

NATIONAL COMMUNICATIONS AUTHORITY



PUBLIC CONSULTATION ON THE SELECTION AND AWARD PROCEDURE FOR LICENSES IN THE 2500MHz - 2690MHz BAND

NOVEMBER 2009

NATIONAL COMMUNICATIONS AUTHORITY

INVITATION FOR COMMENT

1. The NATIONAL COMMUNICATIONS AUTHORITY (NCA) intends to invite proposals/offers from eligible Entities registered under the Ghana Companies Code, 1963, Act 179 for the grant of a license to establish, maintain and operate Broadband Wireless Access (BWA) Services in the 2500MHz – 2690 MHz band.
2. Accordingly, in pursuance of its mandate under section 27 of the Electronic Communications Act, 2008, Act 775 and section 4.1 of the National Telecommunications Policy 2005 (NTP'05), the Authority hereby invites views and comments from **Licensed Communications Operators, Consumers of communication services and the General Public** on the **Selection and Award Procedure for Broadband Wireless Access (BWA) Licenses** in the 2500 – 2690 MHz frequency band.
3. NCA invites **written** views and comments on the **Selection and Award Procedure Document**, which can be accessed on the Authority's website, www.nca.org.gh.
4. The public consultation begins with immediate effect and shall expire on **7 January, 2010**.
5. All responses/comments should be electronically transmitted as **e-mail attachments**, in Microsoft Word format to bwaconsultation@nca.org.gh
6. All respondents are requested to complete a response cover sheet (*see Page vi below*). The cover sheet can be downloaded on the Authority's website, www.nca.org.gh.
7. It would be helpful if your response could include comments on the sections of the document you agree/disagree with.

Confidentiality

8. In furtherance of transparency and openness, the Authority shall consider all responses as non-confidential; accordingly all submissions shall be published on our website, www.nca.org.gh, on receipt.

9. Please note that copyright and all other intellectual property in responses shall be assumed to be licensed to NCA to use, to meet its legal requirements.

Next Step

10. Subsequent to the completion of the Public Consultation, the Authority shall proceed to publish the final **Selection and Award Procedure Document**, and thereafter invite applications.

SUMMARY OF CONSULTATIONS

1. The NATIONAL COMMUNICATIONS AUTHORITY (AUTHORITY) intends to invite proposals/offers from eligible Entities registered under the Ghana Companies Code, 1963, Act 179 for the grant of a license to establish, maintain and operate Broadband Wireless Access (BWA) Services in the 2500MHz – 2690 MHz band.
2. The Authority hereby invites comments and views on the Selection and Award Procedure outlined in this document. Highlights of the Procedure are presented below.

Eligibility

3. All applicants shall be incorporated in Ghana.
4. There shall be a minimum of 30% private Ghanaian ownership in the applying Entity; be it a company, a joint venture or consortium. The said minimum Ghanaian ownership shall be maintained throughout the duration of the Licence.
5. The Entity must be registered under the laws of Ghana, and duly certified to operate in Ghana, prior to Stage Two (Evaluation of Technical and Management Competence) of the process.
6. An Entity shall be eligible for only one BWA License; that is, no Entity alone or along with its partner, affiliate, subsidiary or shareholder in total, can apply for more than one license.

Spectrum Blocks

7. The AUTHORITY intends to issue a total of up to five (5) Spectrum Licenses for BWA Services as per the Selection and Award Procedure for Licenses in the 2500MHz – 2690MHz Band; to be awarded as follows:
 - a. Three (3) slots of 30MHz blocks nationwide for operators using technologies that require unpaired spectrum for a 10-year period.
 - b. Two (2) slots of 2x15 MHz blocks nationwide for operators using technologies that require paired spectrum for a 10-year period.
 - c. There shall be an extra paired 2x5MHz and an extra contiguous unpaired 15 MHz available to winners of the spectrum blocks in i. and ii. above through negotiations with the Authority.

Expected Use of Spectrum

9. The Licensee(s) shall be authorized to develop and operate a broadband network to provide nationwide BWA services.

10. The licensee(s) and end-users shall be allowed to use their equipment in fixed locations, in a nomadic manner or with a fully mobile capability, at their choice. BWA licensees shall **not** require a separate Internet Services Provider (ISP) license.
11. BWA services are intended to provide wireless broadband connectivity to subscribers excluding public voice services that require interconnection to existing telephony licensees.
12. After a period of five (5) years of operations and subject to the attainment of the minimum metrics enumerated below, applicants may apply and shall be licensed, to offer public voice services that require interconnection to existing telephony licensees, on payment of a fee:
 - i. Achieve a minimum penetration rate of 60% of each zone per Annex 6.
 - ii. Obtain 100% Coverage of all District Capitals
 - iii. Consistently satisfy quality of service metrics as required by the Licence.
 - iv. Subject to the attainment of the above metrics, qualifying candidate shall pay a one-time fee of One Million United States Dollars (US\$1,000,000.00) to qualify to offer voice services.
 - v. The Authority shall then grant qualified applicants the appropriate number blocks.
 - vi. All BWA operators shall use existing International Gateways for International voice services or opt to acquire their own subject to existing International Gateway Operators Licence requirements.

Selection Procedure

13. The Authority shall employ a multi-stage selection and award process (a combination of “beauty contest” and auction) to select prospective applicants for the award of a BWA License. This procedure requires that successful applicants meet and satisfy a Three Stage process:
 - **Stage One: Pre-Qualification (Administrative)**
 - **Stage Two: Evaluation of Technical-Operational-
Management Competence**
 - Evaluation of Strategic, Operational & Technical Submissions
 - Evaluation of Business Presentations
 - **Stage Three: Financial (Auction)**

Fees

14. There shall be a non-refundable application fee of One Hundred Thousand United States (\$100,000.00) Dollars.
15. The license fees for up to five (5) spectrum lots shall be determined through an auction process.
16. The minimum reserve price for the auction shall be Five Million United States Dollars (US\$5,000,000.00)

**COVER SHEET FOR RESPONSE TO NCA PUBLIC CONSULTATION ON THE
SELECTION AND AWARD PROCEDURE**

FOR LICENSES IN THE 2500MHz – 2690MHz BAND

BASIC DETAILS

Name of respondent:

Representing (self or organisation/s):

Address:

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on NCA’s website, and I authorise NCA to make use of the information in this response to meet its legal requirements. If I have sent my response by email, NCA can disregard any standard e-mail text about not disclosing email contents and attachments.

Name :

Signed (if hard copy)

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CHAPTER 1

1.1. GENERAL INFORMATION

The NATIONAL COMMUNICATIONS AUTHORITY (AUTHORITY) is empowered under Section 3(c) of NCA Act 769 of 2008 ("The Act") to issue Licenses for the operation and provision of communication services, and to determine the eligibility criteria of applicants for the said licenses.

Having given due consideration to the principles of transparency, fairness, non-discrimination and all other relevant principles, the AUTHORITY has decided to issue procedures, guidelines and criteria for the auction and award of spectrum licenses in the 2500MHz – 2690MHz band to qualified applicants for Broadband Wireless Access (BWA) services.

Presently, the principal legal statutes governing the telecommunications industry in Ghana are the following:

- The National Communications Authority Act, 2008, Act 769
- The Electronic Communications Act, 2008, Act 775
- National Telecommunications Policy (NTP), 2005
- The National Communications Regulations, 2003, L.I. 1719
- The Ghana ICT for Accelerated Development (ICT4AD) Policy, 2003

This Selection and Award Procedure document, along with the terms and conditions of the License, should be read in conjunction with the above mentioned legal statutes and other applicable statutory laws including rules, regulations, decrees, orders, decisions, guidelines, directives and documents of general application issued by the Government of Ghana or the AUTHORITY.

Applicant(s) shall be disqualified from obtaining a License if any provision listed in sub clauses (i) to (vii) below, applies to its owner(s) or to any of its director(s) or partner(s) or to the Applicant(s). The provisions are, if the applicant has / or has been

- i. Declared medically insane;
- ii. Sentenced by a Court under any law, other than this Act, to imprisonment for a term of two (2) years or more, and a period of five (5) years has not elapsed since his release from such imprisonment;
- iii. Sentenced by a Court of law for committing any offence under the Act and a period of five (5) years has not elapsed since his release from such imprisonment;
- iv. Declared bankrupt by a Court of law and has not been discharged from the liability of bankruptcy;
- v. Identified or declared by a Court of law or by a bank or financial institution as a defaulter loanee of that bank or institution;
- vi. His license has been cancelled by the AUTHORITY at any time during the last 5 (five) years;
- vii. If there is an ongoing prosecution against the applicant(s) or its owner(s) or shareholder(s) or any of its director(s) or partner(s) for any violation of the Act or license conditions or any other illegal activities.

1.2. OVERVIEW OF THE EXISTING TELECOMMUNICATIONS MARKET

1.2.1 Fixed and Mobile Telephony Market

Ghana's Telecom sector has gone through many phases of growth and diversification over the last decade. It is presently characterised by vibrant competition and innovative products and services.

The telephony licenses are classified into two (2): fixed and mobile. The fixed telephony market is composed of two (2) operators: Vodafone Ghana and Zain.

The mobile telephony market on the other hand is composed of six (6) licensees; five (5) of which are currently operational. We project that by the year end 2009, the sixth licensee would have attained operational status. The mobile telephony market, which has experienced explosive growth, particularly over the last five years, currently constitutes about 98% of total access lines.

During the 2000 to 2Q 2009 periods, the industry experienced a compound average growth rate of approximately 92.6%. Access line penetration grew from 1.6% at year-end 2000 to 62.7% at end of second quarter 2009, making Ghana one of the highest penetrated markets on the continent. Given these growth rates, the Authority conservatively project that the eighty five percent (85%) penetration mark will be achieved during the 2010-2012 time frames.

In terms of service coverage, four out of the five current operators have attained national coverage, with the other attaining about 60%. However, more has to be done to bridge the gap between rural and urban service delivery.

Clearly, growth in the sector has been, and shall continue to be explosive, though primarily concentrated in the mobile voice services segment. However, the mobile operators are venturing into the data and internet markets, though their efforts are rather miniscule compared to their efforts in the voice segment. Consequently, general market uptake for data has been relatively insignificant, and user costs are quite high.

Albeit, the accelerated service coverage is commendable, the nation has experienced less than a corresponding level of service quality. The lower than expected quality of service has and continue to be a soar point for consumers, policymakers, civil society and the regulator alike. This situation, along with others, has necessitated a heightened level of competition to enable greater choice, quality of service and value for money.

The above notwithstanding, the level of customer service quality delivery is not only low but also unequal across the geographic span of the country. This experience has necessitated the purchase of mobile telephony services by the consuming public from multiple service providers. Therefore, the mathematical penetration rate is a lot higher than would otherwise prevail in a market where quality of service is high and acquisition from multiple networks not desirable. In terms of the rate of change in penetration rates for Ghana, one could argue that although we are around an absolute

rate of about 62.7% (2Q '09), the unique penetration could be closer to 47%, because of the tendency for consumers to use more than one network access line.

Third Generation (3G) licenses have been issued to all the existing Mobile Telecom licensees to offer higher data speeds and other multimedia services.

The current market players and their market share as of 2Q 2009 are indicated in Table 1 and Figure 1 below:

Table 1: Telephony Market Players and their technology platforms

<i>Operator</i>	<i>Status</i>	<i>Platform</i>	<i>Spectrum (MHz)</i>	<i>Market Share as at June 2009</i>
Vodafone GH Fixed	Operational	Copper, Fiber, WLL	900/1800	1.84%
Zain Fixed	Operational	WLL, GSM, WCDMA	900/1800	0.01%
Kasapa Telecom	Operational	CDMA 2000	800MHz	2.42%
Vodafone GH Mobile	Operational	GSM/ WCDMA	900/1800/2100	13.80%
Millicom Ghana	Operational	GSM/ WCDMA	900/1800/2100	23.04%
Scancom Limited	Operational	GSM/ WCDMA	900/1800/2100	50.87%
Zain Mobile	Operational	GSM/ WCDMA	900/1800/2100	8.00%
Glo Mobile GH	Yet to commence operations	GSM/ WCDMA	900/1800/2100	-

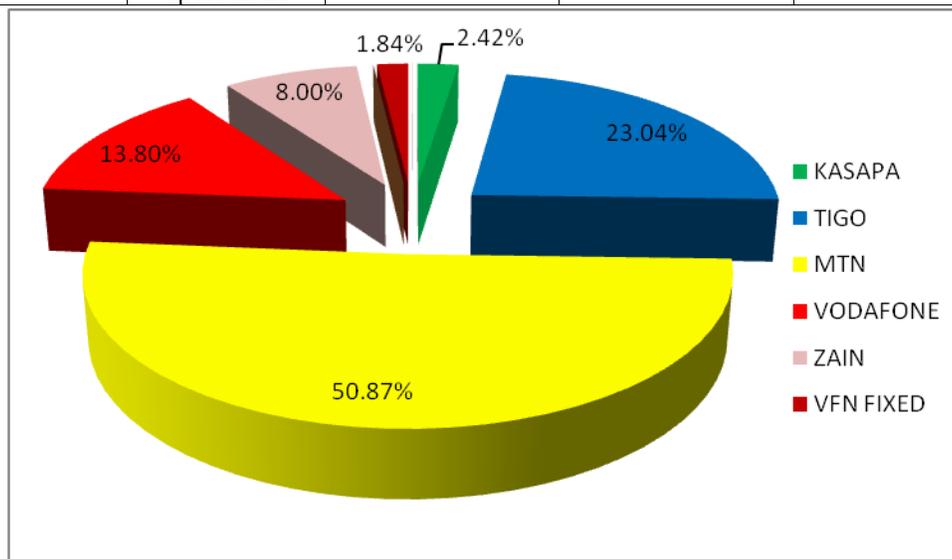


Figure 1: Market Share of Telephony Operators as of end of second quarter 2009

Ghana's economic growth rate, under-girded by stable macro-economic factors, along with good governance has contributed in no small measure to the nation's growing market and investment attractiveness. We project that this situation will only get better. In particular, the nation's liberal communications regulatory environment has also made the Communications Sector a must go area for both domestic and foreign investors.

1.2.2 Broadband Access Market

1.2.2.1 Internet/Broadband Penetration

Ghana was among the first countries in Africa connected to the Internet and to introduce broadband services using Asynchronous Digital Subscriber Line (ADSL). The internet and data communications sector is fully liberalised with about 90 Public Data/Internet Service Providers (ISPs) licensed, of which, however, only about 30 are operational. Most of these providers mainly serve corporate entities providing data communication services to support their business activities. Access to homes and individuals is very limited. Most Ghanaians access the Internet at work or through public internet cafes.

According to Ghanaian based *Internet Research*¹, the total number of Internet *subscribers* as of June 2009 was 47,000 representing 0.2% of the population with one in every three Internet subscribers having broadband access. The total number of Internet *users* was about 1,000,000 representing 4.5% of the Ghanaian population. International Telecommunication Union (ITU) statistics indicate that there were 12,700 broadband internet subscribers as of September 2007. The ratio of Internet subscribers to broadband is obviously inadequate.

The provision of Internet data access by all the existing mobile telephony operators using GPRS/EDGE/W-CDMA/HSPA (3G)/ CDMA 2000 has not significantly increased the percentage of the population that use the Internet. Internet World Stats² ranks Ghana's Internet penetration 10th in Africa behind countries such as Nigeria, Senegal, Zimbabwe and Gambia. If Ghana can live up to its policy objective of being the Internet hub of West Africa, then, an urgent effort to boost up Broadband Internet penetration is required.

1.2.2.2 Broadband Costs

According to *Internet Research*, Broadband costs to the end user in Ghana excluding Customer Premise Equipment (CPE) currently ranges between \$500 and \$1000 depending on whether it is shared or dedicated. CPE costs range between \$100 and \$10,000.

The cost of international bandwidth has been identified as a bottleneck in the growth of broadband access. Currently, high speed access is provided through linking West/South Africa and Europe to USA and Asia through Vodafone Ghana's consortium relationship with the SAT-3 Submarine Optical Fibre Cable. The

¹ <http://www.internetresearch.com.gh/home.php>

² <http://www.internetworldstats.com/stats1.htm>

Ghana Internet Services Providers Association (GISPA) members buy a dedicated E1 (which is 8 x 256 kilobits per second (kbps) or 2.048 megabits per second (Mbit/s)) from Vodafone's SAT3 cable at \$4,500.

VSAT is presently the only alternative to the SAT-3 cable. However, the Authority in 2008 issued landing rights licenses to GLO-1 and Main One Submarine Cable System. This has already stimulated this segment of the international fiber market. Vodafone is reviewing its SAT-3 pricing model and expects to announce a new pricing scheme by December 2009³.

A National Broadband Strategy⁴ which is currently under development, under the auspices of Ghana Connect, aims at increasing National Broadband penetration to 50% by 2015 by reducing Broadband costs to the end user by 80% and reducing CPE costs by 90%.

The objective of this strategy could only be realized through the usage of mass market technologies providing the necessary economy of scale for the affordability of the consumers in Ghana. It is in pursuance of this that the National Communications Authority seeks to issue licenses for the provision of Broadband Wireless Access in the 2500 – 2690MHz band. This spectrum band has been identified internationally for the provision of broadband services using various technologies such as IEEE 802.16 also known as Worldwide Interoperability for Microwave Access (WiMAX) and Long Term Evolution (LTE) among others. This band is supported by all the major equipment vendors and will hence provide the necessary economies of scale to drive down broadband and CPE costs.

1.2.3 National Communications Infrastructure

The deployment of fibre infrastructure inland to provide a high speed backbone is currently provided by the National Communications Backbone Company (Vodafone, Ghana) which has 1,315km of optical fibre network connecting over twenty three (23) sites nationwide. MTN and Tigo are also constructing a fibre network with redundant rings across the country. Glo Mobile Ghana is also laying optical fibre across the country to connect to their undersea cable. These fibre networks will provide a robust national fibre backbone for telecom and broadband operators.

On the international leg, about 80% of the capacity of SAT-3 undersea cable is currently utilized. However, The GLO-1 cable with its capacity of 640Gigabits/second is expected to be operational by end of 2009 linking Accra and Lagos to London. Furthermore, MainOne is expected to commission phase one of its 1.92 Terabits per second capacity undersea cable to link Accra and Lagos to Sesimbra by June 2010. The West Africa Cable System (WACS) with a planned capacity of 5.12 Terabits per second has applied for a landing rights licence in Ghana.

³ Vodafone presentation at Workshop on National Broadband Strategy (<http://www.ghanconnect.org.gh/presentations-stakeholders%E2%80%99-workshop-%E2%80%9Cthe-development-and-implementation-national-broadband-strategy>)

⁴ <http://www.ghanconnect.org.gh>

1.2.4 Co-location Initiatives

The growth of mobile telephony and wireless data networks has brought in its wake rapid proliferation of communication masts/towers. This has triggered incessant and emotional complaints from a cross-section of the general public craving for environmental sanity; specifically environmental aesthetics, noise limits from generators and protection from the perceived potential health hazards of antennae radiation emission. In addition to this, most people are concerned about public safety in lieu of improperly constructed towers especially in densely populated areas and schools.

In response to public concerns, agencies with jurisdiction over cell site construction particularly the Environmental Protection Agency (EPA), have taken tougher stances in the issuance of permits, thus causing delays in cell site construction. However, coverage is a key strategic asset and therefore calls for the development of a creative model to facilitate the sharing of cell sites of existing major operators with smaller (in terms of infrastructure) operators and newer entrants.

Presently, the bodies of law call for “encouraging operators to collocate” to reduce the number of sites. However, in most cases, operators have not shared masts/sites which has eventually triggered the outcry against the proliferation of masts. This is likely to be compounded with six competitive mobile operators and at least five potential Broadband Wireless Access providers.

To address the growing challenges facing the industry, an Inter-Ministerial Group (IMG) composed of the Ministers of Communications, Science & Environment and Local Government, has been constituted. The IMG has been mandated to develop a scheme that will over the long-term facilitate a one-stop-shop mechanism to speed up the permit acquisition process, to enable operators deploy the necessary assets to meet demand and quality of service.

Furthermore, the NCA is developing licenses for infrastructure services, to open up the space for third party companies to build telecom infrastructure for equitable access to telecom service providers. In addition, it has tasked one of its directorates to facilitate discussions among operators to develop an infrastructure sharing model and guidelines.

1.3 INTERPRETATION AND DEFINITIONS

The interpretations and definitions of the terms used in this document are appended herewith as Annex 1.

CHAPTER 2

2.1 *KEY NATIONAL OBJECTIVES*

It is the Government's objective that every citizen and resident of the Republic of Ghana shall have access to high quality and affordable Broadband services, to facilitate the accelerated transformation of Ghana into a knowledge-based society and technology-driven economy.

This objective recognizes the primacy of integrating and growing the wealth of indigenous social and technical knowledge to inform, enhance and sustain the development of Ghana as a distinct and productive player in the global information society.

“According to a recent World Bank econometrics analysis of 120 countries, for every 10-percentage-point increase in the penetration of broadband services, there is an increase in economic growth of 1.3 percentage points. This growth effect of broadband is significant and stronger in developing countries than in developed economies, and it is higher than that of telephony and Internet.”⁵

The economic growth potential of broadband deployment necessitates the adoption of strategies to make broadband services widely available, accessible and affordable. This would have an impact on education, health and standard of living.

The Ghana Investment Promotion Center (GIPC) ICT Sector Profile indicates that, the Telecommunications sector contributed 6% of GDP in 2005 compared to 1.8% in 2000, pointing to a growing impact of Telecommunications on the economic development of Ghana.

Other key objectives, as per the NTP '05, are as follows:

- Universal access for all communities and population groups in Ghana to telephone, Internet, and multimedia services by the year 2010;
- National penetration of universal telecommunications service to reach 25%⁶ of the population, including at least 10% in rural areas, by the year 2010;
- Connection of all schools, medical clinics, and Government offices and public and community broadcasting stations to advanced telecommunications services;
- Fully open, private, and competitive markets for all telecommunications services;

⁵ Information and Communications for Development (IC4D), 2009, World Bank Group

⁶ This target has been exceeded with regards to telephony services. The telephony accessline penetration as of June ending 2009 was 62.7%.

- Streamlined, efficient, and effective regulation of the telecommunications industry on a fully transparent, technologically neutral, and competitively balanced basis;
- Affordable prices for telecommunications services, particularly for low income citizens;
- Profitable investment opportunities for businesses in all segments of the market.

The end game for the Government is to position Ghana as a first-class hub for regional and international ICT investments which would spur the development of vibrant infrastructure and services that would consequently lead to rapid growth in employment and incomes. Further, it is the Government's objective that Ghana achieves, develops and maintains leadership in the ICT "space" in the sub-region.

2.2 RATIONALE FOR LICENSING SPECTRUM IN THE 2500MHz – 2690MHz BAND

The key reasons for licensing spectrum in the 2500MHz – 2690MHz band are as follows:

To Enhance Competition in the broadband space which would result in:

- Improved Product & Service Development and Diversity
- Greater national/regional access and affordability
- Improved quality of service and value for money for the consuming public
- Competitive pricing and associated increased penetration, which will contribute to bridging the digital divide and attainment of socio-economic balance

To accelerate the bridging of the urban-rural opportunity divide in employment, income and taxes; the Authority endeavours to:

- Facilitate increase in Internet/Broadband penetration in the country
- Accelerate attainment of Universal Service/Access for Internet/broadband access
- Meet Government and Parliamentary Mandates per National Telecommunications Policy 2005 (NTP '05)
- Mitigate urban rural digital divide.
- Expand rural economic opportunities due to the collateral effects of affordable communication access.

2.3 TECHNICAL DESCRIPTION OF THE 2500MHz – 2690MHz BAND

The International Telecommunications Union (ITU) in 2000 identified the 2500MHz -2690MHz band for International Mobile Telecommunication (IMT) technologies. At the World Radiocommunications Conference 2007 (WRC '07) IMT was given a primary allocation in this band. Some of the IMT technologies are:

- WiMAX derived technologies (IEEE 802.16)
- 3GPP/3GPP2 derived technologies including:
 - Enhanced Data rates for GSM Evolution (EDGE) (also known as IMT Single Carrier (IMT-SC)
 - High Speed Download Packet Access (HSDPA) and
 - Long Term Evolution (LTE)
- W-CDMA as used in UMTS/3G mobile services;
- CDMA2000 derived technologies
- TD-CDMA Technologies;
- Digital Enhanced Cordless Telecommunications (DECT) or IMT-Frequency Time (IMT-FT)

2.4 EXISTING USERS OF THE 2500MHz -2690MHz BAND

The 2500 – 2690 MHz frequency band was allocated for Fixed, Mobile and Broadcasting services among others. Hence, both broadcasting and fixed/nomadic data services were assigned frequencies in the band. However, the Authority, in keeping with its mandate to ensure efficient use of the radio spectrum, migrated all analogue broadcasting assignments to the UHF band. Terrestrial Digital Video Broadcasting (DVB-T) is capable of offering multi-channel programming just as the Multichannel Multipoint Distribution Service (MMDS) was able to offer in analogue mode.

Presently, two data network companies have deployments in the 2.5GHz band: Broadband Home (BBH) and K-Net. K-Net is migrating its current 2.5GHz deployment to another frequency band. However, BBH has the option to remain in the band under the conditions and costs of the Broadband Wireless Access (BWA) licences on offer.

2.5 SPECTRUM BAND PLAN

The Authority investigated a number of options for allocation of spectrum in the band for both Frequency Division Duplexing (FDD) and Time Division Duplexing (TDD) technologies. These options included the European Conference of Postal and Telecommunications Administrations (CEPT) recommendations for harmonising the 2500MHz – 2690MHz spectrum. CEPT advocated that 140 MHz

of the band in two pairs of 70MHz (2x70 MHz) separated by 120MHz should be allocated for FDD Technologies and 50MHz allocated for TDD Technologies. The International Telecommunications Union Radiocommunications Sector (ITU-R) also provides for a flexible FDD/TDD band plan, which is the approach the Authority has decided to pursue.

In Ghana, the Authority has adopted the following band plan.

- A total of 105 MHz allocated to technologies that require unpaired spectrum. This includes one lot of 30 MHz which will be offered to the existing ISP in the band, BroadBand Home (BBH) on the same conditions of new applicants for slots in the band. The remaining 75MHz shall be offered at the auction in two lots of 30 MHz each, with 15MHz available for negotiation between the winning licensees and the Authority.
- A total of 2 x 35MHz shall be made available for technologies that require paired spectrum. This shall be offered at the auction in two lots of 2 X15 MHz each, with an extra 2x5MHz available for negotiations between the winning licensees and the Authority;
- The remaining 15 MHz will be used as restricted channels to manage interference between paired and unpaired spectrum bands. A Block Edge Mask would be put in place to allow limited deployment (e.g. low power femto cells). A diagram depicting the above plan is shown in Annex 7.

2.6 EXPECTED USE OF FREQUENCY BAND (SCOPE OF LICENCE)

2.6.1 The Licensee(s) shall be authorized to develop and operate a broadband network to provide nationwide BWA services.

2.6.2 The Licensee(s) and end-users shall be allowed to use their equipment in fixed locations, in a nomadic manner or with a fully mobile capability, at their choice. BWA licensees shall not require a separate Internet Services Provider (ISP) license.

2.6.3 BWA services are intended to provide wireless broadband connectivity to subscribers excluding public voice services that require interconnection to existing telephony licensees.

2.6.4 After a period of five (5) years of successful operations and subject to the attainment of the minimum metrics enumerated below, applicants may apply and shall be licensed, to offer public voice services that require interconnection to existing telephony licensees on payment of a fee:

- vii. Achieve a minimum penetration rate of 60% of each zone per Annex 6.
- viii. Obtain 100% Coverage of all District Capitals
- ix. Consistently satisfy quality of service metrics as required by the Licence.
- x. Subject to the attainment of the above metrics, a qualifying candidate shall pay a one-time fee of One Million United States Dollars (US\$1,000,000.00) to qualify to offer voice services.

2.6.5 The Authority shall then grant qualified applicants the appropriate number blocks.

- 2.6.6 All BWA operators shall use existing International Gateways for International voice services or opt to acquire their own subject to existing International Gateway Operators Licence requirements.
- 2.6.7 The Draft Licence, which shall clearly indicate the scope for licensees shall be posted on the NCA website on <date of publishing final selection procedure>.

2.7 THE SPECTRUM LICENCES

- 2.7.1 There shall be a total of up to five (5) spectrum licences to be awarded as follows:
- i. Three (3) lots of 30MHz blocks nationwide for operators using technologies that require unpaired spectrum for a 10 year period.
 - ii. Two (2) lots of 2x15 MHz blocks nationwide for operators using technologies that require paired spectrum for a 10 year period.
- 2.7.2 THE CONSIDERATION FOR THE ABOVE OFFER shall be as follows:
- i. There shall be a non-refundable application fee of One Hundred Thousand United States (\$100,000.00) Dollars.
 - a. This shall be in the form of a Bankers Draft drawable on First Atlantic Merchant Bank, Atlantic Place, 1 Seventh Avenue, Accra, Ghana.
 - b. An official of First Atlantic Merchant Bank shall confirm payment in writing to the Evaluation Panel prior to commencement of Evaluation.
 - ii. The minimum reserve price for the auction shall be Five Million United States Dollars (US\$5,000,000.00).
- 2.7.3 Any additional frequencies for network roll-out shall be offered at the prevailing market prices.
- 2.7.4 In addition to the requirements herein, the Authority shall consider any other factors that may enhance the ICT industry of Ghana in particular and the economy of the country as a whole.
- 2.7.5 The Authority shall abrogate the Auction Process if no applicant meets the minimum-reserve price.

CHAPTER 3

3.1. ELIGIBILITY

- 3.1.1. All applicants shall be incorporated in Ghana.
- 3.1.2. There shall be a minimum of 30% private Ghanaian ownership in the applying Entity; be it a company, a joint venture or consortium. The said minimum Ghanaian ownership shall be maintained throughout the duration of the Licence.
- 3.1.3. The Entity must be registered under the laws of Ghana, and duly certified to operate in Ghana, prior to Stage Two (Evaluation of Technical and Management Competence) of the process.
- 3.1.4. An Entity shall be eligible for only one BWA License; that is, no Entity alone or along with its partner, affiliate, subsidiary or shareholder in total, can apply for more than one license.

3.2. SELECTION PROCESS

The Authority shall employ a multi-stage selection and award process (a combination of “beauty contest” and auction) to select prospective applicants for the award of a BWA License. This procedure requires that successful applicants meet and satisfy a Three Stage process:

- Stage One: Pre-Qualification (Administrative)
- Stage Two: Evaluation of Technical-Operational-
Management Competence
 - Evaluation of Strategic, Operational & Technical Submissions
 - Evaluation of Business Presentations
- Stage Three: Financial (Auction)

3.3. STAGE ONE: PRE-QUALIFICATION (ADMINISTRATIVE)

- 3.3.1. All applicants must be fully compliant with the requirements stated in Standardized Application Guidelines [See ANNEX 3] and the NCA Guidelines for Telecommunications Projects (See ANNEX 4). There shall absolutely be no consideration for failing to satisfy these requirements.
- 3.3.2. Proof of Payment of Application Fee.
- 3.3.3. Compliance with requirements and criteria set forth in Chapter 4.
- 3.3.4. Subsequent to meeting the said requirements, successful applicants shall be invited to participate in the Stage-Two exercise; that is the Technical-Operational-Managerial Assessment.

3.4. STAGE TWO: TECHNICAL-OPERATIONAL-MANAGERIAL ASSESSMENT

- 3.4.1. This segment is open to only successful Stage One applicants. It is composed of two parts as follows:
- a. Evaluation of the Strategic, Operational and Technical Submission
 - b. Evaluation of the applicant's Business Plan Presentation. The said presentation may take place in a public arena, or open to the public.
- 3.4.2. Business Plan Applications of successful Stage-One applicants shall be evaluated by a team of competent analysts empanelled by the Authority.
- 3.4.3. After the evaluation of these applications, applicants shall be required to present their Business Plan in a Public Forum. The said presentation shall also be scored. The cumulative score of the Evaluation and Presentation shall constitute the Technical Evaluation Assessment of the applicant.
- 3.4.4. Applicants who attain the minimum threshold average point score of Seventy-Five (75%) Percent shall be invited to participate in the Stage Three; Financial Auction part, of the Selection and Award Process.
- 3.4.5. The results of the Stage Two Exercise shall be communicated to the applicants, prior to the beginning of the Stage-Three proceedings.

3.5 STAGE THREE: AUCTION PROCESS

- 3.5.1 The license price for the spectrum lots shall be determined through a Multiple Round Simultaneous Auction (MRSA).

Auction Rules

- 3.5.2 The Auction shall have the following rules:
- 3.5.3 The Minimum Reserve Price for a 30MHz lot or 2 X15 MHz lot is Five Million United States Dollars (US\$5,000,000.00)
- 3.5.4 Each bidder taking part in the auction shall pay a bid deposit equivalent to 20% of the reserve price, that is One Million United States Dollars (US\$1,000,000.00) that will be forfeited if :
- i. the bidder breaks an auction rule;
 - ii. a winning bidder defaults on its payment;
- 3.5.5 This deposit shall be returned to failed bidders within five (5) business days.
- 3.5.6 This deposit shall be credited to the bid price of successful bidders.

Auction Process

- 3.5.7 MRSA shall be executed as follows:

- 3.5.8 The auction shall start at the Minimum Reserve Price of Five Million United States Dollars(US\$5,000,000);
- 3.5.9 During each round, the NCA Auctioneer shall announce a price and the applicants shall be asked to submit written bids (which shall be ‘yes I bid’ or ‘no I do not bid’) at that price and their ‘best offer’ (which can be any price below the bid price but above the minimum reserve price) for the lot.
- 3.5.10 At the end of a round, if there are more bids than lots, the NCA Auctioneer shall announce a new price and the bidders shall be asked to submit new written bids (which shall be ‘yes I bid’ or ‘no I do not bid’) at that price and their ‘best offer’ (which can be any price below the bid price but above the minimum reserve price) for the lot.
- 3.5.11 At the end of a round, if the numbers of bids are equal to the number of lots, the auction ends and the license fee is set at the price announced for that round.
- 3.5.12 At the end of a round, if the numbers of bids are less than the number of lots, the auction ends and the ‘best offer’ bids from those who bid ‘no’ during the round shall be opened. It is assumed that their ‘best offers’ shall be below the bid price for the round.
- 3.5.13 If there are four bids for the five lots, the highest ‘best offer’ bidder shall be added to the successful bids and the bid price reduced to the ‘best offer’ price.
- 3.5.14 If there are three bids for the five lots, the two highest ‘best offer’ bidders shall be added to the successful bids and the bid price reduced to the second highest ‘best offer’ price.
- 3.5.15 Bidders cannot skip a bidding round and once they bid ‘no’ in a round they shall drop out of the auction and shall only take further part if their ‘best offers’ are opened.

3.6 FURTHER RULES

- 3.6.1 Applicable Legal Norms. The Auction and the Transactions shall be conducted in accordance with, and shall be governed by, the laws of Ghana and this Selection Process.
- 3.6.2 Calculation of Time Periods. Unless otherwise specified, the time periods provided herein shall be calculated in calendar days.
- 3.6.3 Submissions. Unless otherwise provided herein, all submissions and receipt of payments should be made to the Secretariat, Evaluation Committee, National Communications Authority (NCA)

and be marked “Application for Licence in the 2500MHz – 2690MHz band”.

- 3.6.4 Acceptance of Terms and Conditions. The submission implies full knowledge and acceptance of, all the terms and conditions set forth herein and under the applicable laws of Ghana.
- 3.6.5 Notices. Applicants shall designate in writing a person or entity for receipt of any notices in connection with this Selection Procedure. The contact information: full office/residential address, email address, fax numbers, mobile and fixed telephone numbers shall also be provided in the statement designating the person. All notices from the Evaluation Committee in connection with the application shall be valid when made to such designated person by hand, post, email or by telefax.
- 3.6.6 Inquiries/Circulars. Any inquiries with respect to this Selection Process should be submitted in writing to the Secretariat, Evaluation Committee, National Communications Authority (NCA). The Committee will provide responses to such inquiries and other clarifications through circulars, which shall be sent to the person designated by each Applicant. The circulars shall also be posted on the NCA website.

3.7 TIMETABLE

The Process shall take place in accordance with the following timetable:

S/N	Activity	Begins	Ends
1.	Public Consultation Process	45 Business days	
2.	Review of Public Comments	15 Business days	
3.	Press Release to invite applications	1 Business Day	
4.	Posting of License Conditions on NCA website	1 Business Day	
5.	Submission of Application & Proposals to the NCA	40 Business Days	
6.	Opening of Proposals by the NCA/ Balloting for Order of Presentation	1 Business Day	
7.	Evaluation of Submitted Proposals by Evaluation Committee	10 Business Days	
8.	Business Presentations by Qualified	5 Business Days	

	Applicants to Evaluation Committee	
9.	Auction Process	5 Business Day
10	Announcement of Winners	1 Business Day
11.	Payment of License Fees	From 1 to 10 Business Days

CHAPTER 4

4.1 CONTENTS OF THE PROPOSAL

The Proposal shall contain the following:

- 4.1.1 Receipt. Evidence of payment of the Application Fee of One Hundred Thousand United States (\$100,000.00) Dollars.
- 4.1.2 Letter of Presentation. A letter of presentation, substantially in the form of Annex 2, signed by a duly authorized (in accordance with Section 4.1.5) representative of the Applicant, which sets forth the Applicant's intention to participate in the Pre-Qualification Process and its acceptance of all the terms and conditions of this Selection Procedure.
- 4.1.3 Certificates. Certificates issued by the relevant governmental authorities, and other competent authorities of the jurisdiction where the Applicant is incorporated, evidencing that the Applicant is a corporation duly organized, validly existing and in good standing in such jurisdiction. All certificates must be in English. Certificates translated into English must be certified and notarized.
- 4.1.4 The above notwithstanding, all applicants shall submit certified true copies of their Certificate of Incorporation, Certificate to Commence Business and Company Regulations obtained from the Registrar General of the Republic of Ghana.
- 4.1.5 Power of Attorney. Each Applicant shall designate a representative for purposes of Sections 4.1.2 and 4.1.6 pursuant to a Power of Attorney issued in accordance with the laws of its jurisdiction of incorporation.
- 4.1.6 Sworn Declaration. A Sworn Declaration of the Applicant signed by its duly authorized representative, (in accordance with Section 4.1.5 hereof), with the following information:
- (i) Identification of all the shareholders of the Applicants that control more than 5% of its capital and of the entities that directly or indirectly are the beneficial shareholders thereof. The beneficial shareholders of the Applicant shall mean those who directly or indirectly own the majority of the shares or the voting rights or who otherwise control such Applicant;
 - (ii) Identification of all the stock exchanges where the shares of the Applicant are traded;
 - (iii) Statement that all the information and documentation submitted in connection with the Application are true, accurate and complete;
 - (iv) Statement that the Applicant has not been the subject of any bankruptcy proceedings, reorganizations, or similar proceedings in the last 5 years;

- (v) Statement that, since the date of the Applicant's last audited reports and financial statements submitted pursuant to Section 4.1.7, there has not been any material adverse changes thereto.

4.1.7 Audited Reports and Financial Statements

The audited reports and financial statements corresponding to the last three fiscal years of the Applicant and (if applicable) the consolidated group to which the Applicant belongs.

4.1.8 Additional Qualification Criteria:

- (i) Information regarding the technical qualifications of the Applicant, which demonstrate its ability to undertake a significant expansion programme and to improve the quality and enhance the efficiency of communication services in Ghana. Applicants should refer to networks and businesses where such experiences have been gained, and should indicate the number of subscribers in services operated by such networks and businesses.
- (ii) Information regarding the operational credentials of the Applicant, indicating the services that it is currently operating and demonstrating its ability to manage the business in an increasingly competitive telecommunications market.
- (iii) Detailed résumé of the proposed management of the Entity.

4.2 SUBMISSION OF PROPOSALS

4.2.1 Location and Deadline for Submissions.

Proposals may be submitted during business days to the Secretariat, Evaluation Committee, National Communications Authority (NCA), 1st Rangoon Close, Cantonments, Accra and be marked "Application for Licence in the 2500MHz – 2690MHz band", between the hours of 9.00 am to 5.00 pm. The deadline for submission shall be 5.00pm on <date>.

4.2.2 Originals and Copies.

- (i) All documents submitted by the Applicant shall be either originals or certified copies. The copies may be certified by the authorized officer of the Applicant unless otherwise specified herein or by the Evaluation Committee.
- (ii) The documentation of the Proposal shall be submitted in eight (8) original hard copies and ten (10) electronic copies, clearly marking each as such. In the event of any discrepancies, the original shall prevail.
- (iv) Every page of the Proposal shall be numbered (as a fraction of total number of pages e.g. 1 of 30, etc.)

- (v) Proposals shall include a table of contents and a page setting forth the Applicant's name and legal domicile as well as the postal and e-mail address, telephone and facsimile numbers of a person designated to receive notices in accordance with Section 3.6.5.
- (vi) Proposals shall be submitted in a sealed envelope/box.

4.3 UPDATING

Each Applicant shall maintain current, the facts and information supplied in the Proposal, and shall communicate to the Evaluation Committee all material changes that arise with regards thereto.

4.4 MODIFICATION

This Selection Procedure does not constitute an offer to contract on the part of the NCA and the Evaluation Committee has the right to modify or amend any provision or condition hereof; provided however, that any such modification or amendment shall be valid only if it is in writing.

4.5 DISCLAIMER

The NCA shall not incur any liability whatsoever in exercising its rights in 4.4 above or any other rights granted in this Process.

4.6 ADDITIONAL INFORMATION

The Evaluation Committee reserves the right to request, at any time, additional information or documentation from Applicants.

INTERPRETATIONS AND DEFINITIONS

When used in this paper, the following terms shall have the meanings ascribed herein:

1. “Applicant” means any entity that has submitted a Proposal.
2. “Government” means the Government of Ghana.
3. “Ministry” means the Ministry of Communications (MoC).
4. “NCA” means National Communications Authority.
5. “Pre-Qualification” means the qualification of an Applicant in the Pre-Qualification Process, thereby permitting the Applicant to participate in the second stage of the Process.
6. “Pre-Qualified Applicant” means an Applicant that has been selected in the Pre-Qualification Process to participate in the second stage of the Selection Process in accordance with the rules set forth in this Selection Process.
7. “Proposal” means the submission made by an Applicant to the Evaluation Committee in accordance with Section 4.1 herein.
8. “Application Fee” means the sum of One Hundred Thousand United States (\$100,000.00) Dollars which must be paid by an Applicant to the National Communications Authority at the time that it submits a Proposal. Such sum is non-refundable and grants the Applicant the right to participate in the “Selection Process”.
9. “FDD” means Frequency Division Duplex.
10. “TDD” means Time Division Duplex.
11. WiMAX means Worldwide Interoperability for Microwave Access as specified by the WiMAX Forum.
12. LTE means Long Term Evolution as specified by the 3rd Generation Partnership Project (3GPP)

SAMPLE LETTER OF PRESENTATION

Date:

The Director General
National Communications Authority
1st Rangoon Close
P. O. Box C1568
Cantonments
Accra

Dear Sir,

Re: Selection Procedure for Licence in the 2500MHz – 2690MHz Band

Enclosed herewith are the documents required by the Selection Procedure for Pre-qualification with respect to the above-captioned Process.

We hereby declare our full knowledge and acceptance of and submission to, all the terms and conditions set forth in the above-mentioned Selection Procedure and the applicable Laws of the Republic of Ghana.

Yours faithfully,

(SIGNATURE OF REPRESENTATIVE)

(NAME OF REPRESENTATIVE)

STANDARDIZED APPLICATION GUIDELINES

General Information

1. Applicant

- a. Name
- b. Title
- c. Citizenship
- d. Address
- e. Contact numbers

2. Management

- a. Name
- b. Title
- c. Citizenship
- d. Address
- e. Contact numbers

3. Directors

- a. Name
- b. Address
- c. Contact numbers
- d. Citizenship
- e. Shareholding %
- f. Other Telecommunication Interests
 - i. Name of Company
 - ii. Address
 - iii. Contact Numbers
 - iv. Shareholding %
 - v. Licence/Authorization Status
 - vi. Credit/Default Status

4. Shareholders (with at least 5% holding)

- a. Name
- b. Address
- c. Contact numbers
- d. Proof of Citizenship
- e. Shareholding %

- f. Other Telecommunication Interests
 - i. Name of Company

- ii. Address
- iii. Contact Numbers
- iv. Shareholding %
- v. Licence/Authorization Status
- vi. Credit/Default Status

5. Applying Entity Information

- a. Name of Entity/ Company/Partnership /Trust etc, please define
- b. Certificate of Incorporation in Ghana (Company Registration Number & Date of Registration)
- c. Certificate to Commence Business in Ghana; Number & Date

6. Exhibits and Other Certified Documents to Support the Following:

a. Financial Capacity

- i. Equity Contributions of Shareholders
- ii. Commitments from Banks and Financial Institutions
- iii. Detailed Five Year Financial Statements
- iv. Income, Balance Sheet, Cash flow Statements

b. Technical and/or Operational Capacity

Certified commitment letters from:

- i. Established and experienced operating concerns
- ii. Equipment vendor relationships and a showing of readiness to provide sustained technical & operation partnering and support.

7. Bank(s) & Financial Institutional Support

- a. Name of Bank
- b. Address
- c. Contact Person
- d. Contact Number
- e. Certification from Bank

8. Applicant Status

List any NCA regulated entity or applicant for an NCA Licence in which:

- i. the applicant
- ii. any party has more than 5% or greater interest in the applicant; or a Controlling interest or more than 10% of the applicant or more of any class of stock, warrants, options or debt securities of the applicant. This list must include a description of each such entity's relationship to the applicant.

9. Agreements with Other Parties

Applicants must submit an exhibit identifying all parties with which they have entered into any agreements, arrangements or understandings which relate in any way to the licence being allocated.

10. Defaults & Delinquencies

Information required of all applicants regarding defaults and delinquencies. Each applicant must include in Exhibit A certification whether the applicant, its affiliates, its controlling interests, and the affiliates of its controlling interests are in default of any NCA licenses and are delinquent on any non-tax debt owed to any National agency.

11. Miscellaneous Information

Applicants wishing to submit a statement of verifiable reasons sufficient to justify, and or enhance their chances may do so if they so wish.

GUIDELINES FOR SUBMISSION OF FEASIBILITY REPORT FOR TELECOMMUNICATIONS PROJECTS

1. COMPANY PROFILE

- (a) Evidence of Incorporation (in Ghana)
- (b) Certificate to Commence Business (in Ghana)
- (c) Shareholders/Company Regulations
- (d) Relevant Experience/Evidence of ability to perform including agreements drawn up with any principals.
- (e) Evidence of Tax payment

2. PROJECT STUDY

- a) Engineering design system, or
- b) Technical Implementation Plan

3. MARKET PLAN

- a) Business idea and choice of Technology
- b) Market analysis
- c) Roll-out Plan and Coverage Criteria
- d) Market: This is to include Market Goals, Target Groups etc.

4. BUSINESS PLAN

- a) Organisational Structure
- b) Mission Statement
- c) Capital Investment: This should include -
 - i. Equipment Categories
 - ii. Equipment Prices
 - iii. Equipment Suppliers and
 - iv. Capital Investment Summary

- d) Revenue Forecast
- e) Operating Expenses
- f) Financial Plan including:
 - i. Equity
 - ii. Suppliers Credit (if any)
 - iii. Bank Loan (if any)

- g) Forecasted Financial Statements and/or Bank Statements for the previous three years:
These should include:
 - i. Income Statement
 - ii. Balance Sheet
 - iii. Cash flow Statement
 - iv. Evidence of sustained funding

- h) Any other information that is relevant to demonstrate the viability of the project.

LETTER OF COMMITMENT

All applicants are also to submit a signed letter of commitment stipulating that they shall abide by all existing ITU Regulations and Communications laws of the country as well as other rules and regulations that may be issued.

Note: All Applications shall be accompanied by Receipt of Payment of the applicable non-refundable processing fee. The Receipt No. should be indicated at the upper right corner of the appropriate Application Form.

LICENCE FEE, CHARGES & OTHER OBLIGATIONS

S/N	Description	Amount
1.	Application Fee	US \$100,000.00
2.	Minimum Reserve Price for Licence	US \$5,000,000.00
3.	Annual Regulatory Fee	One percent (1%) of Net Revenue* payable quarterly by the last business day of the month succeeding the quarter for which payment is being made.
4.	Ghana Investment Fund for Electronic Communications (GIFEC)	One percent (1%) of Net Revenue*

*Net Revenue = Gross Revenue – (Value Added Tax + National Health Insurance Levy + Communication Service Tax)

ROLL-OUT CONDITIONS

Zone A By the end of 18 months, the Licensee shall cover a minimum of six (6) district capitals.

By the end of 36 months, the Licensee shall cover all ten (10) district capitals.

Zone B By the end of 18 months, the Licensee shall cover a minimum of four (4) district capitals.

By the end of 36 months, the Licensee shall cover a minimum of fifteen (15) district capitals.

By the end of 48 months, the Licensee shall cover a minimum of twenty-one (21) district capitals.

By the end of 60 months, the Licensee shall cover all twenty-seven (27) district capitals.

Zone C By the end of 18 months, the Licensee shall cover a minimum of three (3) district capitals per region.

By the end of 36 months, the Licensee shall cover a minimum of ten (10) district capitals per region.

By the end of 48 months, the Licensee shall cover a minimum of fourteen (14) district capitals per region.

By the end of 60 months, the Licensee shall cover a minimum of seventeen (17) district capitals per region.

Zone D By the end of 18 months, the licensee shall cover a minimum of four (4) district capitals per region.

By the end of 36 months, the licensee shall cover a minimum of twelve (12) district capitals per region.

By the end of 48 months, the licensee shall cover a minimum of eighteen (18) district capitals per region.

By the end of 60 months, the licensee shall cover all district capitals.

Zone E: By the end of 18 months, the Licensee shall cover five (5) district capitals per region.

By the end of 36 months, the Licensee shall cover thirty (30) district capitals in the zone

By the end of 48 months, the Licensee shall cover a minimum of forty-five (45) district capitals in the zone.

By the end of 60 months, the Licensee shall cover all sixty (60) district capitals in the zone.

The coverage criteria stipulated above shall be applicable to the district capitals in all the zones as listed below:

District Areas Grouped into Zones

ZONE A - GREATER ACCRA REGION

District Area	Capital
Accra Metropolitan	Accra
Dangbe East	Ada-Foah
Dangbe West	Dodowa
Ga West Municipal	Amasaman
Tema Metropolitan	Tema
Ga East Municipal	Abokobi
Adenta Municipal	Adenta
Ashaiman Municipal	Ashaiman
Ga South Municipal	Gbawe
Ledzekuku-Krowor	Teshie-Nungua

ZONE B - ASHANTI REGION

District Area	Capital
Kumasi Metropolitan	Kumasi
Adansi South	New Edubiase
Obuasi Municipal	Obuasi
Afigya Sekyere	Agona-Ashanti

District Area	Capital
Ahafo Ano North	Tepa
Ahafo Ano South	Mankranso
Amansie East	Bekwai
Amansie West	Manso Nkwanta
Asante Akim North Municipal	Konongo
Asante Akim South	Juaso
Atwima Nwabiagya	Nkawie
Bosomtwe/Atwima Kwanhuma	Kuntense
Ejisu-Juabeng	Ejisu
Ejura/Sekyedumasi	Ejura
Kwabre	Mampong
Offinso Municipal	Offinso
Sekyere East	Effiduase
Mampong Municipal	Mampong
Adansi North	Fomena
Amansie Central	Jacobi
Atwima Mponua	Nyinahin
Afigya-Kwabre	Kodie
Atwima Kwanwoma	Foase Kokoben
Bosome Freho	Asiwa
Offinso North	Akomadan
Sekyere Afram Plains	Kumawu
Sekyere Central	Nsuta

ZONE C - WESTERN AND CENTRAL REGIONS

<u>Western Region</u>		<u>Central Region</u>	
District Area	Capital	District Area	Capital
Sekondi-Takoradi Metro.	Sekondi	Cape Coast Metropolitan	Cape Coast
AhantaWest	Agona Nkwanta	Abura/Asebu/Kwamankese	Abura Dunkwa
Aowin/Suaman	Enchi	Agona West Municipal	Agona-Swedru
Bibiani/Anhwiaso/Bekwai	Bibiani	Ajumako/Enyan/Esiam	Ajumako
Juabeso	Juabeso	Asikuma/Odoben/Brakwa	Breman Asikuma
Jomoro	Jomoro	Assin North Municipal	Assin Foso
Mpohor/Wassa East	Takoradi	Effutu Municipal	Winneba
Sefwi-Wiawso	Sefwi Wiawso	Gomoa West	Apam
Wassa Amenfi East	Asankragwa	Komenda/Edina/EguafoAbirem	Elmina
Tarkwa Nsuaem Municipal	Tarkwa	Mfantsiman Municipal	Saltpond
Nzema East Municipal	Axim	Twifu/Heman/Lower Denkyira	Twifu Praso
Bia	Essam-Debiso	Upper Denkyira East Municipal	Dunkwa-on-Offin
Wassa Amenfi West	Wassa Akropong	Assin South	Nsuaem-Kyekyewere
Prestea-Huni Valley	Bogoso	Awutu-Senya	Awutu-Breku
Sefwi Akontombra	Sefwi Akontombra	Gomoa East	Afransi
Shama	Shama	Upper Denkyira West	Diaso

ZONE D - EASTERN AND VOLTA REGIONS

<u>Eastern Region</u>		<u>Volta Region</u>	
District Area	Capital	District Area	Capital
New-Juaben Municipal	Koforidua	Ho	Ho
Afram Plains	Donkorkrom	Akatsi	Akatsi
Akuapim North	Akropong	Hohoe	Hohoe
Akuapim South	Nsawam	Jasikan	Jasikan
Asuogyaman	Akosombo	Kadjebi	Kadjebi
Birim North	New Abirem	Keta	Keta
Birim South	Akim-Oda	Ketu	Denu
East Akim	Kibi	Kpando	Kpando
Fanteakwa	Begoro	Krachi	Kete-Krachi
Kwaebibrem	Kade	Nkwanta	Nkwanta
Kwahu South	Mpraeso	North Tongu	Adidome
Menya Krobo	Odumasi Krobo	South Tongu	Sogakofe
Suhum/Kroboa/Coaltar	Suhum	Adaklu-Anyibe	Adaklu Waya
West Akim	Asamankese	South Dayi	Kpeve
Yilo Krobo	Somanya	North Dayi	Kpando
Atiwa	Kwabeng	Biakoye	Nkonya Ahenkro
Kwahu West	Nkawkaw	Ketu North	Dzodze
Akyemansa	Ofoase	Nkwanta North	Kpasa
Birim South	Akyem Swedru		
Kwahu East	Abetifi		

ZONE E - BRONG-AHAFO, NORTHERN, UPPER EAST AND UPPER WEST REGIONS

<u>Brong-Ahafo Region</u>		<u>Northern Region</u>	
District Area	Capital	District Area	Capital
Sunyani	Sunyani	Tamale	Tamale
Asunafo North	Goaso	Bole	Bole
Asutifi	Kenyasi	East Gonja	Salaga
Atebubu-Amantin	Atebubu	East Mamprusi	Gambaga
Berekum	Berekum	Gushiegu/Karaga	Gushiegu
Dormaa	Dormaa-Ahenkro	Saboba/Cheriponi	Saboba
Jaman South	Drobo	Savelugu/Nanton	Savelugu
Kintampo North	Kintampo	Tolon/Kumbungu	Tolon
Nkoranza	Nkoranza	West Gongga	Damongo
Sene	Kwame Danso	West Mamprusi	Walewale
Tano South	Bechem	Yendi	Yendi
Techiman	Techiman	Zabzugu/Tatale	Zabzugu
Wenchi	Wenchi	Bunkpurugu-Yungoo	Bunkpurugu
Pru	Yeji	Central Gonja	Buipe
Tain	Nsawkaw	Karaga	Karaga
Jaman North	Sampa	Nanumba North	Bimbilla
Kintampo South	Jema	Nanumba South	Wulensi
Asunafo South	Kukuom	Sawla-Tuna-Kalba	Sawla
Tano North	Duayaw-Nkwanta	Chereponi	Chereponi

Dormaa East	Wamfie	Kpandai	Kpandai
Nkoranza North	Busunya		
Sunyani West	Odumase		

<u>Upper West Region</u>		<u>Upper East Region</u>	
District Area	Capital	District Area	Capital
Wa	Wa	Bawku West	Zebilla
Jirapa	Jirapa	Bawku Municipal	Bawku
Lawra	Lawra	Bongo	Bongo
Nadowli	Nawdoli	Builsa	Sandema
Sissala	Tumu	Kassena/Nankana	Navrongo
Wa West	Wechiaw	Talensi-Nabdam	Tongo
Wa East	Funsi	Bolgatanga Municipal	Bolgatanga
Sissala West	Gwollu	Garu-Tampene	Garu-Tampene
Lambussie/Karni	Lambussie	Kassena Nankana West	Paga

SPECTRUM PLAN FOR THE 2500 – 2690 MHZ BAND



2 Paired 2x15 MHz, 1 paired 2x5 MHz Negotiated Channel (NC), 3 unpaired @ 30 MHz, 1 unpaired @ 15 MHz Negotiated

* NC is negotiated channel. It represents additional spectrum that could be negotiated after the auction.

** RC is restricted channel. A Block Edge Mask which could allow limited deployment (e.g. low power femto cells) would be put in place in order not to completely prohibit any use of the band. Operators can bid/negotiate on these blocks (much lower fee) if they wish to utilize them.