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Examining The Regulatory Regime For Radio Frequency Spectrum Licensing In Nigeria

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ABSTRACT
Radio frequency spectrum is one of Nigeria's key natural resources of great economic value as a result of its direct application in telecommunications, broadcasting, military operations, and scientific research, etc. it is the radio wave frequencies used to carry out wireless communications. As a result, many industries depend heavily on its efficient utilization. The objectives of this article is to: Examine the process of spectrum licensing and management in Nigeria and the international regulations to provide valuable lessons for Nigeria towards proper spectrum management in the Country. Doctrinal methodology is used in this study. The article finds that spectrum management most especially spectrum sharing and spectrum licensing are under intense competition, due to an increased use of the wireless network for mobile and the increase in traffic flow. Studies showed that one of the key problem in trying to launch a new radio service is the scarcity of spectrum; this is obvious when operators have to pay a lot to get access during spectrum auctions to specific bands in the spectrum available. The review of licencing regime is recommended in order to achieve more economic and social benefits and to preserve this critical government infrastructure from misuse.
Keywords: Radio, Frequency, Spectrum, Telecommunication, License

1.1 INTRODUCTION

Recently studies on Radio Spectrum have indicated an increase in the integration and use of Radio spectrum, this spectrum is as a quota of the overall electromagnetic spectrum that carries wireless waves; and an increased use of this resource has brought about a significant increase in studies to find an effective means to manage such resources. Being a very distinct, limited and valuable resource, it use to carry out wireless communications, which includes television and radio broadcasts, maritime and aeronautic navigation systems, mobile telephony and satellite commands, communications and control. This wide range of uses can be seen to reflect in the commercial and public sectors hence it must be managed well to ensure an effective and efficient use and to avoid signal interference. As a national and international resource, it is being manage by international and national organisations; government also manage radio spectrum through economic regulation to ensure that increasing demands are supplied hence putting the resource to effective use.[1] The most significant feature of the Radio Frequency are the rate of propagation and the level of information which these signals can convey; generally, this works in

[1]Colin B. and Lara S. (Ed), Telecommunications Regulation Handbook: https://openknowledge.worldbank.org/bitstream/handle/10986/13277/74543.pdf Accessed on 28th February 2022.

an indirect proportion were by the lower the propagation distance, the higher the data carrying volume of the signal.[2]

1.2 Regulatory Framework of Radio Frequency Spectrum in Nigeria

The regulatory framework for the management of radio frequency spectrum in Nigeria consists of:

1.2.1 National Frequency Management Council (NFMC)

Established by Section 26 of the Nigerian Communications Act 2003 and located within the Ministry of Information & Communications, it is the apex body responsible for the implementation of the Government's frequency spectrum policies. The Council is responsible for the planning, coordination and allocation of radio spectrum to the regulatory bodies, namely the National Communications Commission (NCC), the National Broadcasting Commission (NBC) and the Ministry, acting as the primary authority and coordinator of all frequency spectrum activities in Nigeria. Chaired by the Minister of Information and Culture, consisting of high-level representatives of various Ministries and the Security Services, it meets at least four times a year to deliberate on matters relating to its functions. It further advises the Minister on Nigeria's representation at international and multi-lateral frequency spectrum bodies.[3]

The NFMC policy document outlines policies that govern radio frequency spectrum in Nigeria, described policies of the assignment of radio frequencies including assignment procedures, fees, eligibility, access to records, and renewals, among others and specifies the range of sanctions for the wrong use of frequency allocations.[4]

1.2.2 Nigerian Communications Commission (NCC):

The regulator (NCC) oversees spectrum management. It has articulated detailed plans for spectrum management, and oversees auctions of spectrum for cellular telephony and fixed wireless access. As part of continuing efforts to provide efficient management of the radiofrequency spectrum in Nigeria, the NCC is currently putting in place a modern Spectrum Management and Monitoring System (SMMS). As part of the SMMS implementation, detailed information is required about current and continuing utilization of frequencies assigned to telecommunications operators, equipment operating on those frequencies and sites/locations where they are deployed, etc.[5] The information is required for creating a database on the utilization of frequencies and associated information that will be constantly updated. The records provide an invaluable resource for (i) facilitating resolution of interference; (ii) spectrum planning, policy; and (iii) the overall spectrum management strategy of the NCC.[6]

NCC is the regulator of the telecommunications industry and has wide discretionary powers to plan, manage, assign and monitor the use of spectrum by commercial users of telecommunications services. It monitors tariffs and quality of service, protects rights of consumer and the overall promotion of affordable telecommunications services. The Commission develops and publishes radio frequency regulations and standards.[7]

The Nigerian Communications Act 2003, which repealed and replaced the NCC Act No 19 of 1992,[8] is the primary law governing the allocation of frequency spectrum to telecommunications operators for commercial purposes.[9] In assigning frequencies, NCC is seen to be acting for and on behalf of the Council as regarded by the Act.[10]

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[2] Thomas O.O, *Telecommunications Law: Introductory Text,* Mono Expression Ltd, Jos (2016) p. 85.

[3] Stephen B, *"Frequency Resource and Technical Guidelines for Broadband Service Roll-Out in Nigeria"*, Star Publishers, Enugu. (2007). P. 15

[4] http://www.ncc.gov.ng/SpectrumIssues/National_Radio_Frequency_Spectrum.pdf. Accessed 21, may, 2021

[5] Ibid

[6] Ibid

[7] Nigerian Communications Commission Act 19 of 2003

[8] NCC Act No 19 of 1992

[9] Ibid

[10] Ibid

1.2.3 National Broadcasting Commission (NBC)

Deriving its powers from the NBC Act No. 38 of 1992 as amended by the National Broadcasting Commission Act No. 55 of 1999, it is solely charged with regulating the broadcast industry, setting standards and upholding equity and fairness in broadcasting. It assigns frequencies it received from the apex authority to private and public radio and TV stations. It deals with applications of radio and television stations who wish to have ownership. The NBC have so far licensed over 350 operational stations in private, public, satellite, network, campus and community radio & TV stations, regulating broadcast through state and zonal offices and publishing its updates.[11] Broadcasting was monotonous, it finally allows private individuals and organizations to own their own stations and brought all government owned TV and radio stations under its regulations. It can revoke licenses and give sanctions where it deems fit in the interest of the public.[12]

1.2.4 Ministry of Information & Culture (MIC)

The Ministry, through the Department of Spectrum Management, is responsible for the formulation and monitoring of communications policies, international treaties and national representation in international organizations. With the rise of NCC and NBC, it now manages and assigns frequencies to Government and non-commercial users including the military, security services, diplomatic missions, voluntary organizations and non-profit groups. The Ministry raises revenue for the Government through the sale of amateur radio communication license application forms, issuance and renewal of licenses and is the secretariat of NFMC and acts as the custodian of all frequencies in Nigeria.[13]

1.3 Analysis of Spectrum Licencing in Nigeria

The Nigerian Communications Act, 2003[14] is the threshold legislation guiding and regulation telecommunications in Nigeria. The Nigerian Communications Act creates and provides a regulatory framework for the Nigerian communications industry.[15] The Act establishes the Nigerian Communications Commission as a body corporate with the responsibility for the regulation of the communication sector in Nigeria.[16] With a plethora of functions,[17] the Commission undertakes the licensing of all operators in the communications sector. Chapter IV of the Act[18] make diverse provisions on licences.

Nigeria like most developing economies seems to only recognise the individual operator licence and the general authorization otherwise known as class licenses.[19] Section 32 of the Nigerian Communications Act, 2003 gives credence to this statement as it provides thus:

> *The Commission shall issue communications licences for the operation and provision of communications services or facilities by way of class or individual licences on such terms and conditions as the Commission may from time to time determine taking into consideration the objectives of this Act and the provisions of section 33(3) of this Act.*[20]

In an Individual Licence, the terms, conditions, obligations, scope and limitations of the authorisation are specific to the service being provided. The licensing form could be in the form of Auction, "first Come First Served", "Beauty Contest" or through standard administrative procedure or as stipulated by the

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[11] Aliyu, A. *"Broadcasting In Nigeria: Unlocking the Airwaves Report on the Framework for Broadcasting and Telecommunications in Nigeria"*, Butterworts Publishers Limited, Lagos. (2001). Pp. 16-22

[12] The National Broadcasting Commission Act 38 1992 (as amended by Act 55 of 1999)

[13] Simon M., *"Licensing in the Era of Liberalization and Convergence: The Case Study of the Federal Republic of Nigeria"*, Golden Age Publishers, Ibadan, (2004). P. 201

[14] No 62, vol 90, Government Notice No.115 of 19th August, 2003.

[15] See, Section 1 of Nigerian Communications Act, 2003.

[16] See, Section 3 of Nigerian Communications Act, 2003

[17] See, Section 4 of Nigerian Communications Act, 2003.

[18] From Section 31 – 52 of Nigerian Communications Act, 2003.

[19] Ibid

[20] Section 32 (1) of the Nigerian Communications Act, 2003.

regulator.[21] For a Class Licence, being a type of general authorization, the terms and conditions/obligations are common to all license holders. It requires only registration with the Commission for applicants to commence operation.[22]

Section 31 of the NCC Act makes licenses a mandatory requirement for operating a communications system or facility and providing a communications service in Nigeria. Failure to obtain authorisation under a communications licence or seeking exemption under regulations made by the Commission under the Act is an offence and attracts penalties. Upon conviction a defaulter may be liable for:

a) a fine not less than the initial fee for the relevant licence ;
b) a fine not exceeding 10 (ten) times the initial fee for the relevant licence ;
c) imprisonment for a term not exceeding 1 (one) year ; or
d) Both such fine and imprisonment. [23]

Section 32 of the NCC Act makes provisions for classes of licences with the class licences and individual licences available for operators. The commission issues communications licenses for the operation and provision of communications services or facilities on such terms and conditions as it may stipulated in meeting with the objectives of the Act. Section 33 (3) of the Nigerian Communications Act, 2003 directs the Commission to be guided by certain principles in the formulation of licensing procedures, issuance of communications licences and preparation of licence conditions and terms. These principles includes:

(a) transparency, fairness and non-discrimination;
(b) efficient use and management of radio frequencies
(c) available numbers under the National Numbering Plan;
(d) the need to promote fair competition and investment in the communications' industry ;
(e) the need to provide modern, qualitative, affordable and readily available communications services in all parts of Nigeria ; and
(f) Such other principles and considerations as the Commission may from time to time consider necessary and in the national interest.[24]

By the NCC Act,[25] the grant of a licence shall be personal to the licensee and the licence shall not be operated by, assigned, sub-licensed or transferred to any other party unless the prior written approval of the Commission has been granted. A licensee must also at all times comply with the terms and conditions of his licence as well as the provisions of the Act and all other subsidiary legislation.[26]

1.3.1 Operation Without A Licence

Operating without a license is a criminal offence. The Nigerian Communications Act, 2003 has made it an offence to operate without a license. Section 31 (2) of the Act[27] provides that any person who acts in breach of sub-section (1) of this section commits an offence and is liable on conviction to:

(a) a fine not less than the initial fee for the relevant licence;
(b) a fine not exceeding 10 (ten) times the initial fee for the relevant licence;
(c) imprisonment for a term not exceeding 1 (one) year ; or
(d) both such fine and imprisonment; Provided that upon conviction, the person shall also forfeit to the Commission the property, facilities; installations and equipment used by him for the provision and operation of the unlicensed service.

As seen above, an unlicensed telecommunication service provider or operator risk fines or jail terms. Also, all facilities, installations and equipment used in the unauthorized services is forfeited to the Government. The Telecommunications and Postal Offences Act, 1995[28] creates offences and punishment

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[21] Nigerian Communications Commission, Licensing Application Process, https://www.ncc.gov.ng/licensingregulatory/licensing/licensing-procedures#class-license Accessed on 1 July, 2019.
[22] Ibid
[23] See, Section 31(2) of Nigerian Communications Act, 2003.
[24] Section 33 (3) Nigerian Communications Act, 2003.
[25] See, Section 38 of the Nigerian Communications Act, 2003.
[26] Section 38(2) of Nigerian Communications Act, 2003.
[27] The Telecommunications and Postal Offences Act, 1995 Laws of the Federation of Nigeria.
[28] Ibid

for acts against telecommunications and postal services in Nigeria. Section 2 (1) of the Act[29] provides that:

> *A person who (a) without lawful authority or a licence from an approved agency, sells, offers for sale or otherwise deals in any telecommunications equipment; (b) uses or buys any telephone service or any other telecommunications service in or from a telephone call office not approved by the approved agency, is guilty of an offence.*

Section 3 of the Act[30] relates to offences relating to radio communications. It is an offence for a person without lawful authority or licence from the approved agency to sell, offer for sale or in other way deals in any radio communications equipment. It also constitutes an offence to install or operate radio communications equipment;[31] operate a radio communications equipment that does not conform with the terms and conditions of his licence.[32] Section 3 of the act only created certain offences with no penalties provided. However, Section 12 of the Act[33] provides for penalties where offences created do not specifically provides. In the case of an individual, an imprisonment term of not less than five years without the option of a fine is provided[34] as a corporate body is liable to a fine of N500,000.[35] The Telecommunications and Postal Offence Act in addition to specified penalties for offences provides for the forfeiture to the Federal Government all article or other thing used in the commission of or in connection with an offence.[36]

1.4 International Regulatory Regime

The very nature of radio spectrum, the pervasive and transnational nature of radio signals, demands that, in the first instance, its use is considered at an international level. The regulation of radio spectrum has evolved within an increasingly involved international framework, operating on several multilateral and bilateral dimensions. The global regulatory framework is provided by the International Telecommunication Union (ITU). In some parts of the world regional bodies also play a role. In Europe the Electronic Communications Committee (ECC) of the European Conference of Postal and Telecommunications Administrations (CEPT) provides the regulatory framework, which in many ways reflects the role of the ITU. Within the European Union, the European Commission also has an increasingly significant regulatory influence. In addition to governmental organizations, the European Telecommunications Standards Institute (ETSI), an industry-led organization, plays an important role in developing European standards for telecommunications (including radio) services and equipment.[37]

The main priorities of the ITU's regulation of radio spectrum are:

i. To protect against harmful interference;
ii. To allocate radio services to the various radio frequency bands in the radio spectrum (including globally harmonized allocations for systems used in international air and sea travel), taking account of sharing and compatibility studies; and
iii. To promote the effective use of the spectrum and the geostationary orbit.

An important way in which the ITU facilitates the avoidance of harmful interference between countries is by a system of registration and co-ordination for notified stations and/or radio systems by member states.[38] The radio spectrum is used for a variety of radio communications applications. It is used for terrestrial based services as well as satellite applications. These involve a variety of configurations. For example, point to area configurations such as

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[29] Ibid
[30] Ibid
[31] Section 3 (a), of the Nigerian Communications Act, 2003.
[32] Section 3 (b), of the Nigerian Communications Act, 2003.
[33] Section 3 (c), of the Nigerian Communications Act, 2003.
[34] Ibid
[35] Section 12 (a) of the Nigerian Communications Act, 2003.
[36] See Section 12 of the Nigerian Communications Act, 2003.
[37] Hodgson D.C "Licensing and the Legitimate Expectation" http://www.austlii.edu.au/au/journals/AdelLawRw/1985/2.pdf Accessed on 10 March, 2022.
[38] Nigerian Communications Commission, Licensing Application Process, https://www.ncc.gov.ng/licensingregulatory/licensing/licensing-procedures#class-license Accessed on 1 July, 2019.

mobile, fixed wireless access and broadcasting, and point to point configurations such as radio relay and fixed satellite systems. Some of these systems are constrained to certain parts of the spectrum, because of the different propagation characteristics of signals at different parts of the spectrum. For example, land mobile applications at present are best suited to the spectrum below around 3GHz. In carrying out its remit, the ITU has, over a number of decades, developed:

a) Definitions of various discrete radio communications services, such as mobile, fixed, fixed satellite, mobile-satellite;
b) Table of allocations identifying one or more radio services (typically two to four) to each frequency band; and
c) Regulations and recommendations outlining the broad conditions under which National Regulatory Authority (NRAs) should plan the deployments of these services in their jurisdictions.[39]

Services are allocated on a primary or secondary basis, which in turn confers a certain hierarchy. Current systems in a primary service will be protected from interference from subsequently implemented (registered) systems using primary allocations. Systems operating in a secondary allocation must not cause interference to, and will not be protected from, interference from, current or future primary services, but can claim protection from future secondary services.

1.5 Interference Management on Radio Frequency

The main motivation for managing radio spectrum has been interference oriented. To minimize interference across different applications, most frequency bands have in all countries been allocated to certain uses (e.g. aeronautical, maritime, defence, broadcasting, etc.).[40] Much of spectrum management involves overseeing that frequencies are being used by the correct applications.[41] Additionally, interference between different users within a frequency band also needs to be managed. There is also an international dimension to interference management, as radio waves do not respect national boundaries. For interference management to be effective, it may be necessary for a regulatory agency to deploy considerable resources for monitoring purposes. In West Africa, human resources trained in spectrum management are currently scarce, interference management could therefore be a potential costly activity. This naturally raises questions about the scale of interference management required, and whether interference management could be delegated to users of radio of spectrum. Experience in other countries suggests that interference management of radio spectrum should allow for greater flexibility in use and permit more customer led innovation.[42]

1.6 Coordination of Radio Spectrum Use

There are three main aspects to coordination of radio spectrum use: intra-service co-ordination, inter-service coordination and international coordination.

1.6.1 Intra-service Coordination

This involves the planning of different systems in the same service category sharing frequencies in the same band. National Regulatory Authorities (NRAs) tend to use a combination of two basic approaches in their frequency assignment and licensing activities: central management, and self-management by operators. The central management approach involves the NRA directly managing a central pool of spectrum. Operators apply to the NRA for a frequency assignment and licence on case by case, geographical or 'first come, first served' bases. This method of management is common for certain types of radio systems (e.g. fixed links, fixed satellite earth stations).[43] It has the advantage that a central body is able to facilitate the re-use of frequency channels by licensing individual channels to multiple operators, by careful central planning of the spectrum resource. However, disadvantages include the loss in spectral efficiency due to the need to use generic technical information which is applicable to all users,

[39] Simon M., op cit pp. 62-70
[40] Section 32 (1) of the Nigerian Communications Act, 2003
[41] Simon M., *"Licensing in the Era of Liberalization and Convergence: The Case Study of the Federal Republic of Nigeria"*, Golden Age Publishers Ibadan, (2004). P. 201
[42] See, Section 3 of Nigerian Communications Act, 2003
[43] Ibid

and the rigidities inherent in any central regulatory system.[44] Under a self-management approach, the NRA packages a number of frequency blocks by detailed pre-planning of the overall frequency band.[45] These frequency blocks are then offered to potential users, via comparative selection ('beauty contests'), auctions or on a first-come first-served basis by the NRA. This approach is often adopted for services which entail area coverage (e.g. cellular and broadcasting systems). NRAs may sacrifice some spectrum efficiency, initially in their pre-planning work (due to the need for planning margins).[46] However, this method allows operators to maximize the utilization of their individual licensed spectrum by using equipment-specific information from their own suppliers. Also, managing their own spectrum offers operators the advantage of speedy rollout of networks.[47]

1.6.2 Intra-service Coordination

In some cases operators are licensed in frequencies which are shared with other services. For example, fixed services (e.g. fixed point to point links and fixed wireless access) often share spectrum with fixed satellite services. Such inter-service co-ordination can be expedited centrally or via delegated means. Where the spectrum for both services requiring co-ordination is managed by the NRA, the necessary work can be carried out by the regulator. Less formal bilateral co-ordination between third parties can also occur, which often helps to speed up proceedings in formal processes.

1.6.3 International Coordination

Interference management between systems in different countries is handled via two related routes: ITU initiated co-ordination and direct bilateral (or multilateral) co-ordination between countries. West Africa Telecommunications Regulators Assembly (WATRA) provides a forum to facilitate multilateral coordination of spectrum use.[48] The ITU route entails a procedure whereby all Member States register the details of the systems they have licensed with the Radio communication Bureau (BR) of the ITU. The BR collates these details and circulates the details to all the other NRAs who may be affected. It is the duty of the individual NRAs to examine these details and submit a request to co-ordinate with any other NRAs which have submitted systems which are likely to interfere with any of their own currently licensed systems. Such a request to co-ordinate leads to bilateral (or multi-lateral) co-ordinations between the interested parties. At this stage, it is customary for the NRAs to involve the individual users in their jurisdiction who will participate in detailed technical negotiations with their foreign counterparts.[49]

It is also possible for individual NRAs to engage in direct bilateral discussions prior to the registration procedure with the ITU.[50] In performing interference calculations, in any of the above scenarios, planners should endeavour to use system-specific technical information whenever this is available. This invariably produces the most spectrally efficient solution.[51] Where this is not possible, however, more generic information is used. In Europe, performance limits specified in ETSI standards often tend to be used for this purpose. These standards are however a trade-off between spectral efficiency/technical interests, which favour higher performance specifications, and commercial/economic considerations which may imply the reverse. Insufficient consideration to either priority, on the part of standards-making organizations, will undermine the careful balance on which many of the decisions of NRAs are made.

1.7 CONCLUSION

Licensing telecommunications services largely depends on the economical advancement of a country. The processes of licensing radio frequency may largely be the same; licenses are issued for a period of term upon which it expires. At this junction, the paper conclude that radio spectrum licensing is most definitely required for the growth of not only our nation but every other. It makes coordination way easier and

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[44] Ibid
[45] Thomas O.O, *Telecommunications Law: Introductory Text*, Mono Expression Ltd, Jos (2016) p. 85
[46] Ibid
[47] Aliyu, A op cit., p. 62
[48] Ibid
[49] Colin B. and Lara S. (Ed) op cit. p. 94
[50] Ibid
[51] Ibid

allows us to know where our lapses lie and where of course needs to be tweaked to meet the necessity of our nation. It most definitely be taken serious and all laws regarding radio spectrum frequency need be adjusted where necessary so as to further soften our path in a bid to gain and achieve the magic it can give once tapped into and managed properly. Within this framework, NCC seems to be the most dominant regulator partly due to the significantly larger market size of the telecommunications industry vis-à-vis both broadcasting and public services, but also partly due to the perceived or real impact of that sector on the national economy. Thus, NCC plays a central role in the development of frequency spectrum policies as the *defacto* manager of the NFMC. Nevertheless, it would appear that there is some overlap between the functions of MIC, NFMC and NCC in particular especially as it relates to the formulation and sponsorship of spectrum policies.

From the above, the paper has made the following findings:

a) Sometimes due to poor monitoring of the airwaves, illegal interference often occur which cause unethical and unhealthy business environment among the telecommunication outlets not only radio spectrum licensing.
b) Crime are sometimes been perpetuated by illegal and unlicensed spectrum users. The due process for licencing of radio spectrum is been circumvent to avoid the payment of necessary fees etc.
c) The spectrum allocation is sometimes done through auction without observing due process. Many qualified are often disqualified due to lack of capacity or financial constraints. Thus, public interest/merits is not sometime considered.
d) The licencing fees are not reviewed in order to meet the current economic realities. Thus, radio spectrum communication activities obtainable in some developed countries are not strictly adhered to in Nigeria.

From the above findings the following recommendations are made:

1. The airwaves need to be more closely monitored so as to curb illegal access and interference. There should be good interference management to avoid chaotic situations.
2. Unlicensed spectrum users need to be closely monitored and closed down. If this is properly done some of security challenges in Nigeria will be tamed.
3. Spectrum allocation should be done on merit. If a Licensee for one reason or another is unable to meet certain requirements that are not detrimental to public interest it should be allowed to subcontract on merit.
4. The government should adequately review the radio spectrum licensing regime to address challenges. Licensing Fees should be waived in some situations e.g for promoters of community radio as done in other countries. Nigerian government should to borrow ideas from international regulatory to meet the global standard.

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West African Common Market Project: Harmonization of Policies Governing the ICT Market in the UEMOA ECOWAS Space Radio Spectrum Management. International Communication Union.