities ensuring that operators and other stakeholders implement and respect the prescriptions contained in their specifications.
- To ensure interconnection, collocation and infrastructure sharing.
- To manage scare resources (frequencies, numbering plan,
- To follow up standardization, certification and permit.

The MINCOM task is, among other things, to ensure the freedom and protection of the press as well as all the means of mass communication in respect of the law. In addition, the MINCOM is responsible for the use and allocation of frequencies devoted to radio and television broadcasting.

As a summary:

- Ministry of Posts and Telecommunications (MINPOSTEL) with the technical support of the Ministry of Communication (MINCOM) is responsible for broadcasting services frequency coordination.
- Ministry of Posts and Telecommunications (MINPOSTEL) with the technical support of the Telecommunication Regulatory Board (TRB / ART) is responsible for civil services frequency bands coordination.
- MINPOSTEL with the technical support of TRB or the Ministry of Territorial Administration (MINATD) deals with governmental frequency uses depending on relevant cases.
- For security (military) frequency bands MINPOSTEL works with the technical support of TRB or the Ministry of Defence, Police Department depending on relevant cases.

Some cases of challenges between the different bodies have been experienced in the past. There were redundant frequency assignments between TRB and Aeronautical Authority for example sometimes. The creation by the Government of the Inter-Ministerial Board for Frequency Band Allocation (CIABAF) and its effective functioning helped to resolve these problems. CIABAF is the unique national body handling the national frequency band allocations in conformity with the ITU RR and the requirements of the different bodies handling the management of frequency assignments.

1.1 Legal basis

Many legal texts have been adopted for the development of telecommunications and broadcasting in Cameroon:

- Law No. 67/LF /20 of 12 June 1967 to regulate private radio communication activities and to determine corresponding taxes settlement, modified in 1973 to consider broadcasting.
- Law No.98-14 of 14 July 1998 to govern telecommunications in Cameroon.
- Decree No.98/197 of 08 September 1998 to organize and operate Telecommunications Regulatory Board.
- Law No. 2010/013 of 21 December 2010 to govern electronic communications in Cameroon.
- Law No. 90/052 of 19 December 2010 relating to freedom of social communication.
- Decree No 2000/158 of 03 April 2000 to determine conditions and modes of creation and operating private audio-visual communication enterprises.

1.2 National Table of Frequency Allocations

Actually, Cameroon does not have a National Table of Frequency Allocation (NTFA). A project has been launched since 2010 by the Ministry of Posts and Telecommunications (MINPOSTEL) to acquire a NTFA. A specialized French consultancy (JIDCOM) is leading that job in the framework of World Bank CAB projects (Central African Backbone).

Established plans by the Telecommunications Regulatory Board (TRB) are in respect to ITU Table of Frequency Allocations. These plans concern specific applications:

- Inter urban microwave links;
- Urban microwave links;
- Wireless internet (fixed and mobile) through Local Radio Loop;
- MMDS network;
- Extension plan of GSM on 1800 MHz band with 200 KHz channel;
- Frequency plan with 4 KHz spacing for HF fixed networks (3-30 MHz) ;
- Frequency plan with 25 KHz spacing for PMR (Private Mobile Radio) networks;
- Frequency plan for mobile phone networks in the 900 MHz GSM bands.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

Organizations responsible for frequency management are also dealing with cross border frequency coordination. MINPOSTEL and ART lead the procedure with the technical assistance of the specialized bodies.

2.2 Cross Border Frequency Coordination Framework

No specific framework (administrative procedures and technical provisions) for cross-border frequency coordination exists.

2.3 Bilateral / Multilateral agreement

A cross border frequency coordination agreement for GSM 900 MHz frequency band has been signed between Cameroon and Chad on 03 September 2009. (See copy in the annexes). It took 04 years of effective negotiations.

Phases	Band	Services	Neighbouring Country	Periodicity of Meetings
Agreement Negotiation	900 MHz (GSM) 800 MHz (CDMA)	MINPOSTEL ART Operators (Camtel, MTN, Orange)	CHAD	Not specified
Follow up of the Agreement	900 MHz (GSM) 800 MHz (CDMA)	ART Operators (Camtel, MTN, Orange)	CHAD	Twice a year Once in Chad Once in Cameroun

2.4 Interference problems and cross border frequency coordination experiences

The country experiences interference coming from across the border, but there is no specific procedure in place to handle this. The procedure in place handles internal and across the border interferences without any distinction. (See TRB instructions in the annexes).

2.5 Coordination agreements required

Band	Services	Neighbouring Country	Periodicity of Meetings
900 MHz (GSM) 800 MHz (CDMA)	MINPOSTEL ART Operators (Camtel, MTN, Orange)	Chad CA Rep. Gabon Equatorial Guinea Congo	Once a year
Bands for microwave links between countries	ART Operators (Camtel, MTN, Orange)	CHAD	Once a year

2.6 Data Exchange Format

The country does not have a specific format for coordination purpose. Internet and paper confirmation are used for data exchange information.

2.7 Tools and database used

TRB recently acquired SMS4DC software (February 2011). Trainings are programmed to master the use of the software.

3 Observations

TRB / ART suffers from lack of:

- Training allowing the total mastering of ITU SMS4DC.
- Specific format for coordination purpose.
- Specific procedure in place to handle interferences coming from across the border.
- Specific framework (administrative procedures and technical provisions) for cross-border frequency coordination.
- A National Table of Frequency Allocation (NTFA).

4 Conclusions and recommendations

In Cameroon there is an inter-ministerial board for frequency bands allocation (CIABAF - Comité Inter-Ministériel d'Attribution des Bandes de Fréquences) under the supervision of MINPOSTEL. The board is responsible for national frequency bands allocation. TRB / ART takes part in CIABAF activities.

It is strongly recommended to CIABAF to include in the plan of actions of its Technical Secretariat the resolution of the above-mentioned inadequacies.

The existing agreement with Chad should be extended and made applicable in a multilateral form.

The other neighbouring countries should benefit from this extension.

Cameroon is sharing more than 1500 Km on the boundary with Nigeria which is a West Africa country. That means that the regional frequency plans and agreements must be applicable to both countries. Only a multilateral agreement at the sub-Sahara Africa level might resolve cross border frequency interferences in this case. The setting up of the future HCM4A is strongly encouraged.

5 Contacts

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Central African Republic Report

Central African Republic

Country profile

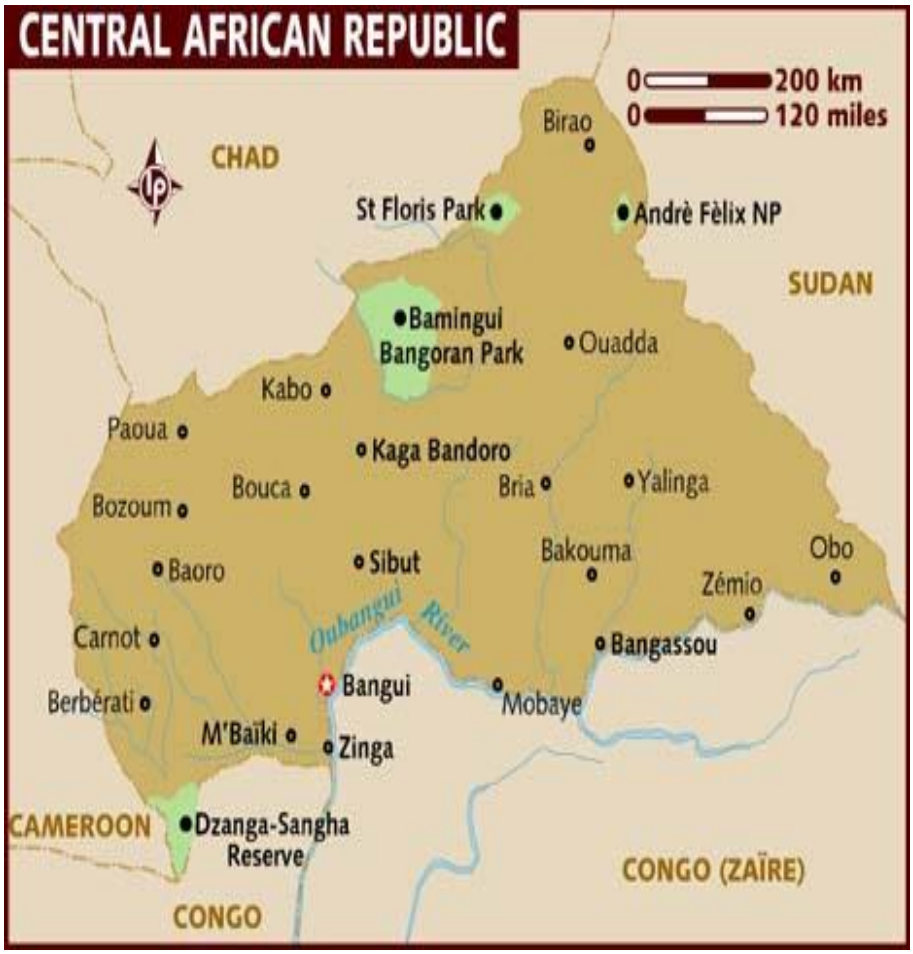
The Central African Republic is a landlocked country in Central Africa. It borders Chad in the north, Sudan in the east, the Democratic Republic of the Congo and the Republic of the Congo in the south, and Cameroon in the west. The country covers a land area of about 623,000 km², and has an estimated population of about 4.4 million as of 2008. Bangui is the capital city. French is the official language.

Most of the Central African Republic consists of Sudano-Guinean savannahs but it also includes a Sahelo-Sudanian zone in the north and an equatorial forest zone in the south. Two thirds of the country lies in the basins of the Ubangi River, which flows south into the Congo River, while the remaining third lies in the basin of the Chari River, which flows north into Lake Chad.

The Central African Republic macro-economic statistics are as follows:

- GDP per capita: $US 436 in 2010;
- Real growth rate: 3% in 2010;
- Inflation rate: 2.1% in 2010

Figure 4: Map of Central African Republic



1 Central African Republic Spectrum Management Framework

The "Agence de Régulation des Télécommunications" (ART) is responsible for spectrum management in the Central African Republic.

The « Haut Conseil de la Communications » (HCC) deals with broadcasting services, and the « Ministère de la Défense Nationale » with security (military) services.

ART is responsible for additional areas such as civil and governmental uses).

There are no challenges between the different bodies handling the management of frequency bands.

The « Societé Centrafricaine des Télécommunications » (SOCATEL) is the historical telecommunications operator. SOCATEL provides fixed telephone service, Internet and faxes.

Four mobile operators offer nearly the same services:

- Telecel Centrafrique in 900 / 1800 MHz bands
- GSM, GPRS, EDGE, Voice, Data (internet), SMS banking, Wimax / Microwaves link
- Orange Centrafrique in 900 / 1800 MHz bands
- GSM, GPRS, EDGE, Voice, Data (internet),Wimax / Microwaves link
- Moov Centrafrique in 900 / 1800 MHz bands
- GSM, GPRS, EDGE, Voice, Data (internet), Wimax / Microwaves link
- Azur in 900 / 1800 MHz bands
- GSM, GPRS, EDGE, Voice, Data, Microwaves link

Radio broadcasting:

- 4 radio stations in FM and AM bands broadcasting religious programmes.
- 2 radio stations for NGOs in FM and AM bands.
- 1 radio station nationale (in the FM and AM bands)

TV Broadcasting :

- 1 digital TV station in the UHF band (Private and commercial)
- 1 analog TV station in the VHF band (Governmental).

1.1 Legal basis

The relevant legislative acts are as follows:

- Loi n° 07.020 of 28 decembre 2007 regulating telecommuncitions in CAR.
- Loi n° 07.021 du 28 décembre 2007 establishing taxes and contributions

1.2 National Table of Frequency Allocations

The country has a National Table of Frequency Allocations. No notable difference with ITU table.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

The "Agence de Régulation des Télécommunications" (ART) is responsible for cross border frequency coordination.

2.2 Cross Border Frequency Coordination Framework

No special framework is in place in the country (administrative procedures and technical provisions) for cross-border frequency coordination.

2.3 Bilateral / Multilateral agreement

No bilateral or multilateral agreement has been signed so far in the field of cross border frequency coordination.

2.4 Interference problems and cross border frequency coordination experiences

ART is facing interference problems with DR Congo.

Band	Service	Type of problem
900MHz	GSM	Co-channel Interference Between operators MOOV and TELECEL with RDCongo one VODAFONE.

Band	Services	Neighbouring Country	Coordination
HF	Fixed, fixed and mobile terrestrial	DR CONGO CAMEROON CHAD SUDAN	No action so far
VUSHF	Fixed, fixed and mobile terrestrial Mobile, data	DR CONGO	Unsuccessful coordination trial

2.5 Coordination agreements required

Coordination agreements are necessary with some neighbouring countries.

Band	Service	Neighbouring Country	Coordination Priority
HF	Fixed, fixed and mobile terrestrial	DR CONGO CAMEROON CHAD SUDAN	No priority for the moment
VUSHF	Fixed, fixed and mobile terrestrial Mobile, data	DR CONGO CAMEROON	900 MHz GSM Band network and DCS1800.

2.6 Data Exchange Format

There is no specific mentioned data exchange format.

2.7 Tools and database used

Band	Propagation Model
HF	Free Space
VUHF	Free Space
GSM900/DCS1800	Okumura Hata * Erceg model * Walfisch Ikegami

3 Observations

Following analysis of the responses to the questionnaire it appears that ART suffers from lack of:

- Specific data exchange format.
- Means to resolve interference problems and cross border frequency coordination.
- Existing bilateral or multilateral agreements with neighbours.
- Specific cross border frequency coordination framework

4 Conclusions and recommendations

It is strongly recommended to Central African Republic to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. ART must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

Real good will is noticed to quickly supply necessary information allowing the setting up of the future multilateral agreement. That would certainly be helpful to resolve coordination matters.

More participation to workshops should allow mastery of tool and software usages in the field of frequency management.

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Republic of Chad

Country profile

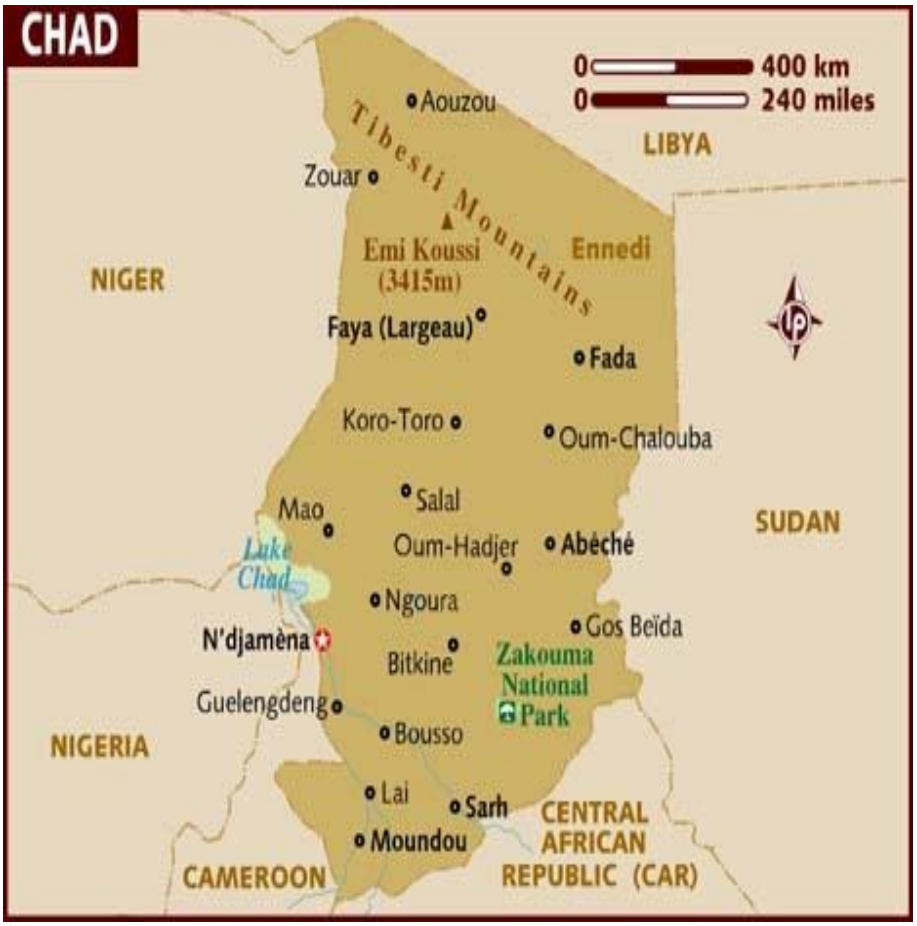
Chad is a landlocked country in Central Africa with a population estimated in 2009 of 10,329,208 inhabitants. It is bordered by Libya to the north, Sudan to the east, the Central African Republic to the south, Cameroon and Nigeria to the southwest, and Niger to the west. Due to its distance from the sea and its largely desert climate, the country is sometimes referred to as the "Dead Heart of Africa".

Chad is divided into multiple regions: a desert zone in the north, an arid Sahel belt in the centre and a more fertile Sudanese savannah zone in the south. Lake Chad, after which the country is named, is the largest wetland in Chad and the second largest in Africa. N'Djamena the capital is the largest city. Arabic and French are the official languages.

Chad macro-economic statistics are as follows:

- GDP per capita: $US 767 in 2010;
- Real growth rate: 2 % estimated in 2010;
- Inflation rate: 6% in 2010.

Figure 5: Map of Republic of Chad



1 Chad Spectrum Management Framework

The "Office Tchadien de Régulation des Télécommunications" (OTRT) is responsible of spectrum management and frequency coordination in the country for civil bands, governmental uses.

OTRT allocates frequency bands to relevant security services.

The "Haut Conseil de la Communication" (HCC) manages frequencies for broadcasting services.

The telecommunication infrastructure is based on the Telecommunication Act of 17 August 1998 that was promulgated. As a result of this Act, a new company has been established for operating basic telephony, namely the Société des Télécommunications du Tchad (SOTEL Tchad), which has been granted a five-year period of exclusivity, as well as the Office Tchadien de Régulation des Télécommunications (OTRT), responsible for regulation of the telecommunication sector.

The mobile sector is growing fast under competition between two foreign-owned networks - Zain (formerly Celtel), and Millicom (Tigo) both operating in 900 MHz band. The national telco and fixed-line operator, Sotel Tchad (ST) was participating in another mobile network in partnership with Orascom Telecom until it ceased operations in 2004 over legal disputes between the shareholders. ST is rolling out a CDMA2000 fixed-wireless system that enables it to potentially re-enter the mobile sector. The technology also holds the potential to provide broadband services with an upgrade to the EV-DO standard. Funding from the World Bank agreed in mid-2009 for the Central African Backbone (CAB) project may now finally bring fibre to the country in 2011.

The broadcasting market is structured as follows:

- Radio Broadcasting: Radiodiffusion Nationale Tchadienne is the state-operated national radio broadcaster including 2 AM/SW, 4 FM.
- Television Broadcasting: Télé Tchad is the state-operated national television broadcaster.

1.1 Legal basis

- Law No 09-0098/PR/98 du 17/08/98 governing telecommunications.
- Edict No 017/PR/2011, to set up the « Société d'infrastructures de transmission des communications électroniques par fibre optique du Tchad (SITCOM TCHAD) ».
- Decree No 453-99/PR/MPT/99 to approve statutes of the " Office Tchadien de Régulation des Télécommunications (OTRT)";
- Decree No 280-05 to limit the number of authorizations for telecommunication networks development and operation.
- Decree No 286-09 to approve the National Strategy for the development of Information and Communication Technologies (SNDTIC).
- Decree No 249/PR/PM/MPTIC/2011 of 24 March 2011, to set up conditions and thresholds for penalties to apply to telephony operators in the field of quality of service.
- Order No 008-04 to deal with conflict regulation procedure.
- Order No 009-04 relating to investigations in OTRT.

1.2 National Table of Frequency Allocations

The NTFA is in the process of being elaborated according to ITU TFA.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

A committee is in charge of problems relating to frequency coordination on the Cameroon-Chad border.

2.2 Cross Border Frequency Coordination Framework

No special framework. An Act set up a Committee in charge of the application of Coordination Agreement between Chad and Cameroon.

2.3 Bilateral / Multilateral agreement

Coordination Agreement between Chad and Cameroon on the 900 MHz GSM band:
The created control Committee held only one meeting. The coordination works not ended.

Meeting Schedule

Designation	Date	Place
1st Meeting OTRT-ART	20/12/2003	Garoua, Cameroon
2nd Meeting OTRT-ART	10/02/2004	Garoua, Cameroon
3rd Meeting OTRT-ART	30 – 31/08/2004	Garoua, Cameroon
4th Meeting OTRT-ART	01 – 02/07/2008	N'Djamena, Tchad
5th Meeting OTRT-ART	22 – 23/09/2008	Maroua, Cameroon
6th Meeting OTRT-ART	01 – 03 /09/2009	Maroua, Cameroon
1st Meeting of Control Committee OTRT-ART	03 – 04/03/2010	N'Djamena, Tchad

2.4 Interference problems and cross border frequency coordination experiences

Chad shares boundaries with six countries. Only interference problems with Cameroon are mentioned certainly because the capital N'djamena is just near.

2.5 Coordination agreements required

Sharing boundaries with six countries coordination agreements certainly are required.

2.6 Data Exchange Format

All data exchange uses Internet means (mails).

2.7 Tools and database used

Only TEMS Investigation is used as radio parameters measuring tool for interference investigation in border area (coverage quality, quality of service, audio quality).

3 Observations

Following analysis of the responses to the questionnaire it appears that OTRT suffers from lack of:

- Professional spectrum management tool.
- Specific cross border coordination framework.
- National Table of Frequency Allocations.
- Fast broadband Internet network to quickly exchange information.

4 Conclusions and recommendations

For more efficient operations it is strongly recommended to Chad to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. OTRT must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

Chad will certainly gain an advantage in the setting up of a multilateral cross border frequency agreement. An agreement already exists with Cameroon helping to resolve current frequency interferences. How to extend it to a multilateral form? Question to think about.

5 Contacts

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Republic of Congo

Country profile

Congo is a state in Central Africa. It is bordered by Gabon, Cameroon, the Central African Republic, the Democratic Republic of the Congo, the Angolan exclave province of Cabinda, and the Gulf of Guinea; with an estimated population of about 4,125,916 inhabitants as of 2010. The country covers a land area of about 342,000 km2. Brazzaville was selected as the federal capital.

French is the official language.

Congo macro-economic statistics are as follows:

- GDP per capita: $US 2,983 in 2010;
- Real growth rate: 2.8 % in 2010;
- Inflation rate: 26 % in 2010

Figure 6: Map of Republic of Congo

1 Congo Spectrum Management Framework

The "Agence de Régulation des Postes et des Communications Electroniques" (ARPCE) is the body managing frequencies for civil bands and government uses; while the "Conseil Supérieur de la Liberté de Communication (CSLC)" manages broadcasting frequencies.

No challenge between the different bodies.

"Congo Telecom" is the government owned telecommunication structure operating in fixed telephony and Internet ADSL.

Mobile network operators: Warid (900 / 1800 MHz GSM, GPRS / EDGE), Airtel (900 / 1800 MHz GSM, internet Wimax), MTN (900 / 1800 MHz GSM, internet Wimax), Azur (900 / 1800 MHz GSM, GPRS / EDGE).

Broadcast media: 1 state-owned TV and 3 state-owned radio stations; several privately-owned TV(more than 15) and radio stations (around 15); satellite TV service is available; rebroadcasts of several international broadcasters are available.

1.1 Legal basis

Law N° 9 – 2009 of 25 November 2009 to regulate electronic communications sector.

1.2 National Table of Frequency Allocations

NTFA is in the process of approval by the Government.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

ARPCE and CSLC are responsible for the international cross border frequency coordination respectively for civil bands and broadcasting services.

2.2 Cross Border Frequency Coordination Framework

Congo does not have a framework (administrative procedures and technical provisions) for cross-border frequency coordination. ARPCE is now working on this matter.

The recent example of unsuccessful approach to handle coordination was the broadcasting harmful interference problems between Brazzaville and Kinshasa.

2.3 Bilateral / Multilateral agreement

The country does not have any cross border frequency coordination agreements. ARPCE and CSLC are now working on this matter with neighbouring colleagues. Congo does not have predefined coordination category (preferential, shared, etc.) Negotiations with our neighbours must allow us to define coordination category.

2.4 Interference problems and cross border frequency coordination experiences

Congo experiences interference coming from across its borders. A specific procedure is not yet in place to handle the situation. Approaches are in experimentation.

The country does not have a frequency register for storing the co-ordination results. ARPCE is elaborating the register. The regulatory body is now operating SMS4DC software, which implies the setting up of a register to notify frequencies to ITU.

2.5 Coordination agreements required

The country had talks with DR-Congo on coordination matters.

Band (MHz)	Services	Country	Periodicity
87,5 – 108	FM –BROADCASTING	DR Congo	Frequently
174 – 230 470 – 862	TV VHF-BROADCASTING TV UHF-BROADCASTING	DR Congo	Frequently
117,975-137	MOBILE AERONAUTIQUE ®	DR Congo	Limited
137- 174 406,1 – 430 440-450	MOBILE except AERONAUTICAL MOBILE(R) PMR	DR Congo	Frequently
880 – 960	MOBILE except AERONAUTICAL MOBILE(R) GSM	DR Congo	Frequently
2500 – 2690	FIXED – BLR et WIMAX	DR Congo	Frequently

Congo is sharing borders with 5 countries and certainly faces interference problems with them.

Only DR Congo is mentioned may be because the two capitals Brazzaville and Kinshasa are facing each other.

2.6 Data Exchange Format

Congo does not use predefined data formats for the exchange of relevant information.

2.7 Tools and database used

ARPCE is prospecting for the acquisition of a propagation simulation tool. However SMS4DC software tool allows us to simulate interference resolution.

Calculations are based on Google map from SMS4DC software.

3 Observations

Following analyses of the responses to the questionnaire it appears that ARPCE suffers from lack of:

- Training to mastering professional spectrum management tool such as ITU SMS4DC.
- Predefined data formats for the exchange of relevant information.
- Specific procedure to handle interference problems.

- Specific framework (administrative procedures and technical provisions) for cross-border frequency coordination.
- Existing cross border frequency agreement with neighbouring countries.
- Existing National Table of Frequency Allocations.

4 Conclusions and recommendations

For more efficient operations it is strongly recommended to Congo to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. ARPCE and CSLC must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

Congo has a recently created new body to manage frequency spectrum (ARPCE) apart from broadcasting frequencies. It is an advantage for the country, which can rebuild an efficient frequency structure with the help of regional and international organizations involved in telecommunications issues.

5 Contacts

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Democratic Republic of Congo

Country profile

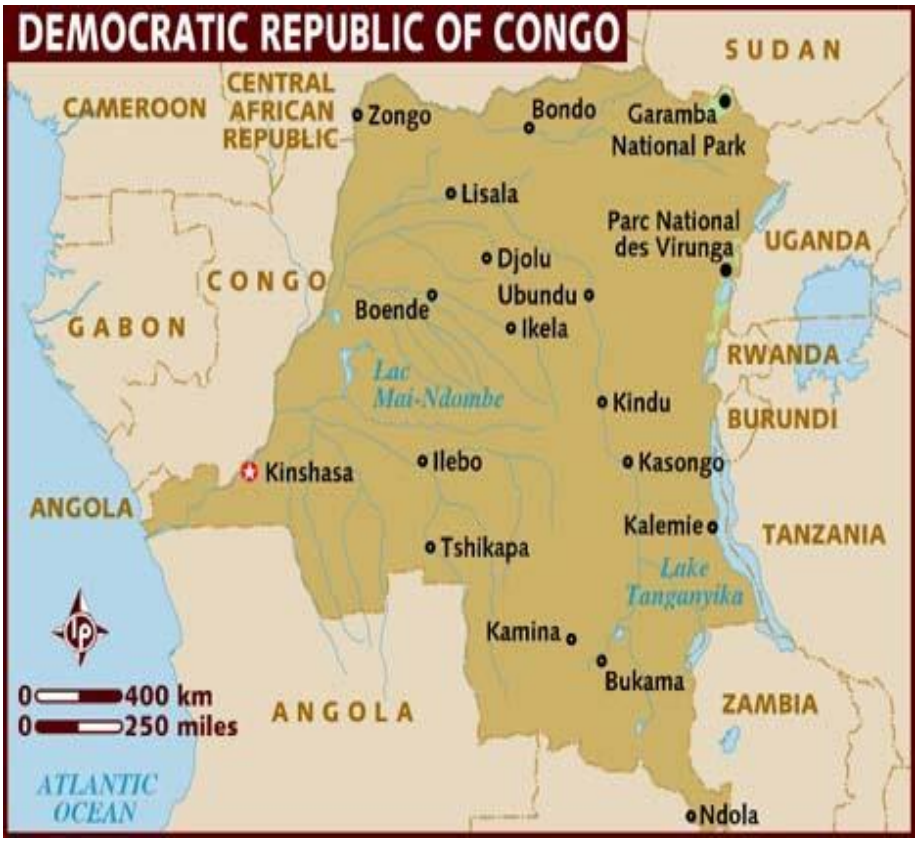
The Democratic Republic of the Congo is a state located in Central Africa, with a short Atlantic coastline (37 km). It is the third largest country in Africa by area of 2,345,409 km2.With a population of nearly 71 million, the Democratic Republic of the Congo is the eighteenth most populated nation in the world, and the fourth most populous nation in Africa, as well as the most populous officially Francophone country.

The country also borders the Central African Republic and Sudan to the north; Uganda, Rwanda, and Burundi in the east; Zambia and Angola to the south; the Atlantic Ocean to the west; and is separated from Tanzania by Lake Tanganyika in the east. The country has access to the ocean through a 40-kilometre stretch of Atlantic coastline at Muanda and the roughly 9 km wide mouth of the Congo River, which opens into the Gulf of Guinea.

DR-Congo macro-economic statistics are as follows:

- GDP per capita: $US 186 in 2010;
- Real growth rate: 3 % estimated in 2010;
- Inflation rate: 26.2 % estimated in 2010.

Figure 7: Map of the Democratic Republic of Congo



1 DR Congo Spectrum Management Framework

The "Autorité de Régulation de la Poste et des Télécommunications du Congo" (ARPTC) is the body responsible for spectrum management in the country in the fields of broadcasting, government and civil uses.

The "Office Congolais des Postes et Télécommunications" (OCPT-SCPT) is the historical governmental telecommunication operator (Fixed-copper cable).

There are other structures operating in the field of fixed telephony: Smile (Fixed-Mobile), Sogetel (Fixed-CT2-WLL), and Standard Telecom (Fixed-CDMA).

The country gathers many GSM mobile phone operators: Celtel-900 & 1800 MHz (Airtel-Zain), Vodacom Congo-900&1800 MHz, Tigo/Oasis-DCS 1800 MHz, Congo Chine telecom-900&1800 MHz, Supercell-900 MHz, Africell-900&1800 MHz, Sematel-1800 MHz, Yozma-1800 MHz.

The « Autorité des médias » manages the broadcasted contents while ARPTC allocates broadcasting frequencies and manages the containers.

The audiovisual media is fully liberalized. Only in the capital Kinshasa, there are more than 60 FM stations, and 70 TV programmes.

1.1 Legal basis

- Law No 014 / 2002 of 16 October 2002 to set up the "Autorité de Régulation de la Poste et des Télécomunications (ARPTC)".
- Blueprint Law No 013/ 2002 of 16 October 2002 on Telecommunications in the Democratic Republic of Congo.
- Ministerial Order No CA B/ MIN/PTT/0027/31/93 to establish practice conditions of activities in the telecommunication sector.

1.2 National Table of Frequency Allocations

The country does not have a National Table of Frequency Allocations.

NTFA is still in the process of elaboration.

DR Congo also belongs to SADC region and consequently uses SADC regional frequency band plan. This "SADC Frequency Allocation Plan" from 9 KHz to 100 GHz had been signed in Luanda on May 20101.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

The "Autorité de Régulation de la Poste et des Télécommunications du Congo" (ARPTC) is the body also responsible for cross border frequency coordination in the country in the fields of broadcasting, government and civil uses.

[1] The document is 136 pages long.

2.2 Cross Border Frequency Coordination Framework

The country does not have a specific framework (administrative procedures and technical provisions) for cross-border frequency coordination.

2.3 Bilateral / Multilateral agreement

ARPTC have one cross border frequency coordination agreement in the process of elaboration.

2.4 Interference problems and cross border frequency coordination experiences

DR Congo shares boundaries with 9 countries.

The country experiences interferences coming from across the border but does not have a specific procedure in place to handle this. To date, Rwanda, Angola, Burundi, Uganda and Congo Brazzaville are concerned.

2.5 Coordination agreements required

Actually no coordination agreement is signed. All services and bands are concerned. Some approaches to handle coordination or interference cases are in the process of discussions. Minutes signed of the meeting between DR Congo and Angola (Cabinda/Angola-Moanda) regarding broadcasting frequency coordination.

Actual unsuccessful approach to handle coordination or interference case refers to broadcasting coordination agreement between Brazzaville and Kinshasa.

No frequency register for storing the co-ordination results and no predefined coordination category (preferential, shared, etc.) are in place.

2.6 Data Exchange Format

ARPTC has no preferential data formats for the exchange of information (CD/DVD, Internet (mail, ftp, etc.).

2.7 Tools and database used

Spectrum management tool Ellipse is planned for acquisition but not available for the moment.

3 Observations

Following analyses of the responses to the questionnaire it appears that ARPCE suffers from lack of:

- Professional spectrum management software tool.
- Frequency register for storing the coordination results.
- Specific procedure in place to handle interference problems.
- Existing cross border frequency coordination agreements.
- Specific framework for cross border frequency coordination.
- Existing National Table of Frequency Allocations.

4 Conclusions and recommendations

It is necessary for DR Congo to participate frequently to ITU World and Regional Conferences, training, seminars and workshops. That will help the local engineers to master ITU procedures and provisions.

For more efficient operations it is strongly recommended to DR Congo to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. ARPTC must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

DR Congo has the advantage that one single body, the ARPTC, manages all the main decisions regarding frequency matters. The regulation body has the means to organize an efficient framework to deal with frequency coordination matters.

The future multilateral cross border frequency agreement is necessary to help resolving interference problems that DR Congo is facing with all the neighbouring countries especially with Congo.

5 Contacts

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Republic of Equatorial Guinea Report

Republic of Equatorial Guinea

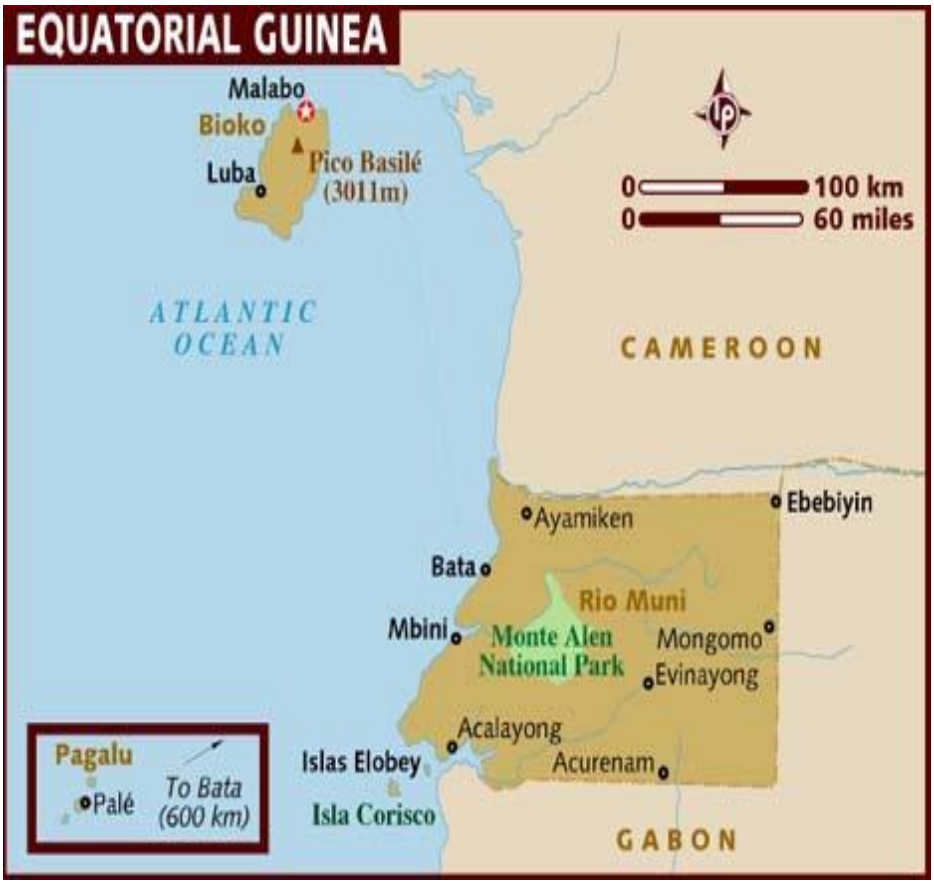
Country profile

Equatorial Guinea is a country located in Middle Africa. With an area of 28,000 km2, it is one of the smallest countries in continental Africa. It is also the richest per capita ; It has a population of 650,700. It comprises two parts: a Continental Region (Río Muni), including several small offshore islands like Corisco, Elobey Grande and Elobey Chico; and an insular region containing Annobón island and Bioko island where the capital Malabo is situated. Equatorial Guinea is bordered by Cameroon on the north, Gabon on the south and east, and the Gulf of Guinea on the west, where the island nation of São Tomé and Príncipe is located between Bioko and Annobón. Formerly the colony of Spanish Guinea, its post-independence name is suggestive of its location near both the equator and the Gulf of Guinea. It is one of the few territories in mainland Africa where Spanish is an official language.

Equatorial Guinea macro-economic statistics are as follows:

- GDP per capita: $US 11,865 in 2010;
- Real growth rate: 2 % estimated in 2010;
- Inflation rate: 6.87 % in 2010.

Figure 8: Map of Equatorial Guinea



1 Equatorial Guinea Spectrum Management Framework

The "Órgano Regulador de las Telecomunicaciones" (ORTEL) is the body responsible for spectrum management in the fields of civil and governmental uses. Regarding broadcasting services and security frequency bands a special law is coordinated by ORTEL.

ORTEL experiences a few administrative challenges with Broadcasting to handle the management of frequency band.

The Ministry of Transports, Technology, Post and Telecommunications coordinates all telecommunication matters.

In 1987, "Correos y de Telecommunicaciones" which used to be the government department responsible for the telecommunications sector was dissolved and "La Sociedad Anonima de Telecomunicaciones de la Republica de Guinea Ecuatorial - Guinea Ecuatorial de Telecomunicaciones (GETESA)" was established as a government-owned company. "France Cable et Radio", a subsidiary of France telecom, holds a 40 percent stake in GETESA, Equatorial Guinea's national and international carrier, and the remaining 60 percent of GETESA is owned by the State.

Mobile phone operators: GETESA (GSM + CDMA+ADSL), HiTsGESA (FH, Wimax).

HitsGESA implemented a GSM 2.5 / 3G capable mobile networks in Equatorial Guinea covering both the mainland and Bioko Island. An international gateway had opened competitive global telecommunications access for the country, while a national WiMax network is also implemented to provide fixed-wireless services including voice and broadband data access.

Radio broadcasters: "Radio Nacional de Guinea Equatorial" is the state-operated agency responsible for radio transmission.

Governmental broadcasting: 02 AM/SW Radio (Radio Malabo, Radio Bata), 05 FM Radio (Malabo, Bata, Voz de Kie Ntem, Ecos de Welw-Nzás and Ecos de Centro Sur.

Private broadcasting: 02 FM Radio (Radio Asonga de Malabo, Radio Asonga Bata).

Television broadcaster: Television Nacional is the state-owned agency in charge of TV transmission (RTGE).

Private TV: RTV Asonga

1.1 Legal basis

- General Law of Telecommunications No 7/2006 of 7 November 2005.
- Decree No 62/2007 of 13 September 2007 to set up internal regulation and operation of the "Officina Reguladora de las Telecomunicaciones (ORTEL)".
- Ministerial Order No 5/2008 of 20 June 2008 to regulate juridical system of radio spectrum in Equatorial Guinea.

1.2 National Table of Frequency Allocations

The country does not have a National Table of Frequency Allocations. The reference is the ITU TFA. No notable difference between the current allocations and the ITU Table of Frequency Allocations.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

The "Órgano Regulador de las Telecomunicaciones" (ORTEL) is also the body responsible for international cross border frequency coordination.

2.2 Cross Border Frequency Coordination Framework

The country does not have a framework (administrative procedures and technical provisions) for cross-border frequency coordination.

2.3 Bilateral / Multilateral agreement

ORTEL does not have any cross border frequency coordination agreement.

2.4 Interference problems and cross border frequency coordination experiences

Equatorial Guinea experiences interferences coming from across the border with Cameroon (Ebebiyin-Kie-Osi), Gabon (Mongomo) relating to GSM network of the telecom historical operator GETESA Company. In Malabo, the country is facing interference problems from Nigeria and Cameroon. Unfortunately, Equatorial Guinea does not have any management procedure or document to handle this. Information comes from people living in the boundary and suffering from this situation.

2.5 Coordination agreements required

Perturbations mostly take place in land mobile GSM 900 MHz band in the border with Cameroon and Gabon. It is difficult to precise the periodicity for the GSM coverage which sometimes totally disappears.

There are certainly others services and bands affected but studies are needed for precisions.

N°	Country	Band
1	Cameroon	900 MHz , 1800 MHz
2	Gabon	900 MHz , 1800 MHz
3	Nigeria	900 MHz, 1800 MHz

The country does not have a frequency register for storing the co-ordination results and no predefined coordination category (preferential, shared, etc.) is considered.

2.6 Data Exchange Format

CD/DVD, Internet and paper are the preferable formats for data exchange.

2.7 Tools and database used

No type of ITU tools and database is used for coordination or registration. All actual coordination approaches are still informal.

3 Observations

Following analysis of the responses to the questionnaire it appears that ORTEL suffers from lack of:

- Spectrum management software tool for coordination purpose.
- A frequency register for storing the co-ordination results.
- Management procedure or document to handle interference problems and cross border frequency coordination.
- Cross border frequency coordination agreements with neighbouring countries.
- Framework (administrative procedures and technical provisions) for cross-border frequency coordination.
- National Table of Frequency Allocations.

4 Conclusions and recommendations

It is necessary for Equatorial Guinea to participate frequently to ITU World and Regional Conferences, training, seminars and workshops. That will help the local engineers to master ITU procedures and provisions.

For more efficient operations it is strongly recommended to Equatorial Guinea to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. ORTEL must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

Equatorial Guinea is the only country where the focal point is the General Manager himself of the regulation body. It might be more efficient to dispatch the relevant attribution to collaborators who should handle the project under the control of the hierarchy.

5 Contacts

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5.2 Additional Contacts

None

Republic of Gabon Report

Republic of Gabon

Country profile

Gabon is a state in west central Africa sharing borders with Equatorial Guinea to the northwest, Cameroon to the north, and with the Republic of the Congo curving around the east and south. The Gulf of Guinea, an arm of the Atlantic Ocean is to the west. It covers a land area of nearly 270,000 km² and has an estimated population of 1,500,000. Its capital and largest city is Libreville. Gabon is a French speaking country.

There are three distinct regions: the coastal plains (ranging between 20 to 300 km from the ocean's shore), the mountains (the Cristal Mountains to the northeast of Libreville, the Chaillu Massif in the centre, culminating at 1575 m with Mont Iboundji), and the savannah in the east.

Gabon macro-economic statistics are as follows:

- GDP per capita: $US 8,724 in 2009;
- Real growth rate: 5.4 % estimated in 2010;
- Inflation rate: 7.50 % in 2010.

Figure 9: Map of Equatorial Guinea

1 Gabon Spectrum Management Framework

The “Agence Nationale des Infrastructures Numériques et des Fréquences” (ANINF) and the “Conseil National de la Communication” (CNC) are responsible of broadcasting spectrum management in Gabon.

Let us note that ANINF is a recently created regulatory body (January 2011).

Together with the « Agence de Régulation des Télécommunications (ARTEL) », ANINF also manages civil bands and governmental frequencies.

No notable challenges between these bodies so far. ARTEL is responsible of regulation matters. ARTEL decisions are submitted to the Minister for validation in particular attribution of licenses, administrative or financial penalties to operators. ANINF assists the government in the development of digital infrastructures, manages the frequency spectrum. ARTEL and ANINF are under the administrative supervision of the Ministry in charge of telecommunication and communication/ICT.

The historical telecommunication operator is “Gabon Télécom” which resumes activities of OPT (Office des Postes et des Télécommunications). It is a private structure with shared stakes held by “Maroc Telecom” (majority) and Gabonese government (minority).

The country has 04 mobile telephone operators: Celtel, Moov operating since 2000 (GSM), Libertis since 1999 (GSM), Usan gabon since 2009), Gabon telecom (CDMA).

Under the control of the Ministry of Communication, the government owns 03 broadcasting structures (Radio Gabon, Gabon TV and Télédiffusion Du Gabon).

The private broadcasting is free under the coordination of the « Conseil National de la Communication (CNC) » which delivers agreements with defined technical parameters (frequency, radiated power, antenna height, and coverage area).

All Internet providers (Solsi, Internet Gabon, Boost Africa, TLDC, IP19...) use microwaves link for their transmission. Optical fiber is still the propriety of Gabon Telecom, but the prices are controlled by ARTEL.

1.1 Legal basis

- Law No 05/2001 OF 27 June 2001 to regulate telecommunication sector in the Republic of Gabon.
- Law No 12/2001 of 12 December 2001 to set up an audio-visual communication code in the Republic of Gabon.
- Decree No 035/PR of 06 February 2010 to attribute and organize the Ministry of Communication, Post and Digital Economy.
- Decree No 0212 /PR of 27 January 2011 to set up and organize the “Agence Nationale des Infrastructures Numériques et des Fréquences (ANINF)”.

1.2 National Table of Frequency Allocations

Gabon does not have a National Table of Frequency Allocations; and there are no main differences between the current allocations and the ITU Table of Frequency Allocations.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

The « Agence Nationale des Infrastructures Numériques et des Fréquences (ANINF) » is the unique body responsible for international cross border frequency coordination.

2.2 Cross Border Frequency Coordination Framework

Two ANINF forum creations represent framework (administrative procedures and technical provisions) for cross-border frequency coordination.

2.3 Bilateral / Multilateral agreement

The country deals with cross border frequency coordination agreements only during ITU world or regional conferences.

2.4 Interference problems and cross border frequency coordination experiences

The country does not have examples of actual successful or unsuccessful approaches to handle coordination or interference cases. There is no frequency register for storing the co-ordination results and no predefined coordination category (preferential, shared, etc.).

2.5 Data Exchange Format

CD/DVD, internet and USB keys are used for data exchange format of relevant information.

2.6 Tools and database used

No ITU tools and database is used for coordination or registration matters.

3 Observations

Following analyses of the responses to the questionnaire it appears that ORTEL suffers from lack of:

- Spectrum Management software tools and database used for coordination or registration matter.
- Procedure in place to handle interference problems and cross border frequency coordination.
- Cross border frequency coordination framework.
- Existing bilateral or multilateral cross border frequency agreements with neighbours.
- Existing National Table of Frequency Allocations.

4 Conclusions and recommendations

For more efficient operations it is strongly recommended to Gabon to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. ANINF, ARTEL, and CNC must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

Gabon has an efficient human resource capacity capable of resolving cross border frequency interferences within a well organised framework. The future multilateral agreement should be very helpful for this issue.

5 Contacts

5.1 Focal Point

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D R of Sao Tome and Principe Report

Democratic Republic of Sao Tome and Principe

Country profile

Sao Tome and Príncipe is a Portuguese-speaking island nation in the Gulf of Guinea, of the western equatorial coast of Central Africa. It consists of two islands: Sao Tome and Príncipe, located about 140 Km apart and about 250 and 225 Km, respectively, of the north-western coast of Gabon. Both islands are part of an extinct volcanic mountain range. Sao Tomé, the sizable southern island, is situated just north of the equator. The country has an estimated population of 163,000 and a total land area of 1,001 km2. The capital Sao Tome gathers 95% of the population.

Sao Tome and Principe macro-economic statistics are as follows:

- GDP per capita: $US 1,174 in 2009;
- Real growth rate: 6 % estimated in 2010;
- Inflation rate: 12.28 % in 2010.

Figure 10: Map of Democratic Republic of Sao Tome and Principe

1 Sao Tome and Principe Spectrum Management Framework

The "Autoridade Geral de Regulação" (AGER, General Regulation Authority) is the governmental body responsible for spectrum management framework.

Sao Tome and Principe has only one telecommunication operator since 1975 representing the government (49%). There is no private telecommunication body so far.

Broadcasting structure gathers 05 private radio stations and 02 community radio stations.

Internet access is still very difficult waiting for the optical fibre network installation programmed for February 2012.

The national FO broadband will start operating on June 2012.

1.1 Legal basis

- Lei nº 3/2004 (Lei de Bases das Telecomunic.) - Pub. no DR n.º6, de 2 de Julho.
- Decreto - Lei nº 14/2005 (Criação e Estatutos da AGER) - Pub. no DR n.º 22, de 24 de Agosto
- Decreto - Lei nº 22/2007 (Reg. Licenças para Redes e estações de radiocomunic.) - Pub. no DR n.º 39, de 30 de Agosto
- Decreto - Lei nº 23/2007 (Tarifário do uso do espectro radioeléctrico - Pub. no DR n.º 39, de 30 de Agosto
- Decreto - Lei nº 24/2007 (Interconexão entre operadores) - Pub. no DR n.º 39, de 30 de Agosto
- Decreto nº 25/2007 (Reg. taxas a aplicar as entidades licenciadas e registadas) - Pub. no DR n.º 40, de 31 de Agosto
- Decreto nº 26/2007(Regulamenta as taxas do espectro radioeléctrico) - Pub. no DR n.º 40, de 31 de Agosto
- Decreto nº 27/2007 - Atribui a Licença da Rede Fixa à CST
- Decreto nº 33/2007 - Atribui a Licença da Rede GSM 900 à CST, Pub. no DR n.º 62, de 7 de Dezembro

1.2 National Table of Frequency Allocations

The country has a NTFA but not operating. There is a lack of government publication. Sao Tome uses ITU table of frequency allocation.

2 Cross Border Frequency Coordination

2.1 Responsibility for cross border frequency coordination

The "Autoridade Geral de Regulação" - AGER (General Regulation Authority) is a governmental body responsible for all issues relating to international coordination.

2.2 Cross Border Frequency Coordination Framework

The country does not have a framework (administrative procedures and technical provisions) for cross-border frequency coordination.

2.3 Bilateral / Multilateral agreement

The country does not have bilateral or multilateral agreement with neighbouring administrations.

2.4 Interference problems and cross border frequency coordination experiences

There are no available examples of actual approaches (successful or unsuccessful) to handle coordination or interference cases. It appears the country does not face coordination needs with neighbours. Anyhow, Sao Tome follows up all ITU requirements regarding coordination.

2.5 Coordination agreements required

Sao Tome and Principe is an island located far from neighbouring countries. The country does not experience harmful interference problems from other administrations.

2.6 Data Exchange Format

There are no appropriate data formats for the exchange of relevant information. CD, DVD and internet are used.

2.7 Tools and database used

3 Observations

There is a real will of understanding the coordination administrative procedure and technical provisions. But the country is facing a serious lack of human resources and relevant monitoring devices.

Following analyses of the responses to the questionnaire it appears that AGER suffers from lack of:

- Spectrum management software tool for coordination and registration.
- Appropriate data formats for the exchange of relevant information.
- Framework (administrative procedures and technical provisions) for cross-border frequency coordination.
- National Table of Frequency Allocations.

4 Conclusions and recommendations

It is necessary for Sao Tome and Principe to participate frequently to ITU training, seminars and workshops. That will help the local engineers to master ITU procedures and provisions.

For more efficient operations it is strongly recommended to Sao Tome and Principe to create an inter-ministerial specialized permanent technical national working group under the aegis of the Ministry in charge of Telecommunications. AGER must be part of this group. The main tasks of this group among others should be to resolve the above observed inadequacies.

It was not easy to gather information from focal point due to Internet connection from STP. Only when the focal point travelled to Cap Verde for a meeting, the transmission of information became easier.

5 Contacts

5.1 Focal Point

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5.2 Additional Contacts

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Part 3: Annexes

Annex 1: Responses to the Questionnaire

The original responses to the questionnaires are in French (Spanish for GNE). They have been translated to English.

Annex 1

– BDI Annex 1

	QUESTIONS	BURUNDI
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country?	
1.a.	For broadcasting services	Agence de Régulation et de Contrôle des Télécommunications (ARCT)
1.b.	For Civil bands	Agence de Régulation et de Contrôle des Télécommunications (ARCT)
1.c.	For Governmental uses	Agence de Régulation et de Contrôle des Télécommunications (ARCT)
1.d.	For Security (military, etc.) services, if different from above	Agence de Régulation et de Contrôle des Télécommunications (ARCT)
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No Challenge
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	Yes. ARCT is updating a National Table of Frequency Allocations (NTFA). There are not notable differences between our National Table of Frequency Allocations and the ITU one.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No answer
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	There is no Regional Band Plan.
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	BURUNDI
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	Burundi is member of The East Africa Community (EAC). Inside EAC there are guidelines relating to bilateral and multilateral coordination. Burundi is waiting for the adoption of the relevant document.
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	Coordination meetings took place between Burundi, Rwanda and Tanzania. Elaboration of agreements is still running.
8.	If your country experience interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	The situation is less clear with the EAC countries (Rwanda, Tanzania).It is still necessary to work with DR-Congo to establish cross-border frequency coordination.
9.	Please indicate in a tabular form the bands, the services, the neighbouring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Yes (table is given)
10.	Please indicate in a tabular form the bands, the services, the neighbouring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	In 2009, a case of sound broadcasting interference on the Mutumba site (Burundi) was observed. Contacts were taken with Rwanda Administration which stopped using the relevant frequency. Similar works were done with Tanzania.
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	No unsuccessful approaches. Compromise solutions are under way with Rwanda for digital broadcasting terrestrial frequencies.
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	Table is given
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No. After successful coordination we proceed to the switching on of the station.

Annex 1

	QUESTIONS	BURUNDI
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	CD / DVD
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	No specific tool
19.	Indicate with certain details any other tool used for coordination or interference resolution, whether self developed or purchased.	No specific tool
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	Not available
21.	In cases where you use digital terrain data for interference calculations indicate:	No answers
21.a.	the use of elevation and/or morphological data,	
21.b.	the type of geographical projection system you use	
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	
21.d.	the point or line whereof the calculation is made	
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No

Annex 1

– CME Annex 1

	QUESTIONS	CAMEROON
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country ?	
1.a.	For broadcasting services	Ministry of Posts and Telecommunications (MINPOSTEL) with the technical support of the Ministry of Communication (MINCOM).
1.b.	For Civil bands	Ministry of Posts and Telecommunications (MINPOSTEL) with the technical support of the Telecommunication Regulatory Board (TRB / ART).
1.c.	For Governmental uses	MINPOSTEL with the technical support of TRB or the Ministry of Territorial Administration (MINATD) depending of relevant cases.
1.d.	For Security (military, …) services, if different from above	MINPOSTEL with the technical support of TRB or the Ministry of Defense, Police Department depending of relevant cases.
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	Yes. There was a double frequency assignment between TRB and Aeronautical Authority for example sometimes. The creation by the Government of the Inter-ministerial Board for Frequency Band Allocation (CIABAF) and its operational running helped to resolve the problem. CIABAF is the unique national body handling the national frequency band allocations in conformity with the ITU RR and the requirements of the different bodies handling the management of frequency assignments.

Annex 1

	QUESTIONS	CAMEROON
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	Actually, our country does not have a NTFA. A project has been launched since 2010 by MINPOSTEL to acquire a NTFA.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	Established plans by TRB are in respect to ITU Table of Frequency Allocations. Theses plans concern specific applications (list exists).
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No
C	FREQUENCY COORDINATION PROCEDURES	
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	No
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	Yes. A coordination Agreement between Cameroon and Chad signed on the 03-09-2009. Copy is given.
8.	If your country experience interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	No. The procedures in place handle internal and across the border interferences without any distinction. (TRB instructions are given).
9.	Please indicate in a tabular form the bands, the services, the neighbouring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Table is given
10.	Please indicate in a tabular form the bands, the services, the neighbouring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	As question 9.
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	Coordination Agreement with Chad. 04 years of effective negotiations. Agreement for GSM 900 MHz frequency band.

Annex 1

	QUESTIONS	CAMEROON
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	No
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	Table is given
14.	Does your country have a frequency registrar for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No specific format.
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	Internet and on papers confirmation.
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	Recent acquisition of SMS4DC software (February 2011).
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	No
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	No
21.	In cases where you use digital terrain data for interference calculations indicate:	No
21.a.	the use of elevation and/or morphological data,	No
21.b.	the type of geographical projection system you use	No
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	No
21.d.	the point or line whereof the calculation is made	No

Annex 1

	QUESTIONS	CAMEROON
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No

Annex 1

– CAF Annex 1

	QUESTIONS	CENTRAL AFRICAN REPUBLIC
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country?	Agence de Régulation des Télécommunications (ART).
1.a.	For broadcasting services	Haut Conseil de la Communications (HCC)
1.b.	For Civil bands	Agence de Régulation des Télécommunications (ART).
1.c.	For Governmental uses	Agence de Régulation des Télécommunications (ART).
1.d.	For Security (military, …) services, if different from above	Ministère de la Défense Nationale
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief.	No
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	Yes. (Table is given)
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No answers
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No answers
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	CENTRAL AFRICAN REPUBLIC
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	No
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	No
8.	If your country experience interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	No
9.	Please indicate in a tabular form the bands, the services, the neighbouring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Table is given
10.	Please indicate in a tabular form the bands, the services, the neighbouring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	No procedure yet (Table is given)
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	No successful approaches.
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	Lack of will. Absence of country representative for discussion (RD-Congo, Central African Republic) for GSM interference channels between operators. Unsuccessful phone coordination approaches.
13.	Can you provide in a tabular form those bands, services, neighbouring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighbouring countries?	Table exists
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	Example of frequency assignment registrar presented. Electronic version not yet available.
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No answers

Annex 1

	QUESTIONS	CENTRAL AFRICAN REPUBLIC
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	Internet (mail, FTP,…
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	Our country has not started coordination procedures with neighboring countries. For the moment we use Excel and administrative management software to assign frequencies.
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	None
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	Table is given
21.	In cases where you use digital terrain data for interference calculations indicate:	No
21.a.	the use of elevation and/or morphological data,	
21.b.	the type of geographical projection system you use	
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	
21.d.	the point or line whereof the calculation is made	
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No

Annex 1

– TCD Annex 1

	QUESTIONS	CHAD
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country ?	
1.a.	For broadcasting services	Haut Conseil de la Communication (HCC)
1.b.	For Civil bands	Office Tchadien de Régulation des Télécommunications (OTRT).
1.c.	For Governmental uses	OTRT
1.d.	For Security (military, …) services, if different from above	OTRT allocates frequency bands to relevant security services
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	The NTFA is in the process of being elaborated according to ITU TFA.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	Updating according to CMR-07.
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No Regional Band Plan.
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	CHAD
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	A Committee is in charge of problems relating to frequency coordination on the Cameroon - Chad border.
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	Only one with Cameroon.
8.	If your country experiences interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	An Act creating a Committee in charge of the application of Coordination Agreement between Chad and Cameroon.
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Table is given
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	Annex B of the Coordination Agreement Chad-Cameroon.
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	The created Committee held only one meeting. The coordination works not ended.
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	As point 11
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	No answers
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	Coordination with Cameroon on the 900 MHz band.
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	Data exchanges by internet (mail).
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	Internet (mail).

Annex 1

	QUESTIONS	CHAD
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	No
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	TEMS Investigation, radio parameters measuring tool for interference investigation in border area (coverage quality, quality of service, audio quality).
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	No answers
21.	In cases where you use digital terrain data for interference calculations indicate:	No answers
21.a.	the use of elevation and/or morphological data,	
21.b.	the type of geographical projection system you use	
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	
21.d.	the point or line whereof the calculation is made	
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No answers

Annex 1

– COG Annex 1

	QUESTIONS	CONGO
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country?	
1.a.	For broadcasting services	Conseil Supérieur de la Liberté de Communication (CSLC)
1.b.	For Civil bands	Agence de Régulation des Postes et des Communications Electroniques (ARPCE)
1.c.	For Governemental uses	Agence de Régulation des Postes et des Communications Electroniques (ARPCE)
1.d.	For Security (military, …) services, if different from above	No answers
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	NTFA is in the process of approval by the Government.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No answers
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	CONGO
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	We are now working on this matter. Information later.
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	We are now working on this matter with our neighboring colleagues. Information later.
8.	If your country experience interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	We experience interferences witch are not resolved so fare. No procedure is yet approved. Approaches are in experimentation.
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Table is given
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	We have talks with DR-Congo on the point 9 matter. We were in the process to resolving WIMAX and GSM interferences.
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	Broadcasting problems between Brazzaville and Kinshasa.
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	See Table on point 9
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	We are elaborating the register. we are now operating SMS4DC software which imply the setting up of a register to notify frequencies to ITU.
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	Negotiations with our neighbors must allow us to define coordination category.
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	

	QUESTIONS	CONGO
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	We still do not use predefined formats.
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	As per point 16
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	As per point 16
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	We are prospecting for the acquisition of a propagation modelization tool. However SMS4DC software tool allows us to simulate interference resolution.
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	Propagation models are included in SMS4DC
21.	In cases where you use digital terrain data for interference calculations indicate:	Calculations are based on Google map from SMS4DC software.
21.a.	the use of elevation and/or morphological data,	No answers
21.b.	the type of geographical projection system you use	No answers
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	No answers
21.d.	the point or line whereof the calculation is made	No answers
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	The source code of SMS4DC is not opened and we do not intervene in the calculations.

Annex 1

– COD Annex 1

	QUESTIONS	DR-CONGO
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country?	
1.a.	For broadcasting services	Autorité de Régulation de la Poste et des Télécommunications du Congo (ARPTC),
1.b.	For Civil bands	ARPTC
1.c.	For Governmental uses	ARPTC
1.d.	For Security (military, …) services, if different from above	No answer
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	NTFA in the process of elaboration.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	NTFA in the process of elaboration.
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	Yes. RD-Congo is member of SADC and uses SADC Regional Band Plan.
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	DR-CONGO
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	No
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	An agreement in the process of elaboration.
8.	If your country experience interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	No
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	To date, Rwanda, Angola, Burundi, Ugandan and Congo Brazzaville are concerned. No coordination agreement and no periodicity. All services and bands are concerned.
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	No coordination agreement and no periodicity
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	Broadcasting frequency coordination with Angola (Cabinda/Angola-Moanda / DR Congo) and minutes signed between the two parties.
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	Unsuccessful broadcasting coordination agreement between Brazzaville and Kinshasa
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	Broadcasting television between Brazzaville and Kinshasa.
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	None

Annex 1

	QUESTIONS	DR-CONGO
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	None
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	Spectrum management tool Ellipse but not available for the moment.
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	None
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	Not in use
21.	In cases where you use digital terrain data for interference calculations indicate:	
21.a.	the use of elevation and/or morphological data,	No
21.b.	the type of geographical projection system you use	No
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	No
21.d.	the point or line whereof the calculation is made	No
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No answers

Annex 1

– GNE Annex 1

	QUESTIONS	EQUATORIAL GUINEA
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country ?	Órgano Regulador de las Telecomunicaciones (ORTEL)
1.a.	For broadcasting services	Special law coordinated by ORTEL
1.b.	For Civil bands	ORTEL
1.c.	For Governmental uses	ORTEL
1.d.	For Security (military, …) services, if different from above	Coordination by ORTEL
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No. A few Administrative difficulties with Broadcasting.
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	No NTFA. Our reference is the ITU TFA.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No notable difference
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No answers
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	EQUATORIAL GUINEA
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	No
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	ORTEL does not have any cross border frequency coordination agreement. May be the telecom historical operator GETESA has, but no information about it.
8.	If your country experiences interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	Our country experiences interference coming from across the border with Cameroon (Ebebiyin-Kie-Osi), Gabon (Mongomo) relating to GSM network of GETESA Company. In Malabo, we are facing interference problems from Nigeria and Cameroon. Unfortunately, we do not have any management procedure or document to handle this. Informations come from people living in the boundary and suffering from this situation.
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Perturbations mostly take place in land mobile GSM 900 MHz band in the border with Cameroon and Gabon. Difficult to precise the periodicity for the GSM coverage which sometimes totally disappears.
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	No answers
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	No answers
12.	If possible, can you make available examples of actual unsuccessful approaches to handle coordination or interference cases?	No answers
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	Table below. There must exist other services and bands affected but studies are needed for precisions.
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No

Annex 1

	QUESTIONS	EQUATORIAL GUINEA
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No. We need a preliminary study.
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No answers
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	CD/DVD, Internet, Papers.
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	None. Actual informal work.
19.	Indicate with certain details any other tool used for coordination or interference resolution, whether self developed or purchased.	No answers.
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	No answers.
21.	In cases where you used digital terrain data for interference calculations indicate:	No answers.
21.a.	the use of elevation and/or morphological data,	No answers.
21.b.	the type of geographical projection system you use	No answers.
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	No answers.
21.d.	the point or line whereof the calculation is made	No answers.
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No answers.

Annex 1

– GNE Annex 1

	QUESTIONS	EQUATORIAL GUINEA
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country ?	Órgano Regulador de las Telecomunicaciones (ORTEL)
1.a.	For broadcasting services	Special law coordinated by ORTEL
1.b.	For Civil bands	ORTEL
1.c.	For Governmental uses	ORTEL
1.d.	For Security (military, …) services, if different from above	Coordination by ORTEL
2.	Do you experience any challenges between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No. A few Administrative difficulties with Broadcasting.
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	No NTFA. Our reference is the ITU TFA.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No notable difference
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No answers
C	FREQUENCY COORDINATION PROCEDURES	

Annex 1

	QUESTIONS	EQUATORIAL GUINEA
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	No
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	ORTEL does not have any cross border frequency coordination agreement. May be the telecom historical operator GETESA has, but no information about it.
8.	If your country experiences interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	Our country experiences interference coming from across the border with Cameroon (Ebebiyin-Kie-Osi), Gabon (Mongomo) relating to GSM network of GETESA Company. In Malabo, we are facing interference problems from Nigeria and Cameroon. Unfortunately, we do not have any management procedure or document to handle this. Informations come from people living in the boundary and suffering from this situation.
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Perturbations mostly take place in land mobile GSM 900 MHz band in the border with Cameroon and Gabon. Difficult to precise the periodicity for the GSM coverage which sometimes totally disappears.
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	No answers
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	No answers
12.	If possible, can you make available examples of actual unsuccessful approaches to handle coordination or interference cases?	No answers
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	Table below. There must exist other services and bands affected but studies are needed for precisions.
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No

Annex 1

	QUESTIONS	EQUATORIAL GUINEA
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No. We need a preliminary study.
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No answers
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	CD/DVD, Internet, Papers.
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	None. Actual informal work.
19.	Indicate with certain details any other tool used for coordination or interference resolution, whether self developed or purchased.	No answers.
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	No answers.
21.	In cases where you used digital terrain data for interference calculations indicate:	No answers.
21.a.	the use of elevation and/or morphological data,	No answers.
21.b.	the type of geographical projection system you use	No answers.
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	No answers.
21.d.	the point or line whereof the calculation is made	No answers.
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No answers.

Annex 1

– GAB Annex 1

	QUESTIONS	GABON
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country?	
1.a.	For broadcasting services	Agence Nationale des Infrastructures Numériques et des Fréquences (ANINF), Conseil National de la Communication (CNC).
1.b.	For Civil bands	ANINF, Agence de Régulation des Télécommunications (ARTEL).
1.c.	For Governmental uses	ANINF
1.d.	For Security (military, …) services, if different from above	Government, ANINF
2.	Do you experience any challenge between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	No
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No difference
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No regional plan

Annex 1

	QUESTIONS	GABON
C	FREQUENCY COORDINATION PROCEDURES	
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	Two website ANINF forum creations
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	Only during ITU world or regional conferences
8.	If your country experiences interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	No
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	No answers
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	No anwers
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	No answers
12.	If possible, can you make available examples of actual unsuccessful approaches to handle coordination or interference cases?	No answers
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	No answers
14.	Does your country have a frequency registrar for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No answers
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No answers
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No answers

Annex 1

	QUESTIONS	GABON
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	CD, Internet, USB keys
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	No answers
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	No answers
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	No answers
21.	In cases where you used digital terrain data for interference calculations indicate:	No answers
21.a.	the use of elevation and/or morphological data,	No answers
21.b.	the type of geographical projection system you use	No answers
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	No answers
21.d.	the point or line whereof the calculation is made	No answers
22.	In case that you used maps, what is the resolution of them to determine the relevant terrestrial profiles?	No answers

Annex 1

– STP Annex 1

	QUESTIONS	SAO TOME AND PRINCIPE
A	RESPONSABILITY FOR FREQUENCY COORDINATION	
1.	Which Body is responsible for frequency coordination in your country?	The "Autoridade Geral de Regulação" - AGER (General Regulation Authority) is a governmental body responsible for all issues relating to frequency management and coordination.
1.a.	For broadcasting services	AGER
1.b.	For Civil bands	AGER
1.c.	For Governmental uses	AGER
1.d.	For Security (military, …) services, if different from above	AGER
2.	Do you experience any challenge between the different bodies handling the management of frequency bands above? If so, please provide a short brief	No Challenges
B	NATIONAL & REGIONAL TABLE OF FREQUENCY ALLOCATIONS	
3.	Does your country have a National Table of Frequency Allocations? If yes, please provide us a copy electronically. Point out the main differences, if any, between your current allocations and the ITU Table of Frequency Allocations.	The country has a NTFA but not operating. Lack of government publication. Sao Tome uses ITU table of frequency allocation.
4.	If your country does not have a National Table of Frequency Allocations, could you point out the main differences between your current allocations and the ITU Table of Frequency Allocations?	No answers
5.	If your region has a Regional Band Plan, please provide us with an electronic copy	No regional plan

Annex 1

	QUESTIONS	SAO TOME AND PRINCIPE
C	FREQUENCY COORDINATION PROCEDURES	
6.	Does your country have a framework (administrative procedures and technical provisions) for cross-border frequency coordination? If so, please provide us an electronic copy.	No framework for cross border frequency coordination.
7.	Does your country have one or more cross border frequency coordination agreements? If so, how many? Please provide us a sample electronic copy of each one.	No cross border frequency agreement.
8.	If your country experience interference coming from across the border, do you have a procedure in place to handle this? If yes, please provide us with an electronic copy.	No interference coming from across the border.
9.	Please indicate in a tabular form the bands, the services, the neighboring country/countries involved and the periodicity i.e. how often your country experience such interference problems.	Sao Tome and Principe is an island far from neighboring countries. The country does not experience interference problems.
10.	Please indicate in a tabular form the bands, the services, the neighboring country involved and the periodicity i.e. how often your country conduct frequency coordination across borders.	No frequency coordination across borders.
11.	If possible, can you make available examples of actual successful approaches to handle coordination or interference cases and how long it took to handle the different cases?	No examples
12.	If possible, can you made available examples of actual unsuccessful approaches to handle coordination or interference cases?	No examples
13.	Can you provide in a tabular form those bands, services, neighboring countries involved and priorities, that you consider requires frequency coordination across the different borders with neighboring countries?	The country does not face coordination needs with neighbors. Anyhow, Sao Tome follows up all ITU requirements regarding coordination.
14.	Does your country have a frequency register for storing the co-ordination results? If yes, please provide us an example on an electronic copy where all the fields considered are indicated.	No frequency registrar
15.	Does your country have predefined coordination category (preferential, shared, etc.)?	No
D	DATA EXCHANGE FORMAT FOR COORDINATION PURPOSES	

Annex 1

	QUESTIONS	SAO TOME AND PRINCIPE
16.	If you have different data formats for the exchange of relevant information, can you provide in a tabular form, the respective formats per bands (and if different, per services).	No appropriate data format
17.	Indicate what kind of data exchange format and method(s) do you prefer: CD/DVD, internet (mail, ftp, etc.), paper or any other?	CD / DVD / Internet
E	TOOLS AND DATABASE USED	
18.	Indicate what type of ITU tools, database and in which cases you use for coordination or registration.	No special tool. Only computers are used for database.
19.	Indicate with certain detail any other tool used for coordination or interference resolution, whether self developed or purchased.	No
20.	Indicate in a tabular form the propagation models and/or methods used per bands and services.	No
21.	In cases where you use digital terrain data for interference calculations indicate:	No
21.a.	the use of elevation and/or morphological data,	
21.b.	the type of geographical projection system you use	
21.c.	the level of the resolutions of the terrain data that you use close to the different borders	
21.d.	the point or line whereof the calculation is made	
22.	In case that you use maps, what is the resolution of them to determine the relevant terrestrial profiles?	No

Annex 2

Annex 2: Cross Border Frequency Coordination Agreements

In Central Africa region there is only one Cross Border Frequency Coordination Agreement signed.

– Cross Border Frequency Coordination Agreement between Cameroon and Chad

This Agreement in French is relating to Land Mobile 900 MHz GSM frequency band and CDMA.

ACCORD DE COORDINATION

Relatif à l'utilisation des fréquences aux frontières Tchad-Cameroun

Entre les soussignés:

- L'Agence de Régulation des Télécommunications du Cameroun (ART) représentée par:
- **M. BEH MENGUE Jean Louis**, d'une part, et
- L'Office Tchadien de Régulation des Télécommunications (OTRT) représenté par:
- **M. SADICK BASSILOUGOUMA**, d;'autre part,

Ci-après dénommés « les parties» :

Reconnaissant

Les objectifs de l'Union internationale des télécommunications (UIT), stipulés dans la Constitution de l'UIT, notamment l'importance des radiocommunications dans le développement des services de télécommunications en particulier, et dans le progrès économique, culturel et social en général;

Considérant

a) que la coordination des fréquences est nécessaire dans les zones frontalières;

b) qu'il est important de fixer des lignes directrices pour le partage des fréquences dans les zones frontalières;

c) que l'élaboration, par les administrations, d'accords bilatéraux efficaces sur l'utilisation des fréquences dans les .zones frontalières facilitera la planification stratégique à long terme, encouragera l'utilisation rationnelle, du spectre et permettra d'éviter les brouillages préjudiciables;

d) qu'un mécanisme de mise à jour et d'échange de renseignements appropriés doit être mis en place pour que le processus de coordination soit mené à bonne fin;

e) que les méthodes de coordination peuvent varier selon les services et les bandes de fréquences concernés;

f) la nécessité de déterminer une zone et un périmètre de coordination au niveau des frontières entre le Tchad et le Cameroun;

g) la nécessité de procéder au partage équitable du spectre de fréquences exploitables par les opérateurs des deux pays-;

h) la recommandation de la rencontre de N'Djamena du 1er et 2 juillet 2008 à savoir « La proposition aux régulateurs (OTRT-ART) d'élaborer un projet d'accord de coordination

relatif à l'utilisation des fréquences aux frontières Tchad-Cameroun. Ce projet devra contenir entre autres, les zones de coordination bienàe1imitéeset le tableau de répartition des canaux CDMA et GSM»;

i) l'article 9du Règlement des radiocommunication et de la Recommandation Rec. UIT-R SM.I049-1 traitant respectivement de la coordination et de la méthode de gestion du spectre à utiliser pour faciliter le processus d'assignation de fréquences aux services de terre dans les zones frontalières;

j) les Lois et règlements régissant les télécommunications de leurs pays respectifs;

Notant

a) que l'utilisation des fréquences de part et d'autre de la frontière crée des brouillages préjudiciables entre les deux pays;

b) que les définitions utilisées dans le présent accord sont celles de l'article 9du Règlement des radiocommunications et de la Recommandation Rec. UIT-R SM.I049-1 traitant de la coordination et du processus d'assignation de fréquences aux services de Terre dans les zones frontalières.

Les parties signataires de cet accord de coordination, dans la suite désigné« accord », s'accordent sur la nécessité de faciliter et .d'approfondir leur coopération, en particulier dans le domaine des radiocommunications aux frontières communes.

En conséquence de quoi, il a été convenu· ce qui suit:

Article 1er. –

Le présent accord a pour objet :

(1) l'échange de données appropriées sur la gestion du spectre provenant des bases de données nationales entre l'OTRT et l'ART;

(2) la définition de la zone de coordination à l'intérieur de laquelle le présent accord de coordination est applicable;

(3) la définition des tableaux de partage de fréquences applicables aux réseaux GSM et CDMA dans les zones frontalières;

(4) de proposer une méthode permettant de résoudre les cas de brouillage préjudiciable imprévus.

Article 2. –

Le présent accord s'applique dans les zones de coordination ci-après à la frontière Tchad-Cameroun:

(1) N'Djamena-Kousseri de 500 m de distance de pénétration à l'intérieur de chaque ville dont, les périmètres sont délimités à partir de la frontière entre le Téhad.et le Cameroun;

(2) le reste de la frontière de 2000 m de distance de pénétration à l'intérieur de chaque ville dont les périmètres sont délimités à partir de la frontière en le Tchad et le Cameroun.

Article 3. –

La répartition des canaux radioélectriques entre les administrations tchadienne et camerounaise est basée sur le concept des fréquences alloties Les fréquences alloties à chaque administration suivant la répartition de l'annexe l, peuvent être utilisées par le pays concerné sans coordination préalable, à condition que les caractéristiques techniques définies soient respectées.

Article 4. –

Annex 2

(1) Dans la zone frontalière, tout opérateur peut établir une station de base sans coordination, en utilisant les fréquences alloties à son administration, à condition que l'intensité de champ prévue en tous points de la zone de coordination empiétant le territoire du pays voisin n'excède pas la valeur de -90 dBm suivant les distances de pénétration convenues à l'article 2 ;

(2) La puissance apparente rayonnée et la hauteur équivalente d'antenne des stations devront être choisies de façon à ce que la couverture exploitable soit limitée au maximum à la zone de coordination;

(3) Toutefois, les opérateurs de chaque pays peuvent utiliser les fréquences qui ne leur sont pas alloties dans cet accord, à .condition que les puissances surfaciques ne dépassent pas la valeur de -100 dBm dans la zone de coordination.

Article 5. –

(1) Pour les réseaux CDMA la distance de pénétration de part et d'autre de la frontière ne doit pas excéder 500 m. Au delà .de cette distance, le niveau du réseau du pays voisin doit être strictement inférieure à -70dBm.

(2) Toutefois, des études de faisabilité doivent être menées par les opérateurs concernés pour confirmé ou non les valeurs recommandées.

Article 6. –

Les opérateurs partageant les mêmes plages de fréquences peuvent s'entendre lors de la planification de leur réseau, notamment lors de l'implantation et la configuration de leur station de base.

Article 7. –

(1) En cas de brouillage préjudiciable, l'opérateur à l'origine dudit brouillage informé au même titre que les régulateurs, doit réagir dans les 72 heures en vue de prendre les dispositions .appropriées pour y remédier. Si le problème persiste, l'opérateur incriminé devra cesser d'émettre sur cette fréquence ;

(2) Les régulateurs interviennent en dernier ressort pour mettre un terme au brouillage.

Article 8. –

(1) Tout désaccord relatif à l'interprétation ou à l'application du présent accord sera résolu par une consultation bilatérale en vue d'une conciliation entre les deux parties dans un délai de trois mois.;

(2) Passé ce délai, la partie la plus diligente saisit l'ARTAC pour médiation.

Article 9. –

(1) Le présent accord valable pour .deux ans sera reconduit .de manière tacite.

(2) Aucune demande de modification ne peut intervenir avant le terme des deux premières années.

(3) En cas de demande de modification formulée par l'une des parties au terme ci-dessus, celle -ci doit être faite au moins six mois avant le terme suivant, par lettre adressée avec accusé de réception.

Article10.–

Le présent accord est établi en trois exemplaires originaux dont un destiné à chacune des parties et un à l'ARTAC, désignée dépositaire. Des copies seront notifiées par les régulateurs à tous les opérateurs concernés.

Annex 2

Article11.–

Le présent accord entre en vigueur à compter de sa date de signature.

Fait à Maroua le 03 SEPT 2009

L'Agence de Régulation des Télécommunications du Cameroun,

M. Jean-Louis BEH MENGUE
Directeur Général

L'Office Tchadien de Régulation des Télécommunications,

M. SADICK BASSI LOUGOUMA

Annex 2

ANNEXE A: ZONE N'DJAMENA KOUSSERI
Bande Gsm 900 MHz (890-960 MHz)

Partage de fréquence entre la république du TCHAD et la république du CAMEROUN dans la zone frontalière.

N°	Fréquences montantes	Fréquences Descendantes	Pays
1	890,20	935,20	TCHAD
2	890,40	935,40	TCHAD
3	890,60	935,60	TCHAD
4	890,80	935,80	TCHAD
5	891,00	936,00	TCHAD
6	891,20	936,20	TCHAD
7	891,40	936,40	TCHAD
8	891,60	936,60	TCHAD
9	891,80	936,80	TCHAD
10	892,00	937,00	TCHAD
11	892,20	937,20	TCHAD
12	892,40	937,40	TCHAD
13	892,60	937,60	TCHAD
14	892,80	937,80	CAMEROUN
15	893,00	938,00	TCHAD
16	893,20	938,20	CAMEROUN
17	893,40	938,40	TCHAD
18	893,60	938,60	CAMEROUN
19	893,80	938,80	TCHAD
20	894,00	939,00	CAMEROUN
21	894,20	939,20	TCHAD
22	894,40	939,40	TCHAD
23	894,60	939,60	CAMEROUN
24	894,80	939,80	TCHAD
25	895,00	940,00	TCHAD
26	895,20	940,20	TCHAD
27	895,40	940,40	CAMEROUN
28	895,60	940,60	TCHAD
29	895,80	940,80	TCHAD
30	896,00	941,00	CAMEROUN
31	896,20	941,20	TCHAD
32	896,40	941,40	TCHAD
33	896,60	941,60	CAMEROUN
34	896,80	941,80	TCHAD

Annex 2

N°	Fréquences montantes	Fréquences Descendantes	Pays
35	897,00	942,00	CAMEROUN
36	897,20	942,20	CAMEROUN
37	897,40	942,40	TCHAD
38	897,60	942,60	TCHAD
39	897,80	942,80	CAMEROUN
40	898,00	943,00	TCHAD
41	898,20	943,20	CAMEROUN
42	898,40	943,40	TCHAD
43	898,60	943,60	
44	898,80	943,80	
45	899,00	944,00	
46	899,20	944,20	
47	899,40	944,40	
48	899,60	944,60	
49	899,80	944,80	
50	900,00	945,00	
51	900,20	945,20	
52	900,40	945,40	
53	900,60	945,60	
54	900,80	945,80	
55	901,00	946,00	
56	901,20	946,20	
57	901,40	946,40	
58	901,60	946,60	
59	901,80	946,80	
60	902,00	947,00	
61	902,20	947,20	
62	902,40	947, 40	
63	902,60	947,60	
64	902,80	947,80	
65	903,00	948,00	
66	903,20	948,20	
67	903,40	948,40	
68	903,60	948,60	
69	903,80	948,80	
70	904,00	949,00	
71	904,20	949,20	
72	904,40	949,40	
73	904,60	949,60	
74	904,80	949,80	

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N°	Fréquences montantes	Fréquences Descendantes	Pays
75	905,00	950,00	
76	905,20	950,20	
77	905,40	950,40	
78	905,60	950,60	
79	905,80	950,80	
80	906,00	951,00	
81	906,20	951,20	
82	906,40	951,40	
83	906,60	951,60,	
84	906,80	951,80	
85	907,00	952,00	TCHAD
86	907,20	952,20	TCHAD
87	907,40	952,40	TCHAD
88	907,60	952,60	TCHAD
89	907,80	952,80	TCHAD
90	908,00	953,00	TCHAD
91	908,20	953,20	TCHAD
92	908,40	953,40	TCHAD
93	908,60	953,60	TCHAD
94	908,80	953,80	TCHAD
95	909,00	954,00	TCHAD
96	909,20	954,20	TCHAD
97	909,40	954,40	CAMEROUN
98	909,60	954,60	CAMEROUN
99	909,80	954,80	CAMEROUN
100	910,00	955,00	CAMEROUN
101	910,20	955,20	CAMEROUN
102	910,40	955,40	TCHAD
103	910,60	955,60	TCHAD
104	910,80	955,80	TCHAD
105	911,00	956,00	TCHAD
106	911,20	956,20	TCHAD
107	911,40	956,40	TCHAD
108	911,60	956,60	TCHAD
109	911,80	956,80	TCHAD
110	912,00	957,00	TCHAD
111	912,20	957,20	TCHAD
112	912,40	957,40	TCHAD
113	912,60	957,60	TCHAD
114	912,80	957,80	TCHAD

Annex 2

N°	Fréquences montantes	Fréquences Descendantes	Pays
115	913,00	958,00	TCHAD
117	913,20	958,20	TCHAD
118	913,40	958,40	CAMEROUN
119	913,60	958,60	CAMEROUN
120	913,80	958,80	CAMEROUN
121	914,00	959,00	CAMEROUN
122	914,20	959,20	CAMEROUN
123	914,40	959,40	CAMEROUN
124	914,60	959,60	CAMEROUN
125	914,80	959,80	

Annex 2

ANNEXE B: RESTE DE LA FRONTIERE TCHAD-CAMEROUN Bande Gsm 900 MHz (890-960 MHz)

Partage de fréquence entre la république du TCHAD et la république du CAMEROUN dans la zone frontalière.

N°	Fréquences montantes	Fréquences Descendantes	Pays
1	890,20	935,20	CAMEROUN
2	890,40	935,40	TCHAD
3	890,60	935,60	CAMEROUN
4	890,80	935,80	TCHAD
5	891,00	936,00	CAMEROUN
6	891,20	936,20	TCHAD
7	891,40	936,40	CAMEROUN
8	891,60	936,60	TCHAD
9	891,80	936,80	CAMEROUN
10	892,00	937,00	TCHAD
11	892,20	937,20	CAMEROUN
12	892,40	937,40	TCHAD
13	892,60	937,60	CAMEROUN
14	892,80	937,80	TCHAD
15	893,00	938,00	CAMEROUN
16	893,20	938,20	TCHAD
17	893,40	938,40	CAMEROUN
18	893,60	938,60	TCHAD
19	893,80	938,80	CAMEROUN
20	894,00	939,00	TCHAD
21	894,20	939,20	CAMEROUN
22	894,40	939,40	TCHAD
23	894,60	939,60	CAMEROUN
24	894,80	939,80	TCHAD
25	895,00	940,00	CAMEROUN
26	895,20	940,20	TCHAD
27	895,40	940,40	CAMEROUN
28	895,60	940,60	TCHAD
29	895,80	940,80	CAMEROUN
30	896,00	941,00	TCHAD
31	896,20	941,20	CAMEROUN
32	896,40	941,40	TCHAD

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N°	Fréquences montantes	Fréquences Descendantes	Pays
33	896,60	941,60	CAMEROUN
34	896,80	941,80	TCHAD
35	897,00	942,00	CAMEROUN
36	897,20	942,20	TCHAD
37	897,40	942,40	CAMEROUN
38	897,60	942,60	TCHAD
39	897,80	942,80	CAMEROUN
40	898,00	943,00	TCHAD
41	898,20	943,20	CAMEROUN
42	898,40	943,40	TCHAD
43	898,60	943,60	CAMEROUN
44	898,80	943,80	TCHAD
45	899,00	944,00	CAMEROUN
46	899,20	944,20	TCHAD
47	899,40	944,40	CAMEROUN
48	899,60	944,60	
49	899,80	944,80	
50	900,00	945,00	
51	900,20	945,20	
52	900,40	945,40	
53	900,60	945,60	
54	900,80	945,80	
55	901,00	946,00	
56	901,20	946,20	
57	901,40	946,40	
58	901,60	946,60	
59	901,80	946,80	
60	902,00	947,00	
61	902,20	947,20	
62	902,40	947,40	
63	902,60	947,60	
64	902,80	947, 80	
65	903,00	948,00	
66	903,20	948,20	
67	903,40	948,40	
68	903,60	948,60	
69	903,80	948,80	
70	904,00	949,00	
71	904,20	949,20	
72	904,40	949,40	

Annex 2

N°	Fréquences montantes	Fréquences Descendantes	Pays
73	904,60	949,60	
74	904,80	949,80	
75	905,00	950,00	
76	905,20	950,20	
77	905,40	950,40	
78	905,60	950,60	
79	905,80	950,80	
80	906,00	951,00	
81	906,20	951,20	
82	906,40	951,40	
83	906,60	951,60,	
84	906,80	951,80	
85	907,00	952,00	
86	907,20	952,20	
87	907,40	952,40	
88	907,60	952,60	
89	907,80	952,80	
90	908,00	953,00	
91	908,20	953,20	
92	908,40	953,40	
93	908,60	953,60	
94	908,80	953,80	
95	909,00	954,00	
96	909,20	954,20	
97	909,40	954,40	
98	909,60	954,60	
99	909,80	954,80	
100	910,00	955,00	
101	910,20	955,20	
102	910,40	955,40	
103	910,60	955,60	
104	910,80	955,80	
105	911,00	956,00	
106	911,20	956,20	
107	911,40	956,40	
108	911,60	956,60	
109	911,80	956,80	
110	912,00	957,00	
111	912,20	957,20	
112	912,40	957,40	

Annex 2

N°	Fréquences montantes	Fréquences Descendantes	Pays
113	912,60	957,60	
114	912,80	957,80	
115	913,00	958,00	
117	913,20	958,20	
118	913,40	958,40	
119	913,60	958,60	
120	913,80	958,80	
121	914,00	959,00	
122	914,20	959,20	
123	914,40	959,40	
124	914,60	959,60	
125	914,80	959,80	

Annex 2

– Act creating the follow up committee in charge of application of the cross border frequency coordination agreement between Cameroon and Chad.

ACTE PORTANT CREATION
DU COMITE DE SUIVI DE LA MISE EN ŒUVRE
DE L'ACCORD DE COORDINATION DES FREQUENCES
AUX FRONTIERES TCHAD-CAMEROUN

Article 1.–

Il est crée dans le cadre de la coordination des fréquences aux frontières TCHAD-CAMEROUN un Comité de suivi de l'Accord de coordination ci-après dénommé '' le comité de suivi ''.

Article2. –

Le comité de suivi a pour mission

- de veiller à la mise en application de l'accord de coordination ;
- de rendre compte aux régulateurs du TCHAD et du CAMEROUN des
- difficultés inhérentes à son application.

Article 3. –

- deux (2) représentants par organe de régulation ;
- un (1) point focal par opérateur.

Article 4. –

Le point focal assiste techniquement le comité de suivi dans la mise en œuvre de l'Accord

Article 5. –

Le comité suivi se réunit deux fois par an, alternativement dans chacun des Etat sur convocation de l'un des deux organes de régulation.

Article 6. –

Les points focaux peuvent prendre part, sur invitation, aux réunions du Comité de suivi.

Fait à Maroua le, 03 septembre 2009

L'Agence de Régulation des Télécommunications du Cameroun,	Pour l'Office Tchadien de Régulation des Télécommunications,
M. Jean-Louis BEH MENGUE	**M. SADICK BASSI LOUGOUMA**

Annex 3

Annex 3: National Table of Frequency Allocations

Only Central African Republic provides a National Table of Frequency Allocations in French.

– CAF National Table of Frequency Allocations

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
< 9 kHz	**(Non attribuée)** 5.53 5.54	Non attribuée
9 – 14	**RADIONAVIGATION**	
14 – 19,95	**FIXE** **MOBILE MARITIME** 5-57 5-55 5-56	
19,95 – 20,05	**FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES (20 kHz)**	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
20,05 – 70	**FIXE** **MOBILE MARITIME** 5.57 5-56 5-58	
70 – 72	RADIONAVIGATION 5.60	
72 – 84	FIXE	
	MOBILE MARITIME 5-57 **RADIONAVIGATION 5-60**	
84 – 86	RADIONAVIGATION 5.60	
86 – 90	RADIONAVIGATION FIXE MOBILE MARITIME 5.57 5.56	
90 – 110	**RADIONAVIGATION** 5.62 **Fixe** 5.64	RADIONAVIGATION
110 – 112	RADIONAVIGATION FIXE MOBILE MARITIME 5.64	FIXE
112 – 115	RADIONAVIGATION 5.60	RADIONAVIGATION
115 – 117,6	RADIONAVIGATION 5.60 Fixe Mobile maritime 5.64 5.66	Fixe
117,6 – 126	FIXE MOBILE MARITIME RADIONAVIGATION 5.60	RADIONAVIGATION
126 – 129	RADIONAVIGATION 5.60	RADIONAVIGATION
129 – 130	FIXE MOBILE MARITIME RADIONAVIGATION 5.60	FIXE
130 – 148,5	FIXE MOBILE MARITIME 5.64 5.67	FIXE
148,5 – 255	RADIODIFFUSION	200-255

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
		RADIONAVIGATION AERONAUTIQUE RADIODIFFUSION
255 – 283.5	RADIODIFFUSION RADIONAVIGATION AERONAUTIQUE 5-70 5-71	RADIO-NAVIGATION AERONAUTIQUE
283,5 – 315	RADIONAVIGATION AÉRONAUTIQUE RADIONAVIGATION MARITIME 5.73 5.72 5.74	RADIONAVIGATION AÉRONAUTIQUE
315 – 325	RADIONAVIGATION AÉRONAUTIQUE Radionavigation maritime (radiophares) 5.73	RADIONAVIGATION AÉRONAUTIQUE
325 – 405	RADIONAVIGATION AÉRONAUTIQUE 5.72	RADIONAVIGATION AÉRONAUTIQUE
405 – 415	RADIONAVIGATION 5.76 5.72	RADIONAVIGATION AÉRONAUTIQUE
415 – 435	MOBILE MARITIME 5.79 RADIONAVIGATION AÉRONAUTIQUE 5-72	RADIONAVIGATION AÉRONAUTIQUE
435 – 495	MOBILE MARITIME 5.79 5.79A Radionavigation aéronautique 5.72 5.82	RADIONAVIGATION AÉRONAUTIQUE
495 – 505	**MOBILE (détresse et appel)**	MOBILE (détresse et appel)
505 – 526,5	MOBILE MARITIME 5.79 5.79A 5.84 RADIONAVIGATION AÉRONAUTIQUE	RADIONAVIGATION AÉRONAUTIQUE
526,5 – 1 606,5	RADIODIFFUSION 5.87 5.87A	RADIODIFFUSION
1 606,5 – 1 625	FIXE MOBILE MARITIME 5.90 MOBILE TERRESTRE 5.92	MOBILE TERRESTRE
1 625 – 1 635	RADIOLOCALISATION 5.93	RADIOLOCALISATION
1 635 – 1 800	FIXE MOBILE MARITIME 5.90 MOBILE TERRESTRE 5.92, 5.96	MOBILE TERRESTRE
1 800 – 1 810	RADIOLOCALISATION 5.93	RADIOLOCALISATION
1 810 – 1 850	AMATEUR 5.98 5.99 5.100 5.101	AMATEUR
1 850 – 2 000	FIXE 5.92 5.96 5.103 MOBILE sauf mob. Aéronautique(R) 5-92 5.96 5-103	FIXE MOBILE sauf mobile aéronautique (R)
2000 –2025	FIXE MOBILE sauf mobile aéronautique (R) 5.92 5.103	MOBILE sauf mobile
2 025 – 2 045	FIXE	Auxiliaires de la météorologie

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
	MOBILE sauf mobile aéronautique (R) Auxiliaires de la météorologie 5.104 5.92 5.103	
2 045 – 2160	FIXE MOBILE MARITIME MOBILE TERRESTRE 5.92	MOBILE TERRESTRE
2 160 – 2 170	RADIOLOCALISATION 5.93 5.107	RADIOLOCALISATION
2 170 – 2 173,5	**MOBILE MARITIME**	MOBILE MARITIME
2 173,5 – 2 190,5	**MOBILE (détresse et appel)** 5.108 5.109 5.110 5.111	MOBILE (détresse et appel)
2 190,5 – 2 194	**MOBILE MARITIME**	MOBILE MARITIME
2 194 – 2 300	FIXE MOBILE sauf mobile aéronautique (R) 5.92 5.103 5.112	FIXE MOBILE sauf mobile
2 300 – 2 498	FIXE MOBILE sauf mobile aéronautique (R) RADIODIFFUSION 5.113 5.103	FIXE
2 498 – 2 501	**FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES (2 500 kHz)**	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
2501 – 2502	**FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES (2 500 kHz)** **Recherche spatiale**	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
2 502 – 2 625	FIXE MOBILE sauf mobile aéronautique (R) 5.92 5.103 5.114	FIXE MOBILE sauf mobile aéronautique (R)
2 625 – 2 650	MOBILE MARITIME RADIONAVIGATION MARITIME 5.92	MOBILE MARITIME
2 650 – 2 850	**FIXE** 5.103 **MOBILE sauf mobile aéronautique (R)**	**FIXE** **MOBILE sauf mobile aéronautique (R)**
2 850 – 3 025	**MOBILE AÉRONAUTIQUE (R)** 5.116 5.117	MOBILE AÉRONAUTIQUE (R)
3 025 – 3 155	**MOBILE AERONAUTIQUE (OR)**	MOBILE AERONAUTIQUE (OR)
3 155 – 3 200	**FIXE** 5.116 5.117 **MOBILE sauf mobile aéronautique (R) 5-116 5-117**	MOBILE sauf mobile aéronautique (R)
3 200 – 3 230	**FIXE** **MOBILE sauf mobile aéronautique (R)** **RADIODIFFUSION** 5.113 5.116	RADIODIFFUSION
3 230 – 3 400	**FIXE** **MOBILE sauf mobile aéronautique** **RADIODIFFUSION** 5.113	FIXE
3 400 – 3 500	**MOBILE AÉRONAUTIQUE (R)**	MOBILE AÉRONAUTIQUE (R)

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
3 500 – 3 800	AMATEUR FIXE MOBILE sauf mobile aéronautique 5.92	MOBILE sauf mobile aéronautique
3 800 – 3 900	FIXE MOBILE AÉRONAUTIQUE (OR) MOBILE TERRESTRE	FIXE
3 900 – 3 950	MOBILE AÉRONAUTIQUE (OR) 5.123	FIXE
3 950 – 4 000	FIXE RADIODIFFUSION 5-127 5-126	FIXE
4 000 – 4 063	FIXE RADIODIFFUSION 5-127 5-126	FIXE
4 063 – 4 438	MOBILE MARITIME 5.79A 5.109 5.110 5.130 5.131	FIXE (faible puissance)
4 438 – 4 650	FIXE MOBILE sauf mobile aéronotique (R)	FIXE MOBILE sauf mobile
4 650 – 4 700	MOBILE AÉRONAUTIQUE (R)	MOBILE AÉRONAUTIQUE (R)
4 700 – 4 750	MOBILE AÉRONAUTIQUE (OR)	MOBILE AÉRONAUTIQUE (OR)
4 750 – 4 850	**FIXE** **MOBILE TERRESTRE**	FIXE MOBILE TERRESTRE MOBILE
	MOBILE AERONAUTIQUE (OR) **RADIODIFFUSION 5.113**	MOBILE AERONAUTIQUE (R)
4 850 – 4 995	**FIXE** **MOBILE TERRESTRE** **RADIODIFFUSION 5.113**	FIXE MOBILE TERRESTRE
4 995 – 5 003	FREQUENCE ETALON ET SIGNAUX HORAIRES (5000 kHz)	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
5 003 – 5 005	FREQUENCE ETALON ET SIGNAUX HORAIRES Recherche spatiale	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
5 005 – 5 060	FIXE RADIODIFFUSION 5.113	RADIODIFFUSION
5 060 – 5 250	FIXE MOBILE sauf mobile aéronautique 5.133	FIXE MOBILE
5 250 – 5 450	FIXE MOBILE sauf mobile aéronautique	FIXE MOBILE
5 450 – 5 480	FIXE MOBILE TERRESTRE MOBILE AERONAUTIQUE (OR)	FIXE MOBILE TERRESTRE MOBILE AERONAUTIQUE
5 480 – 5 680	MOBILE AERONAUTIQUE (R) 5.111 5.115	MOBILE AÉRONAUTIQUE (R)
5 680 – 5 730	MOBILE AERONAUTIQUE (OR) 5.111 5.115	MOBILE AÉRONAUTIQUE

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
5 730 – 5 900	FIXE MOBILE TERRESTRE	FIXE MOBILE TERRESTRE
5 900 – 5 950	RADIODIFFUSION 5.134 5.136	RADIODIFFUSION
5 950 – 6 200	RADIODIFFUSION	RADIODIFFUSION
6 200 – 6 525	MOBILE MARITIME 5.109 5.110 5.130 5.132	
6 525 – 6 685	MOBILE AERONAUTIQUE (R)	MOBILE AERONAUTIQUE (R)
6 685 – 6 765	MOBILE AERONAUTIQUE (OR)	MOBILE AERONAUTIQUE (OR)
6 765 – 7 000	FIXE MOBILE sauf mobile aéronautique (R) 5.138 5.138A 5.139	FIXE MOBILE
7 000 – 7 100	AMATEUR AMATEUR PAR SATELLITE 5.140 5.141 5.141A	AMATEUR AMATEU PAR SATELLITE
7 100 – 7 200	AMATEUR 5.141A 5.141B 5.141C 5.142	
7 200 – 7 300	RADIODIFFUSION	RADIODIFFUSION
7 300 – 7 400	RADIODIFFUSION 5.134 5.143A 5.143B 5.143C 5.143 5.143D	RADIODIFFUSION
7 400 – 7 450	RADIODIFFUSION 5.143 B 5.143C	RADIODIFFUSION
7 450 – 8 100	FIXE MOBILE sauf mobile aéronautique (R) 5.143^{E} 5.144	FIXE MOBILE sauf mobile aéronautique (R)
8 100 – 8 195	FIXE MOBILE MARITIME	FIXE MOBILE MARITIME
8 195 – 8 815	MOBILE MARITIME 5.109 5.110 5.132 5.145 5.111	MOBILE MARITIME
8 815 – 8 965	MOBILE AERONAUTIQUE(R)	MOBILE AERONAUTIQUE (R)
8 965 – 040	MOBILE AERONAUTIQUE(R)	MOBILE AERONAUTIQUE(R)
9 040 – 9 400	FIXE	FIXE
9 400 – 9 500	RADIODIFFUSION 5.134 5.146	RADIODIFFUSION
9 500 – 9 900	RADIODIFFUSION 5.147	RADIODIFFUSION
9 900 – 9 995	FIXE	FIXE
9 995 – 10 003	FREQUENCES ETALON ET SIGNAUX HORAIRES (10000Hhz) 5.111	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
10 003 – 10 005	FREQUENCES ETALON ET SIGNAUX HORAIRES recherche spatiale 5.111	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
10 005 – 10 100	MOBILE AERONAUTIQUE (R) 5.111	

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
10 100 – 10 150	FIXE AMATEUR	FIXE
10 150 – 11 175	FIXE MOBILE sauf mobile aéronautique (R)	FIXE Mobile sauf mobile aéronautique
11 175 – 11 275	MOBILE AERONAUTIQUE(R)	MOBILE AÉRONAUTIQUE (OR)
11 275 – 11 400	MOBILE AERONAUTIQUE(R)	MOBILE AÉRONAUTIQUE (R)
11 400 – 11600	FIXE	FIXE
11 600 – 11 650	RADIODIFFUSION 5.134 5.146	RADIODIFFUSION
11 650 – 12 050	RADIODIFFUSION 5.147	RADIODIFFUSION
12 050 – 12 100	RADIODIFFUSION 5.134 5.146	RADIODIFFUSION
12 100 – 12 230	FIXE	FIXE
12 230 – 13 200	**MOBILE MARITIME** **5.109 5.110 5.132 5.145**	
13 200 – 13 260	MOBILE AÉRONAUTIQUE (R)	MOBILE AÉRO (R)
13 260 – 13 360	MOBILE AÉRONAUTIQUE (R)	MOBILE AÉRO (R)
13 360 – 13 410	FIXE RADIOASTRONOMIE 5.149	FIXE
13 410 – 13 570	FIXE Mobile sauf mobile aéronautique (R) 5.150	FIXE
13 570 – 13 600 kHz	RADIODIFFUSION	RADIODIFFUSION
13 600 – 13 800	RADIODIFFUSION	RADIODIFFUSION
13 800 – 13 870	RADIODIFFUSION 5.134 5.151	RADIODIFFUSION
13 870 – 14 000	FIXE Mobile sauf mobile aéronautique (R)	FIXE Mobile sauf mobile aéronautique (R)
14 000 – 14 250	AMATEUR AMATEUR PAR SATELLITE	AMATEUR AMATEUR PAR SATELLITE
14 250 – 14 350	AMTEUR 5.152	AMATEUR
14 350 – 14 990	FIXE Mobile sauf mobile aéronautique (R)	FIXE Mobile sauf mobile aéronautique (R)
14 990 – 15 005	FREQUENCE ETALON ET SIGNAUX HORAIRES 5.111	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
15 005 – 15 010	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES Recherche spatiale	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
15 010 – 15 100	MOBILE AERONAUTIQUE (R)	MOBILE AÉRO (R)
15 100 – 15 600	RADIODIFFUSION	RADIODIFFUSION
15 600 – 15 800	RADIODIFFUSION 5.134 5.146	RADIODIFFUSION

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
15 800 – 16 360	FIXE 5.153	FIXE
16 360 – 17 410	MOBILE MARITIME 5.109 5.110 5.132 5.145	MOBILE MARITIME
17 410 – 17 480	FIXE	FIXE
17 480 – 17 550	RADIODIFFUSION 5.134 5.146	FIXE
17 550 – 17 900	RADIODIFFUSION	RADIODIFFUSION
17 900 – 17 970	MOBILE AERONAUTIQUE (R)	MOBILE
17 970 – 18 030	MOBILE AERONAUTIQUE (OR)	MOBILE
18 030 – 18 052	FIXE	FIXE
18 052 – 18 068	**FIXE** **Recherche spatiale**	FIXE
18 068 – 18 168	AMATEUR AMATEUR PAR SATELLITE	AMATEUR AMATEUR PAR SATELLITE
18 168 – 18 780	FIXE Mobile sauf mobile aéro.	FIXE MOBILE
18 780 – 18 900	MOBILE MAROTIME	MOBILE MARITIME
18 900 – 19 020	RADIODIFFUSION 5.134 5.146	RADIODIFFUSION SONORE
19 020 – 19 680	FIXE	FIXE
19 680 – 19 800	MOBILE MARITIME 5.132	MOBILE MARITIME
19 800 – 19 990	FIXE	FIXE
19 990 – 19 995	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES Recherche spatiale 5.111	
19 995 – 20 010 kHz	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES (20 000 kHz) 5.111	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
20 010 – 21 000	FIXE MOBILE	FIXE
21 000 – 21 450	AMATEUR AMATUR PAR SATELLITE	AMATEUR AMATEUR PAR SATELLITE
21 450 – 21 850	RADIODIFFUSION	RADIODIFFUSION
21 850 – 21 870	FIXE 5.155A 5.155	FIXE
21 870 – 21 924	FIXE 5.155A	
21 924 – 22 000	MOBILE AERONAUTIQUE (R)	MOBILE
22 000 – 22 855	MOBILE MARITIME 5.132 1.156	
22 855 – 23 000	FIXE 5.156	FIXE

Annex 3

Bandes de fréquences (kHz)	RR de l'UIT (EDIT. 2004)	Utilisation actuelle RÉPUBLIQUE CENTRAFRICAINE
23 000 – 23 200	FIXE Mobile sauf mobile aéronautique (R) 5.156	FIXE Mobile sauf mobile aéronautique
23 200 – 23 350	FIXE 5.156A MOBILE AERONAUTIQUE (OR)	FIXE
23 350 – 24 000	FIXE MOBILE sauf mobile aéronautique 5.157	FIXE MOBILE sauf mobile
24 000 – 24 890	FIXE MOBILE TERRESTRE	FIXE MOBILE
24 890 – 24 990	AMATEUR AMATEUR PAR SATELLITE	AMATEUR SATELLITE
24 990 – 25 005	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
25 005 – 25 010	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES Recherche spatiale	FRÉQUENCES ÉTALON ET SIGNAUX HORAIRES
25 010 – 25 070	FIXE MOBILE sauf mobile aéronautique	FIXE MOBILE sauf mobile
25 070 – 25 210	MOBILE MARITIME	MOBILE MARITIME
25 210 – 25 550	FIXE MOBILE sauf mobile aéronautique	FIXE MOBILE sauf mobile
25 550 – 25 670	RADIOASTRONOMIE 5.149	RADIOASTRONOMIE
25 670 – 26 100	RADIODIFFUSION	RADIODIFFUSION SONORE
26 100 – 26 175	MOBILE MARITIME 5.132	MOBILE MARITIME
26 175 – 27 500	FIXE MOBILE sauf mobile aéronautique 5.150	FIXE MOBILE sauf mobile aéronautique

Annex 4: Database Register Formats

No Database Register Format is available from the Focal Points.

Annex 5: National Complementary Documents

– CME Annex 5

Procedure in place to handle internal and across the border interferences:

Memorandum No 403/ART/DGF2 of 04 November 2002 to resolve harmful radio interferences by ART/TRB.

REPUBLIQUE DU CAMEROUN

Paix-Travail-Patrie

AGENCE DE REGULATION DES TELECOMMUNICATIONS

DEPARTEMENT GESTION DES FREQUENCES

REPUBLIC OF CAMEROON

Peace- Work-Fatherland

TELECOMMUNICATIONS REGULATORY BOARD

Yaoundé, le 04 NOV. 2002

NOTE DE SERVICE N°_____403_____/ART/DGF2_____

Régissant la résolution de brouillages préjudiciables radioélectriques par l'Agence de Régulation des Télécommunications du Cameroun

La présente note de service prescrit les procédures à utiliser par le personnel du département de la gestion des fréquences(DGF) de l'Agence de Régulation des Télécommunications pour la résolution des brouillages préjudiciables survenant dans les réseaux radioélectriques du secteur des télécommunications.

Les dispositions de la présente note de service s'applique au réseau radio électrique des permissionnaires de l'Agence de Régulation des Télécommunications (ART) qui peuvent causer à (ou subir) d'autres réseaux radio électriques des brouillages préjudiciables.

Le brouillage préjudiciable radio électrique ci-dessous nommé brouillage ; est l'effet d'une énergie non désirée qui compromet le fonctionnement d'un service de radio communication dûment autorisé.

- Brouillage entre des permissionnaires ART ;
- Brouillage entre des permissionnaire(s) ART et un clandestin ;
- Brouillage entre permissionnaire(s) de l'ART et permissionnaire(s) d'un autre affectataire (Camerounais ou étranger).

Sa résolution nécessite qu'il soit connu ; analysé et maîtrisé par toutes les parties prenantes ; à savoir les propriétaires des réseaux radio électriques et les gestionnaires des fréquences radio électriques utilisées dans ces réseaux.

Le processus de résolution commence par l'existence d'une plainte ; d'un signalement ou de la détection de brouillage et comprend les étapes suivantes :

- Réception de la plainte ; du signalement ou de la notification de brouillage et ouverture d'un dossier ;
- Information commune de l'existence de brouillage préjudiciable ;

- Vérification aspect administratif et réglementaire ;
- Compréhension commune de la nature de brouillage ;
- Solution au brouillage ;
- Confirmation commune des solutions au brouillage ;
- Evaluation des résultats et leçons ;
- Archivage et fin de processus.

L'organigramme de l'Agence de Régulation des Télécommunication en ses articles 21 et 22 ayant confié la résolution des brouillages à la cellule de la gestion administrative du spectre (DGF2) et à la Cellule de contrôle du spectre ; de la cryptographie et du chiffre(DGF3) ;

Les plainte ; signalement et détection de brouillage sont adressées à monsieur le Directeur Général de l'Agence de Régulation des Télé communications et traitées au sein du Département de la Gestion des Fréquences (DGF).

A la réception de la plainte ; signalement ou détection de brouillage ; DGF2 ouvre le dossier ; accuse réception à l'initiateur ; et fait les premières analyses nécessaires à la détermination des différents intervenants et ; éventuellement ; informe le propriétaire du réseau brouilleur.

A – BROUILLAGE ENTRE PERMISSIONAIRES DE L'ART

1. Le brouillage relève d'une irrégularité administrative d'assignation des fréquences :
   - DGF2 prescrit toute solution, voir l'assignation de fréquence de remplacement au réseau le plus récent ou à plaignant s'il en fait la demande ;
   - Si le plaignant ne fait pas la demande ou refuse la solution prescrite,

     DGF2 organise une rencontre entre les partie concernées pour une recherche de solution concertée ;
   - Si le plaignant ne fait pas la demande ou refuse la solution prescrite,

     DGF2 organise une rencontre entre les partie concernées pour une recherche de solution concertée ;
2. Le brouillage ne relève pas d'une irrégularité administrative d'assignation des fréquences.

   DGF2 transmet le dossier à DGF3 qui :
   - Etudie le phénomène ;
   - Organise des éventuelles descentes sur le terrain pour collecter des données en collaboration avec les antennes
   - Traite les données collectées ;
   - Organise, en rapport avec DGF2 si nécessaire, la rencontre entre les partis ;
   - Propose des solutions ;
   - Transmet le dossier à DGF2 pour finalisation.

B – BROUILLAGE ENTRE PERMISSIONNAIRE(S) ART EST UN CLENDEESTIN

DGF2 transmet le dossier à DGF3 qui :

- Etudie le phénomène ;

- Organise des éventuelles descentes pour collecter des données en collaboration avec les antennes
- Traite les données collectées
- Propose des solutions ;
- Transmet le dossier à DGF2 pour finalisation.

C – BROUILLAGE ENTRE PERMISSIONNAIRES(S) ART ET PERMISSIONNAIRE D'UN AUTRE AFFECTATAIRE.

DGF2 transmet le dossier à DGF3 qui :

- Etudie le phénomène ;
- Organise des éventuelles descentes pour collecter des données en collaboration avec les antennes
- Traite les données collectées
- Organise en rapport avec DGF2 une rencontre entre l'ART et l'affectataire pour une recherche de solution concertée ;
- Porte si nécessaire, en rapport avec DGF2 le problème à la connaissance du Comité interministériel chargé de la gestion des bandes des fréquences ;
- Propose des solutions
- Transmet le dossier à DGF2 pour finalisation.

Des réunions notamment de déclenchement, de suivi et d'évaluation doivent être organisées.

Il est entendu que des mesures spécifiques peuvent être prises pour la résolution de brouillage.

J'attache le plus grand prix à ce que les dispositions de la présente note de service soit scrupuleusement exécutées.

Ampliations :
DG/CR

Départements

Antennes Archives.

Le Chef de Département

ZOURMBA ABOUBAKAR

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Geneva, 2013