

IS THE TELECOM MAST IN YOUR AREA HARMFUL TO YOUR HEALTH?

Consumers Consumers and communities have lately become very concern about the erection of telecommunication masts in their communities. Consumers or subscribers now yearn for a superior quality of service from their network providers. But at the same time, they resist the erection of masts which invariably boost network connectivity that will lead to improved quality of service.

But are communities justified over their concerns with telecom masts? The simple answer is no!

Did you know that?

1. The Power from mobile base stations antennas are far too low to produce health risk as long as people are kept from direct contact with antennas and surrounding environment.
2. The low power (short range) transmitters in the towers make the Radio Frequency radiation exposure levels generally low.
3. Ghana Atomic Energy Commission ensures the radiation level on towers erected are always kept at a minimum which are not harmful to people. proactively checks the levels of emission to ensure that they do not exceed national and international levels.
4. Radio waves are far less energetic than even the visible light we experience every day.
5. Radio frequency exposures are ironizing and safer than the sun's ultra-violet rays which falls within the harmful ionizing category which can cause skin cancer.

What is the Telecom Mast or Tower?

The telecom mast (or tower) is that tall metallic structure often painted red and white which has some 'drum-like' structures at the top.

The 'drum-like' structures at the top are actually antennas. The masts are designed to support the antennas for telecommunications and broadcasting. The tower or mast is the first touch point used by network providers to reach subscribers with signals so they can make or receive calls and also use internet services. In short, it sends and receives information to and from cell phones. They are also the reason why you are able to assess FM radio signals.

They are needed to ensure network coverage



and access that guarantee minimum Quality of Service (QoS).

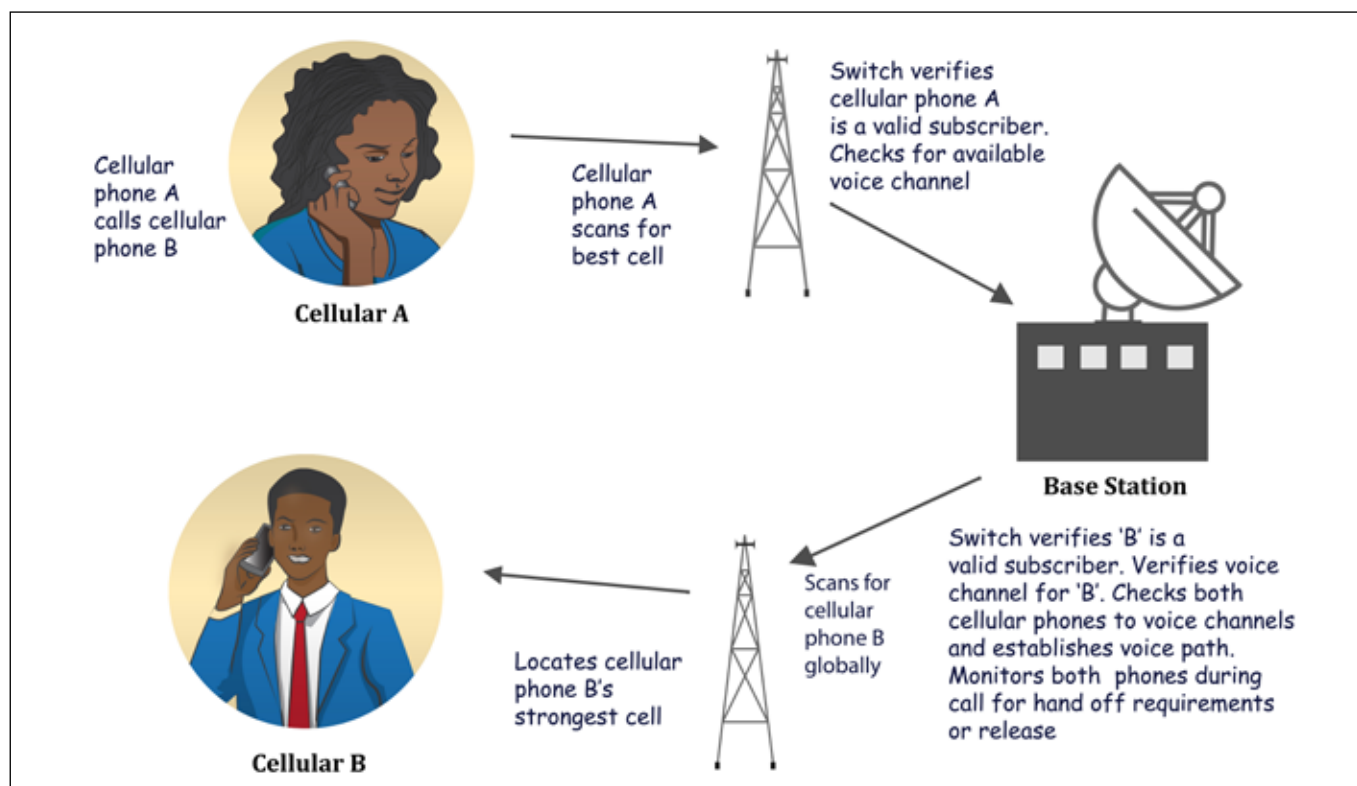
Why do we need telecommunication Masts?

The masts make it possible for you to make calls or browse the internet. The antennas on top of the masts is what enables your mobile phone to receive signals so you can make or receive phone calls. Without them, you will not be able to receive or make calls. If you want a good quality of service, having a masts close by helps.

Is it harmful to live near a telecom mast?

It is not harmful to live near masts. Masts in Ghana are erected using Guidelines approved by the National Communications Authority (NCA), Environmental Protection Agency (EPA), and Radiation Protection Institute (RPI). These guidelines set the minimum requirements for masts. Studies conducted by the NCA and others indicate that the emissions from masts are well below the safety limits and do not pose any danger to the health of people close by.

Ensuring the safety of public and workers around telecom base stations



- National Communication Authority**
 The National Communications Authority (NCA) conducts test to determine the radiations from telecom base stations. The levels of emission are assessed by comparing the radiated emissions from the selected base stations (in V/m) with the recommended limits specified by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines. (For Limiting Exposures to Time-Varying Electric, Magnetic and Electromagnetic Fields up to 300GHz)
Emissions from the measured sites thus far have been observed to be far below the limits set by ICNIRP and adopted by Ghana.
 - Radiation Protection Institute (RPI)**
 The Radiation Protection Institute (RPI) of the Ghana Atomic Energy Commission (GAEC) issues a safety assessment report before any telecom mast or tower is constructed to ensure that the public and workers are protected from any harmful effect of radiation.
 - Environmental Protection Agency**
 The Environmental Protection Agency (EPA) conducts an environmental impact assessment to ensure that any telecom mast or tower to be constructed do not have a detrimental effect on the environment.
- All telecommunication mast in Ghana must be developed as per the Guidelines for the

Development of Communications Towers.

What is the closest a mast or tower can be to a home?

For Residential areas, the base of the mast should not be less than 20 meters from the boundary of the fence of the nearest building. The mast must not also be more than 35 meters tall.

For Commercial areas, the base of the mast should not be less than 12.5 meters from the boundary of the fence of the nearest building. The mast must not also be more than 120 meters tall.

For Industrial areas, the base of the mast should not be less than 12.5 meters from the boundary of the fence of the nearest building for shorter mast and 16.5 meters for taller mast. The mast must not also be more than 120 meters tall.

Does Ghana have laws when it comes to Telecom Masts?

Yes. The Guidelines for the Development of Communications Towers was developed by the National Communications Authority (NCA), Environmental Protection Agency (EPA), the Ghana Civil Aviation Authority (GCAA) and the Radiation Protection Institute (RPI) of the Ghana Atomic Energy Commission (GAEC). It outlines the various requirements as well as the technical specifications required before masts are erected.

Where can these laws be found?

A copy of the Guidelines for the Development

of Communications Towers can be obtained from the NCA website – <https://www.nca.org.gh/assets/Uploads/Communications-Towers-Guidelines3.pdf>

Is the permission of the community required by law before masts are erected?

The Guidelines for the Development of Communications Towers mandates tower companies to consult with communities. It does not require them to get the permission of communities. The municipal, metropolitan and district assembly (MMDEC) will however grant permission if all the requirements as state in the guidelines are met.

What happens in other countries?

The world have begun investing in rooftop mast. Also, developed countries like the UK has a map which shows where mast should/can be erected.

What can you do if you have issues with a mast or tower?

Report the issue to the EPA or NCA. Ensure that you provide the necessary information to enable the appropriate institution work on your issue.

Radio Frequency Radiations (RFR) from telecommunications bases station are non-ionizing, thus cannot effect changes in atomic structures. Test conducted by the NCA on RFR from selected telecom base stations showed radiations far below the acceptable limits recommended by the ICNIRP.

Understanding Quality of Service Monitoring

In today's internet driven environment, consumers now expect their service providers to provide the required Quality of Service (QoS) they need. Consumers want to be connected to the network when needed. To ensure that service providers continue to meet consumers' requirements and expectations in terms of quality of service, the National Communications Authority (NCA), the regulator for the communications industry, monitors and reports the QoS of the Mobile Networks Operators (MNOs). This is to provide consumers with sufficient information to enable them make informed choices in the market.

What is Quality of Service?

Quality of Service (QoS) refers to all the requirements a telecom service needs to meet consumers' implied and stated expectations of a service they are receiving. QoS is characterized by the combined effect of the service, network elements, terminals and infrastructure.

What is the Scope of the NCA Monitoring?

QoS monitoring covers mobile, fixed and broadband services. Ghana only monitors mobile cellular services, which includes Voice, Data and Network coverage from user's perspective.

How is the Monitoring done?

The NCA has an automated benchmarking tool



called NEMO which has terminal equipment (or phones), that simulates a typical user behavior. The data is then collected on the field for the various mobile services for analysis.

Breaking down the terminologies that describe the parameters for the QoS of mobile cellular services

The quality of a mobile cellular service can be related to a number of different parameters. Let us break down some of the terminologies;

1. SDCCH Congestion Rate (SCR)

It is the frequency of a consumer's inability to access a Provider's network for other services such as the transmission of data (texting). The measurement of the frequency is termed as Stand-alone Dedicated Control Channel

Congestion rate.

- 2. **TCH Congestion Rate (TCR)**
It is the ease or difficulty with which a consumer is able to get a call through their service provider's network system. The measurement of the frequency of Call Congestion is termed as Call Congestion Rate.
- 3. **Call Setup Time (CST)**
Call Setup Time is the length of time it takes from initiating a call to the time the call is delivered or the fraction of the attempts to make a call that result in a connection to the dialed number. Due to various reasons not all call attempts end with a connection to the dialed number. Call Setup Time is thus, measuring this fraction as a percentage of all call attempts.
- 4. **Call Drop Rate (CDR)**
It is the frequency in which a consumer's on-going call is cut off or disconnected without their permission or knowledge. The measurement of the frequency of call drops is termed as Call Drop Rate.
- 5. **Call Completion Rate (CCR)**
It is defined as the probability that a call has, after being successfully set up, been maintained during a period of time and ending normally.

There are similar definitions for measuring Mobile Data QoS parameters. These include the

- following:
- 1. **Data Access Success Rate (DASR)**
The probability to drop or release a data session without end consumer or user's intervention.
 - 2. **Data Drop Rate (DDR)**
The probability to successfully access a public data server.
 - 3. **Data Throughput (DT)**
The speed at which data is downloaded.

What about Voice Quality. What does it mean?

One of the Key Performance Indicators (KPIs) tested to ensure compliance is the Voice Quality which is measured by what we call the Mean Opinion Score (MOS). The MOS is a quality measure that has been used to assess the human user's opinion of call quality, testing quality voice transmission, quality issues and measuring voice degradation and performance. The standard for measuring MOS is an International Telecommunication Union (ITU) accepted standard- ITU-T Recommendation P.863.

ITU is the UN sanctioned body that oversees global telecommunications.

MOS is expressed as a single number in the range from 1 to 5, where the value of 1 corresponds to the lowest quality experienced by the end-user and 5 is the highest quality experienced. MNOs are required by their licence to meet a minimum score of 3.5 for more than 95% of calls per the rating based on the below:

MOS Range	Interpretation
[4.1 to 5)	Excellent
[3.5 to 4.1)	Good
[2.5 to 3.5)	Fair
[1 to 2.5)	Poor

Publishing Quality of Service Data

The results of the QoS measurements are published on the NCA website.

Do you have a complaint on QoS ?

Consumers are first advised to forward their complaints to their Service Provider. Service Providers have a duty to address their customer's issues related to the service they offer. If they are not satisfied with the outcome of the resolution, they should forward their complaint to the NCA via any of the following:

- Send an email – complaints@nca.org.gh
- Call our Hotline – 0307-011-419
- Call our Toll Free – 0800- 110-622
- Fill a form on our Complaints Management System – <https://complaints.nca.org.gh/>
- Walk-ins – 8 Regional Offices (Accra, Kumasi, Koforidua, Takoradi, Ho, Sunyani, Tamale, Bolgatanga)
- Letter – NCA. P. O. Box CT 1568, Accra
- Facebook – National Communications Authority Ghana
- LinkedIn – National Communications Authority
- Twitter – @NCAGhana

**IS YOUR SIM CARD REGISTERED?
ARE YOU SURE?**

The Ministry of Communications (MoC) says it has noted with great concern the deficiencies with the existing SIM card registration regime in Ghana. The Minister has indicated that consumers with improperly registered SIM cards will soon not be able to use their SIM cards.

WHAT IS THE IMPORTANCE OF PROPERLY REGISTERING SIM CARDS?

The re-registration exercise will seek to cure the following infractions:

- 1. Sale and use of pre-registered and improperly registered SIM cards,
- 2. Curb fraudulent activities such as mobile money fraud
- 3. Prevent illegal SIM swap
- 4. Curtail loss of revenue to Mobile Network Operators (MNO) and the state through SIM boxing.

WHAT ARE THE CONSEQUENCES OF USING IMPROPERLY REGISTERED SIM CARDS?

The laws of Ghana are very clear when it comes to the issue of SIM cards. In fact, some of the punishment available by when it comes to SIM



card matters include jail terms.

- 1. Subscriber Identity Module Registration Regulation, 2011 (L.I. 2006) – it is the main law which governs the responsibilities related to SIM registration.

- 2. Section 73 (a) of the Electronic Communications Amendment Act, 2016 (Act 910) also states that:
“(1) A network operator or service provider shall comply with the directives established by the Authority to (a) prevent; (b) detect; or (c) disconnect

the use of the subscriber identity module or the user identity module of that operator, for terminating an international call on any network in Ghana as a local call.

(2) A person who uses a subscriber identity module or user identity module for terminating an international call on any network in Ghana as a local call, commits an offence and is liable on summary conviction to a fine of not more than three thousand penalty units for each subscriber identity module or user identity module used in terminating the international call as a local call or to a term of imprisonment of not more than five years or to both.”

3. Section 73 (b) of the Electronic Communications Amendment Act, 2016 (Act 910) states that:

“(1) A person shall not deal in a pre-registered subscriber identity module or user identity module.

(2) Any person who knowingly deals in a pre-registered subscriber identity module or user identity module, commits an offence and is liable on summary conviction to a fine of not more than three thousand penalty units or to a term of imprisonment of not more than five years or to both.

(3) For the purposes of this section, a “pre-registered subscriber identify module or user identity module” means a module that has been registered with the data of a person other

WHAT YOU NEED TO KNOW ABOUT SIM CARD REGISTRATION

What is SIM card Registration?

The ACRONYM “SIM” means Subscriber Identity Module. SIM card registration is the process of recording and validating mobile phone number(s) and personal information of a subscriber or user, by a communications service provider. Such information includes the subscriber’s photograph, name, and date of birth, gender, address (postal and/or physical address), email address, if available, and details of valid identification documents of the subscriber. The process involves getting both new and existing phone subscribers to consensually provide their identification details to the network operators.

Why must we register our numbers?

SIM card registration is intended to;

- Help law enforcement agencies to identify the mobile phone SIM card owners
- Track criminals who use phones for illegal activities
- Curb other negative incidents such as; loss of phone through theft, nuisance/hate text messages, fraud, threats and inciting violence, and;
- Help service providers (network operators) know their customers better

NATIONAL COMMUNICATIONS AUTHORITY

Have you registered your SIM card?

All mobile, fixed and data services that use SIM cards must be duly registered before activation on Operator's network.

400
To check if your SIM card is duly registered, send a blank text to short code 400.

What will happen if I don't register my number?

Any person who fails to register an activated number is liable on summary conviction to a fine of GH¢36,000.00 or to a term of imprisonment of not more than five years or to both as stated in the Section 3 of the Electronic Communications (Amendment) Act, 2016 (Act 910).

What information and documentation do I need to register?

You will need any of the following IDs. Only original ones are accepted:

- Valid Passport
- Voter's identification card
- Valid Driver's licence
- National Identification card
- National Health Insurance

Will my information be kept safe?

Data protection is considered most important. All information will be kept confidential by all MNOs in a secure data base. The information collected shall NOT be disclosed to any person unless required by law.

Which Mobile phone numbers must be registered?

All prepaid and postpaid phone numbers and data SIM cards must be registered.

Can I register multiple cards?

Yes. If you own multiple cards, you must register all of them.

Where do I go to register?

Registration will take place at your service

provider's outlets countrywide.

How much will it cost me to register?

SIM card registration is free.

What will happen if I have not registered my SIM card?

Your SIM card shall be deactivated and you will not be able to make or receive calls.

How will I be sure that my number is registered?

Your service provider will send text message confirming completion of registration.

Can someone register for me?

In case you cannot do the registration, someone else can register the SIM card in his/her name but the person will be responsible for your number.

Do I have to register my mobile fixed line too?

Yes, you have to register the mobile fixed line.

If I use a modem for my internet. Does it also need to be registered?

Yes. It has to be registered.

To Complain, Call

Toll free
0800 110 622

Hotline
0307 011 419