

RADIO SPECTRUM POLICY GUIDELINES FOR UGANDA

EXECUTIVE SUMMARY

The radio-frequency spectrum being a limited and scarce natural resource requires measures to manage it in a guided manner so that it is effectively used by those who require it to provide radiocommunications services including telecommunications, broadcasting in the best national interest and its citizens.

Having Radio spectrum Policy guidelines in place is one of the instruments of spectrum management through which the Commission is able to guide the public on the use of the resource in a proper manner. The spectrum policy guidelines outline the objectives and gives spectrum management principles that form key basis for the management of the spectrum in the country. The policy guidelines are provided for the following element of spectrum management:

PROTECTION OF SPECIAL RADIO SERVICES

Policy Guideline 1:

Priority shall be given to frequencies for special radio services such as maritime /aeronautical, for emergency services such as the health as well as for national security services, which are intended to save and protect the lives of the people in Uganda.

FREQUENCY SHARING.

Policy Guideline 2:

The Commission will promote radio frequency spectrum sharing either on a primary or secondary basis while taking into account spectrum efficiency and operational requirements of services.

DISPLACEMENT OF SERVICES/FREQUENCY RE-FARMING

Policy Guideline 3:

In the event of no viable option, the Commission shall facilitate frequency re-farming or displacement of services to other frequency bands for the maximum benefit of all Ugandans. The affected parties shall be given adequate notice to allow for relocation or surrendering of the spectrum. The new licensees shall be required to pay for the cost of the displacement. However, the Commission shall not be liable or responsible at all for compensation of the existing spectrum users.

FREQUENCY AUTHORISATION.

Policy Guideline 4:

The Commission shall establish /formulate radio frequency licenses and issue them to all companies/institutions/parties eligible in accordance with the relevant provisions in Cap 106, Laws of Uganda. The authorisations shall be valid for a period of five years, although an annual frequency fee shall be applicable. The assignment of radio frequencies and radio systems shall be conducted on *first-come-first-served* basis in accordance with established application processing

procedures for bands where there is sufficient supply of spectrum. The Commission shall ensure that the frequencies and radio systems are put into use and brought into operation in the specific period provided in the licences. Market based approaches such as lotteries; auctions may only be considered in circumstances where the demand exceeds the supply or where the portion of spectrum is considered to be of high economic value.

UNIVERSAL ACCESS.

Policy Guideline 5:

The Commission shall reserve spectrum for deployment of wireless technologies in rural areas and shall give incentives that may include differential pricing for spectrum for deployment of services in such areas. The Commission shall determine the areas to be designated as rural areas. Where a community radio station is licensed to operate in a rural a rural area, the Commission shall give priority to that station when assigning broadcasting frequency.

LICENSE EXEMPT FREQUENCY BANDS

Policy Guideline 6:

The 2.400 –2.483 GHz, 5.150-5.350 GHz and 5.470-5.725 GHz are the designated licence – exempt radio frequency bands in Uganda. Other license exempt radio spectrum may be designated by the Commission and made known to the public. However all eligible users require general authorizations from the Commission and their operations should be in conformity with the Commission’s operational guidelines for the band. The users in these bands shall not claim protection from interference and shall not cause interference to other licensed users in other bands.

SHORT RANGE DEVICES

Policy Guidelines 7:

The short-range devices which are permitted for use in Uganda are those designed to operate over short ranges and at low power levels in accordance with ITU-R Recommendations and as well as other internationally recognised and industry-based standards. These devices shall only be permitted for terrestrial use only and shall operate on non-protection basis from other authorised services in the same or adjacent frequency bands and shall not cause harmful interference themselves.

FREQUENCY TRIALS / TEMPORARY FREQUENCY ASSIGNMENTS

Policy Guideline 8:

The Commission may authorise frequency assignments for radiocommunication systems on trial basis and new technology experiments. The Commission shall require the applicant to justify and demonstrate the viability of such trials and experiments before they are authorised to provide a service using that band for which permission is given for trials. The period of trial shall not exceed a period of six months and the results of the trial shall be availed to the Commission. The Commission may also authorise frequency assignments for temporary use provided the applicant meets the criteria for temporary assignments.

ENFORCEMENT MEASURES AFTER FREQUENCY ASSIGNMENT

Policy Guideline 9:

To ensure that the assigned frequencies are valued, used appropriately and brought into use in a timely manner, the Commission shall use to the extent possible appropriate Spectrum Management and Monitoring systems/tools. In case of violation, the Commission shall follow enforcement guidelines, which shall include revocation of license and application of the penalty schedule under Statutory Instruments in place.

FREQUENCY LICENCE/USAGE FEES

Policy Guideline 10:

In accordance with the above considerations, the Commission may review its fee structure from time to time. However in the occurrence of this, the Commission may, as far as practicable, present justification for the review and give ample notice to affected parties.

FREQUENCY PLANNING /ALLOCATIONS

Policy Guideline 11:

- a) The Commission shall endeavour to open up any band within which interest has been indicated. However this will depend on:
 - i) Whether the band can be made available for that particular service in conformity with the national table of frequency allocations, that takes recognition of the ITU table of frequency allocations,
 - ii) Whether operationalisation of the service in such a band does not cause harmful interference to other services in the same or other bands.
- b) The Commission shall apply all relevant spectrum management principles in carrying out frequency allocations/assignments.
- c) Notwithstanding the First-come First-Served basis principle on frequency licensing, in certain situations where the demand is more than the supply, the Commission may use any market-based approaches such as auction, among others.
- d) Efforts shall be made to accommodate as many users as possible in a particular band provided there is no degradation of services or interference.
- e) Where the amount of the spectrum in a particular frequency band is constrained by using the frequencies for nationwide coverage, such a band shall be planned for use on a regional basis in the provision of services.
- f) In the circumstances that an operator/company requires additional frequencies in the same band where they already have assignments, such request shall only be considered and authorised after the applicants have demonstrated and justified full utilisation of the existing frequencies. The Commission shall in as far as possible discourage spectrum hoarding.

- g) In the circumstance that a licensed operator/company is hoarding radio spectrum / not utilising the radio spectrum intentionally or not using the spectrum in accordance with the stipulated frequency conditions, the Commission shall withdraw the frequencies.

RESEARCH AND DEVELOPMENT

Policy Guideline 12:

The Commission may allow access to radio spectrum for temporary or experimental R&D purposes provided there is justification for an application for that purpose. The Commission shall provide guidelines under which frequency allocations for temporary or R&D initiatives shall be carried out. However, unless decided otherwise in future, the funding of R&D should be borne by the R&D companies or be done at the sole discretion of communication industry and not by funding from the Commission nor as a condition of licensing.

RADIOCOMMUNICATION STANDARDS

Policy Guideline 13:

The Commission, in developing equipment standards, shall use ITU-R Recommendations as well as other internationally recognised and industry-based standards with an aim to allow for wide open markets for the products and reciprocity in type approval of radio equipment.

INSTALLERS/INSPECTORS OF EQUIPMENT/FACILITIES

Policy Guideline 13:

The Commission encourages the formation of consultancy/professional institutions or equipment installers, which shall act as third parties to carry out conformity assessment of the equipment standards and radio station installations to ensure they comply with Commission's requirements as authorised. The Commission shall recognise these parties and provide guidelines along which they will carry out their duties.

RADIO SPECTRUM TRANSFER

Policy Guideline 14:

The Commission shall put in place spectrum transfer procedures against which the transfers shall be carried out, taking into account competition safeguards and a harmonised use of the frequencies in accordance with the national table of frequency allocations. The Commission shall publish information regarding transfers of the radio spectrum assignments.

CO-LOCATION AND SHARING OF INFRASTRUCTURE

Policy Guideline 16:

The Commission encourages and may impose on providers shared utilisation of infrastructure for purposes of effective use of resources in the interest of environment concerns and other social considerations. The Commission may also issue regulations on co-location and on shared use of infrastructure.

SALE AND USE OF RADIO EQUIPMENT

Policy Guideline 17:

The Commission shall issue regulations on requirements/specifications and conditions for the sale and use of the radio transmitting equipment in Uganda. All radio transmitting radio equipment vendors/dealers in the country shall be required to register with the Commission. Those registered in accordance with a regulation may import radio and terminal equipment.

SATELLITE ORBITAL SLOTS

Policy Guideline 18:

The Commission shall issue regulations on requirements for the request and registration process of the satellite orbital slots.

UNFORESEEN POLICY ISSUES IN THE USE RADIO SPECTRUM

Policy Guideline 19:

The Commission may add, vary or amend these regulations in order to widen the scope of these guidelines or where in the public interest it is deemed necessary to do so.

DETAILS OF SPECTRUM POLICY GUIDELINES FOR UGANDA

1 INTENT.

The Commission has produced these national radio spectrum policy guidelines as a foundation for spectrum management in Uganda. These guidelines will form a basis for radio frequency licensing policies, requirements and procedures in the management of the radio spectrum resource that includes frequency allocation, planning and monitoring the use of radio spectrum. Given the level of dynamism in the communications sector, these policy guidelines shall be reviewed in detail after a period of four years.

2 BACKGROUND

The radio frequency spectrum influences the development of services and therefore the daily lives of the Ugandan citizens. The radio spectrum can be used to conduct national and international business, maintain and enhance prosperity, sovereignty and security. The radio spectrum supports a wide range of services such as those for telecommunications, broadcasting, scientific, research, and medical in both private and public interests. In Uganda, the management of the spectrum is drawn based on the Uganda Communications Act that provides the framework for radio spectrum management and recognises Uganda's obligations to the worldwide radiocommunication community as a signatory to the International Telecommunication Union (ITU) Convention.

Through the Uganda Communications Act, Cap 106 Laws of Uganda, the Government of Uganda gave Uganda Communications Commission (Commission) the power to manage and authorize the use of radio frequency spectrum in the best interest of the country and its citizens. Therefore, the Commission is responsible for developing policies and goals for radio spectrum as a scarce resource, ensuring effective management of the radio

frequency spectrum, encouraging development and operation of communications in the national interest, taking into account international implications.

Originally, the National Frequency Registration Board of the then Uganda Posts and Telecommunications Corporation (UPTC) under the Ministry of Works, Transport and Communications managed the radio spectrum. However after the enactment of the Uganda Communications Act in 1997, all the procedures /guidelines related to the management of the spectrum were inherited by the Commission, as a national regulatory body. The liberalisation of the telecommunications sector, increased competition and advancement in technologies has led to new and more spectrum requirements. This has hence rendered the old guidelines and procedures inappropriate in a number of situations. Presently, the Uganda's radiocommunications sector covers the following:

- Commercial services, which include telecommunications (fixed as well as cellular).
- Broadcasting (radio and television)
- Defence forces, police, emergency services and other public safety and security providers;
- Short-range communications systems and low-power short- range technology, radio sensing, locking and control devices; and
- Aeronautical, maritime, land and satellite-based communication, meteorology and other science services

The use and demand for the radio frequency spectrum has been increasing since the liberalisation of the sector in 1996. The new licensing regime provides for an increased competitive environment, which anticipates high usage of the radio spectrum. This challenge can adequately be managed if there are comprehensive spectrum policy guidelines to address such new demands.

3. SPECTRUM POLICY OBJECTIVES

The primary objectives of radio spectrum policy guidelines are to:

- a) Plan and manage the utilization of the radio frequency spectrum in accordance with the legislative and public policy objectives, international agreements as well as in public interest;

- b) Promote and support the introduction of new radio applications and technologies to meet Uganda's requirements in order to achieve economic, cultural and social benefits of Ugandans;
- c) Ensure that Uganda's interests are protected when harmonizing and coordinating the use of the radio spectrum within its territory with other countries in the region and in the international spheres;
- d) Support and promote innovations, research and development of new radiocommunications techniques and encourage competition.
- e) Minimize necessary regulation to reduce regulatory barriers to radio frequency access, which includes simplified licence and authorization procedures for use of the frequencies;
- f) Coordinate and maximize the value of radio spectrum to the needs of the society through consultations with all interested stakeholders and the general public;
- g) Promote and support efficient usage of the frequency for orderly development and efficient operation of radiocommunications systems and services,
- h) Set Standards which are necessary for harmonious radio communication system operation and effective spectrum management utilization as well as for compatibility.
- i) Ensure the appropriate balancing of commercial and public interests.

4.0 SPECTRUM MANAGEMENT PRINCIPLES

In order to achieve spectrum management objectives, the Commission will benchmark international best practices and abide by these specific principles that will form a key basis for spectrum management in Uganda:

4.1 Conformity to Standards and National Frequency Plans: All assignments/allocations should be done in conformity with ITU standards as well as in line with National Table of Frequency allocations and plans.

4.2 Technology Neutrality: The multilateral approaches based on international co-ordination on the use of the radio spectrum, can bring benefits to the consumers and operators because of diversity of technologies. Therefore there is a need to encourage the use of different proprietary, certified and standard based technologies. The licensees should not be limited in the selection of technological platforms or standards in achieving their goals provided the selected platforms and/or standards meet the International Telecommunications Union or appropriate industry standards and there is availability of spectrum to support the provision of their intended service.

4.3 Transparency: Transparent methods should be used in handling spectrum management matters especially in respect of frequency allocations and assignment. As far as possible and practicable, public consultations should be encouraged especially in making changes to national frequency allocation plans and on spectrum management decisions. This allows interested stakeholders to participate in the decision-making process. In this way, the regulation takes account of the interests of both the regulator and radio spectrum user and availability to perform the provisions of the regulation by spectrum users.

4.4 Timely Release of Spectrum: In regulation there is a need to endeavour to meet spectrum requirements of eligible applicants within a minimal timeframe without undue

delay after the application has been received. In special cases, where the processing time may be longer than anticipated, the applicant shall be advised in advance.

For those applications that are covered by international obligations to coordinate for spectrum use in relation to other countries' use of the spectrum, the time limit may vary from the time the Regulator receives an answer on the coordination inquiry. In such cases, the applicant should from time to time be informed on the progress in the processing of the application.

4.5 Harmony with overall national objectives: All spectrum management procedures and guidelines should, in no way, be a hindrance to achieving national goals or objectives.

5.0 POLICY GUIDELINES

5.1 Protection of special radio services.

In allocating radio frequency to any radiocommunication service of which the ITU- Table of Frequency Allocations in the Radio Regulations specifies as a primary service sharing with other worldwide radiocommunication services or maritime/aeronautical safety services (here classified as special radio services), first priority shall be given to the latter (special radio services), or special measures shall be set up to ensure that no harmful interference is caused to these services. In the same regard priority shall be given to emergency services such as the health and security service.

Policy Guideline 1:

Priority shall be given to frequencies for special radio services such as maritime /aeronautical, for emergency services such as the health as well as for national security services, which are intended to save and protect the lives of the people in Uganda.

5.2 Frequency Sharing.

The sharing of radio frequencies among services and users is a key instrument of spectrum management especially when based on defined criteria and conditions in the

bands that have high usage. The principle of sharing recognises that radio frequency is a scarce resource, which should be accessed by all who need it to meet their needs.

Radio frequency sharing shall be based on geographical, time or frequency separation or a combination of them. The use of the same radio frequency band by different applications is possible provided that it is coordinated and the interference risk is reduced up to a tolerable level. The use of frequencies in geographical areas permits the licensees to use the radio frequencies covered by the license any where within the geographical area. The sharing of frequencies shall not apply in those frequency bands where the safety of life, service levels or the public interest may significantly be compromised.

Policy Guideline 2:

The Commission will promote radio frequency spectrum sharing either on a primary or secondary basis while taking into account spectrum efficiency and operational requirements of services.

5.3 Displacement of Services/Spectrum Re-farming

Trends in technology advancement may require for spectrum in which certain services exist to be displaced to part of the assigned spectrum to be re-farmed. In such situations the Commission shall have to take into consideration the following;

- i) The possibility of sharing the band either on a primary or on a secondary basis.
- ii) The level benefit of the introduction of that service vis-à-vis the existing technology.
- iii) The cost implication of the displacement of services or re-farming of the spectrum.

Policy Guideline 3:

In the event of no viable option, the Commission shall facilitate frequency re-farming or displacement of services to other frequency bands for the maximum benefit of all Ugandans. The affected parties shall be given adequate notice to allow for relocation or surrendering of the spectrum. The new licensees shall be required

to pay for the cost of the displacement. However, the Commission shall not be liable or responsible at all for compensation of the existing spectrum users.

5.4 Frequency Authorisation.

The radio frequency spectrum is a property of the State and its use shall be authorised through issuance of the frequency licence by the Commission. Radio frequency authorisations shall regularly adapt to changes in wireless technologies so as to respond to competitive environment and user needs. Given the fact that it is a limited resource, the rights to its use should be dealt within a predefined time frame and the licensing authority/Commission reserves the right for an authorisation or a refusal, in which case justification is paramount. Additionally, coordination and sharing of the radio spectrum as well as transmitter sites /locations shall be encouraged. Where deemed necessary in the public interest, for services such as public mobile services using the radio spectrum, which is limited, competitive licensing procedures may be used to determine the number of operators to provide those services. In such situations, administrative comparative process will be used to select qualified applicants. Alternatively, market-based approaches such as lotteries, auctions or other licensing options that could give the radio spectrum economic value may be considered. However, the use of market-based approaches shall be implemented only after comprehensive public consultations.

Policy Guideline 4:

The Commission shall establish /formulate radio frequency licenses and issue them to all companies/institutions/parties eligible in accordance with the relevant provisions in Cap 106, Laws of Uganda. The authorisations shall be valid for a period of five years, however an annual frequency fee shall be applicable. The assignment of radio frequencies and radio systems shall be conducted on *first-come-first-served* basis in accordance with established application processing procedures for bands where there is sufficient supply of spectrum. The Commission shall ensure that the frequencies and radio systems are put into use and brought into operation in the specific period provided in the licences. Market based approaches such as lotteries; auctions may only be considered in circumstances where the demand

exceeds the supply or where the portion of spectrum is considered to be of high economic value.

5.5 Universal Access.

The level of penetration of basic communication services is key in fostering national development. Given the nature of terrain in Uganda, the deployment of wireless technologies is the most viable way to ensure service delivery in the rural areas where the majority of the people live. However, business viability in most of these areas is also low, hence a need for regulatory incentives. Similarly, Community radio stations as a tool of information communications technology (ICT) a big roll in the delivery of services to the population in such disadvantaged communities.

Policy Guideline 5:

The Commission shall reserve spectrum for deployment of wireless technologies in rural areas and shall give incentives that may include differential pricing for spectrum for deployment of services in such areas. The Commission shall determine the areas to be designated as rural areas. Where a community radio station is licensed to operate in a rural a rural area, the Commission shall give priority to that station when assigning broadcasting frequency.

5.6. License Exempt Frequency Bands

The use of licence exempt radio frequency spectrum method allows quick and easy access to the resource and avoids certain steps, which are prerequisite for frequency licensing in the non-exempt radio frequency spectrum. However, because the operation of many service providers in the same frequency bands leads to radio spectrum congestion and high occurrence of interference, the Commission shall take a balanced regulatory policy to determine licence exempt radio frequency spectrum. In Uganda, in view of the need to promote broadband wireless access applications and given the fact that broadband wireless systems use low powers, the Commission designated the following bands 2.400-2.483 GHz, 5.150-5.350 GHz and 5.470-5.725 GHz as licence-exempt radio frequency bands.

Policy Guideline 6:

The 2.400 –2.483 GHz, 5.150-5.350 GHz and 5.470-5.725 GHz are the designated licence –exempt radio frequency bands in Uganda. Other license exempt radio spectrum may be designated by the Commission and made known to the public. However all eligible users require general authorizations from the Commission and their operations should be in conformity with the Commission’s operational guidelines for the band. The users in these bands shall not claim protection from interference and shall not cause interference to other licensed users in other bands.

5.7 Short Range Devices

Short Range Device (SRD) is term that applies to various radio devices, which are designed to operate over short ranges and at low power levels. The Commission recognises SRD such as analogue cordless telephone, wireless audio transmitters and measuring devices, model and toy remote control devices, citizen band private and mobile radio equipment, general radio remote control devices, biomedical telemetry transmitters that operate in the VHF/UHF bands with short ranges and low power levels. When allowing the use of these devices it is necessary to pay particular attention to the potential for interference from other systems operating in the same or other frequency bands. This precaution is of particular importance for devices that may be used in safety-critical applications.

In many administrations as a practice, the use of SRD is forbidden when it causes harmful interference to other radio stations or services. If such a device causes harmful interference, the operation must be stopped and can only be brought into operation again after special measures are taken to eliminate such interference

Policy Guidelines 7:

The short-range devices which are permitted for use in Uganda are those designed to operate over short ranges and at low power levels in accordance with ITU-R Recommendations and as well as other internationally recognised and industry-

based standards. These devices shall only be permitted for terrestrial use only and shall operate on non-protection basis from other authorised services in the same or adjacent frequency bands and shall not cause harmful interference themselves.

5.8 Frequency for Trials/ Temporary Frequency Assignments.

In certain situations, there might be a need for an applicant to carry out a trial of a service in a band that may or may not be already opened up for use by such a service.

On the other hand, there might be applicants who may want to use the spectrum for a limited amount of time.

Policy Guideline 8:

The Commission may authorise frequency assignments for radiocommunication systems on trial basis and new technology experiments. The Commission shall require the applicant to justify and demonstrate the viability of such trials and experiments before they are authorised to provide a service using that band for which permission is given for trials. The period of trial shall not exceed a period of six months and the results of the trial shall be availed to the Commission.

The Commission may also authorise frequency assignments for temporary use provided the applicant meets the criteria for temporary assignments.

5.9 Enforcement Measures after Frequency Assignment

Frequencies are assigned to persons or companies, institutions to use them to provide services to the public and therefore measures should be taken to make sure all radio spectrum users to whom authorisation for use of such resource has been given fulfill this requirement and operate within specified parameters or conditions.

Policy Guideline 9:

To ensure that the assigned frequencies are valued, used appropriately and brought into use in a timely manner, the Commission shall use to the extent possible

appropriate Spectrum Management and Monitoring systems/tools. In case of violation, the Commission shall follow enforcement guidelines, which shall include revocation of license and application of the penalty schedule under Statutory Instruments in place.

5.10 Frequency Licence/Usage Fees.

The authorisation fees will be levied on the radio frequency usage in a manner that it is not be unreasonable to create unnecessary barriers to entry or hinder the development of innovative and competitive services. The fees should be set at levels that ensure covering of administrative costs of the spectrum management activities, other Commission's regulatory functions and/ or the price that the operators can afford pay for its use, which should also reflect the economic value of the scarce resource.

An appropriate pricing mechanism that should be developed by the Commission is vital to establish an incentive based pricing that will result in an efficient spectrum utilization to discourage unnecessary hoarding of the resource. In the situations where the demand for certain radio spectrum band exceeds supply, a fair, transparent, non-discriminatory competitive allocation process is necessary to allow the spectrum be ideally valued by market forces. The frequency fees for use in the rural areas may be given concession. The Commission shall decide on the areas to be designated as rural.

The setting of frequency licence fees should be an "open process" that allows opportunity for comments from the stakeholders. The fees shall be differentiated for certain specific frequency bands depending on the usage, type of services in that band, level of congestion as incentive for more efficient use of the radio spectrum. Such approach should also apply to frequencies that are used in the provision of services in the rural communities.

Policy Guideline 10:

In accordance with the above considerations, the Commission may review its fee structure from time to time. However in the occurrence of this, the Commission shall present justification for the review and give ample notice to affected parties.

5.11 Frequency Planning /Allocations.

Frequency Planning is a continuous process whose input is primarily based on outcomes of World Radio Conferences, forecasts by the regulator based on its research or benchmarking and also on user demands. Past experience indicates that more often than not, users apply to the Commission for bands that have not yet been opened up by the Commission.

Policy Guideline 11:

- a) **The Commission shall endeavour to open up any band within which interest has been indicated. However this will depend on:**
 - i) **Whether the band can be made available for that particular service in conformity with the national table of frequency allocations, that takes recognition of the ITU table of frequency allocations,**
 - ii) **Whether operationalisation of the service in such a band does not cause harmful interference to other services in the same or other bands,**
- b) **The Commission shall apply all relevant spectrum management principles in carrying out frequency allocations/assignments.**
- c) **Notwithstanding the First-come and First-Serve principle on frequency licensing, in certain situations where the demand is more than the supply, the Commission may use any market-based approaches such as auction, among others.**
- d) **Efforts shall be made to accommodate as many users as possible in a particular band provided there is no degradation of services or interference.**
- e) **Where the amount of the spectrum in a particular frequency band is constrained by using the frequencies for nationwide coverage, such a band shall be planned for use on a regional basis in the provision of services.**
- f) **In the circumstances that an operator/company requires additional frequencies in the same band where they already have assignments, such request shall only be considered and authorised after the applicants have demonstrated and justified full utilisation of the existing frequencies. The Commission shall in as far as possible discourage spectrum hoarding.**

- g) In the circumstance that a licensed operator/company is hoarding radio spectrum / not utilising the radio spectrum intentionally or not using the spectrum in accordance with the stipulated frequency conditions, the Commission shall withdraw the frequencies.**

5.12 Research and Development

Radiocommunications technology being a strategic component of communications systems should be encouraged through research and development (R&D) initiatives by government institutions or private professional companies. The broad objectives of such companies in their R&D should focus on the development of new technologies and techniques for radio communications and the design of new equipment components and communications systems. Such R&D establishments shall be encouraged to participate in activities of sister R&D companies in other countries or regions. In this way, R&D shall advance radio communication technologies and foster efficient utilization of radio spectrum to serve Ugandan better and encourage prosperous economy.

Policy Guideline 12:

The Commission may allow access to radio spectrum for temporary or experimental R&D purposes provided there is justification for an application for that purpose. The Commission shall provide guidelines under which frequency allocation for temporary or R&D initiatives shall be carried out. However, unless decided otherwise in future, the funding of R&D should be borne by the R&D companies or be done at the sole discretion of communication industry and not by funding from the Commission nor as a condition of licensing.

5.13 Radiocommunication Standards

The setting of standards is one sure way of enabling good spectrum management through which elimination of harmful interference, ensuring compatibility among radio users, promoting of frequency sharing and ensuring regional and international coordination can be achieved. Good standards enhance competition in the industry and provide the technical base for products and service development. Standards bring a balance between

the need for protection of authorised users and services versus creating an environment that is conducive for the introduction of new technologies.

Policy Guideline 13:

The Commission, in developing equipment standards, shall use ITU-R Recommendations as well as other internationally recognized and industry-based standards with an aim to allow for wide open markets for the products and reciprocity in type approval of radio equipment. Notwithstanding adapted radio equipment standards, the Commission endeavour to develop guidelines to based on which interference cases will address and resolved among the service providers and operators.

5.14 Installers/Inspectors of Equipment/facilities.

As part of its frequency authorization requirement, the Commission shall carry out inspections of the installations to ensure that they are in conformity with the authorised parameters. Lack of comprehensive inspection of all stations can pose interference threats to spectrum users. In order to avoid this, it could be prudent for the Commission to outsource this function. The Commission requires that providers of such inspection service, when it is outsourced, shall be required to meet certain qualification criteria as shall be determined by the Commission.

Policy Guideline 14:

The Commission encourages the formation of consultancy/professional institutions or equipment installers, which shall act as third parties to carry out conformity assessment of the equipment standards and radio station installations to ensure they comply with Commission requirements as authorised. The Commission shall recognize these parties and provide guidelines along which they will carry out their duties.

5.15 Radio Spectrum Transfer

In some developed economies, portions of the spectrum can be traded or transferred between the authorised parties to an interested party. In circumstances that such a situation occurs in Uganda, the holder of the radio spectrum/transferee shall first seek permission from the Commission and the Commission shall make a decision on such request for the transfer. The Commission shall put in place the procedures against which such transfer of the radio frequencies will be managed.

Policy Guideline 15:

The Commission shall put in place spectrum transfer procedures against which the transfers shall be carried out, taking into account competition safeguards and a harmonised use of the frequencies in accordance with the national table of frequency allocations. The Commission shall publish information regarding transfers of the radio spectrum assignments.

5.16 Co-location and Sharing of Infrastructure.

There are a limited number of sites that are ideal for location of towers and other facilities by which radiocommunication services are provided to the public. Besides, it is necessary to protect the environment by making as little degradation as possible. Taking into account the concerns of health, the environment, safety or other social considerations and in order to avoid duplication of infrastructure, the service providers shall be required to endeavour to share infrastructure and encourage co-location of facilities.

Policy Guideline 16:

The Commission encourages and may impose on providers shared utilisation of infrastructure for purposes of effective use of resources in the interest of environment concerns and other social considerations. The Commission may also issue regulations on co-location and on shared use of infrastructure.

5.17 Sale and use of Radio Equipment

The radio equipment covered by international agreements, to which Uganda is a party and meets the requirements under such agreements, may be used and sold in the country. Any possession, sale and use of radio equipment that is not covered by these agreements, shall require equipment type approval by the Commission and the Commission may type approve the equipment or deny approval if the equipment does not fulfil required specifications.

Policy Guideline 17:

The Commission shall issue regulations on requirements/specifications and conditions for the sale and use of the radio transmitting equipment in Uganda. All radio transmitting radio equipment vendors/dealers in the country shall be required to register with the Commission. Those registered in accordance with a regulation may import radio and terminal equipment.

5.18 Satellite Orbital Slots.

In circumstances that an application for satellite orbital slots is received, the Commission shall in an open, transparent, objective and non-discriminatory manner, coordinate and implement registration of satellite orbital slots in the international register.

Policy Guideline 18:

The Commission shall issue regulations on requirements for the request and registration process of the satellite orbital slots.

5.19 Unforeseen Policy Issues in the use Radio Spectrum

The pattern of radio use is continuously evolving to reflect the many changes taking place in the radio environment, including the introduction of new applications and technologies. Given the dynamism of the sector and stakeholder demands, the scope of the policy guidelines may not be exhaustive.

Policy Guideline 19:

The Commission may add, vary or amend these regulations in order to widen the scope of these guidelines or where in the public interest it is deemed necessary to do so.