



The background features a large, light blue watermark of the International Telecommunication Union (ITU) logo, which consists of a globe with a lightning bolt and the letters 'ITU' overlaid.

Testing activities of NCA Type Approval Testing labs and key challenges

**Kofi Ntim Yeboah-Kordieh
National Communications Authority**

Contents

- Legal Authority
- Benefits of Type Approval
- NCA Equipment Authorization Process
- Type Approval Testing Labs
- Challenges
- Operational & Sustainability Plan

LEGAL AUTHORITY

- Section 3 (n) of the Act 769 empowers the NCA to certify and ensure the testing of communications equipment for compliance with national and international standards; environment, health and safety standards including electromagnetic radiation and emissions.
- Sections 66 and 67 of the Electronic Communications Act of 2008, Act 775, on developing standards for Terminal Equipment
- Regulations 78 and 79 of the Electronic Communications Regulations, 2011, L.I. 1991 empowers the Authority to approve communications equipment and also put in place both the standards and mechanism for the approval.

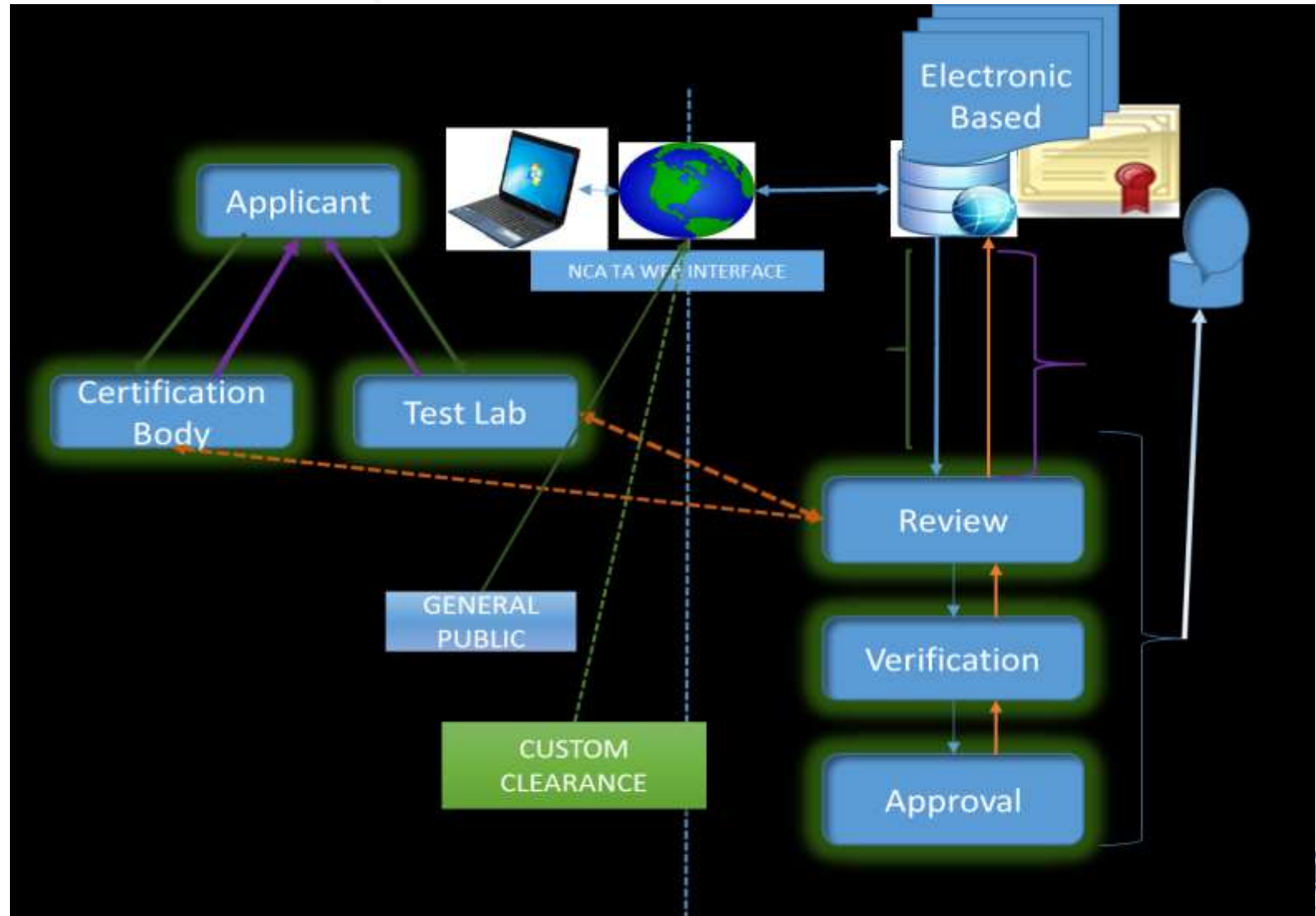


Benefits of Type Approval

1. Gives consumer a well informed choice
2. Facilitate the availability of quality equipment on our market
3. Protects health and the safety of users and the environment
4. Allays public fears and advise the public from time to time on the equipment that is certified as “safe”
5. Ensures efficient use of radio frequency spectrum
6. Facilitates interoperable use of equipment on public networks
7. Prevents disruption to public networks
8. Sustainable source of Revenue for NCA



NCA Equipment Authorisation Process



In-country Audit

- This procedure is conducted to ensure that electronic communications equipment placed or used on the market conform to the pre-market approved requirements.
- **Two-pronged Approach**
 - Entry clearance procedures – physical port inspection and clearance
 - Post market surveillance activities

Type Approval Testing Labs (TAL)

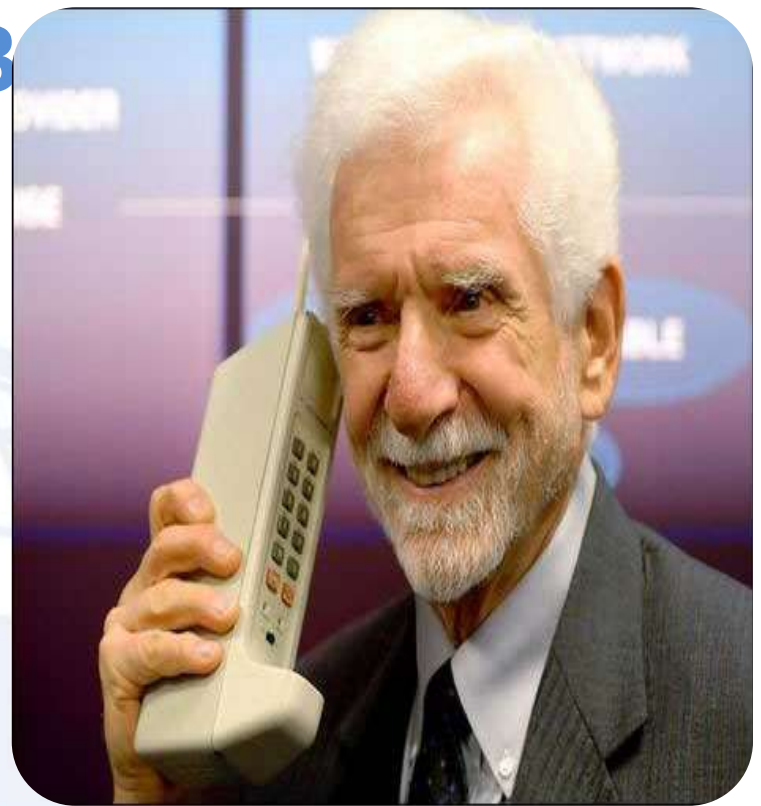
- The main objective of the TAL is to support the NCA's Type Approval Process. These include testing of samples and Post Market Surveillance activities.
- To confirm device compliance with the following standards/testing areas
 - Specific Absorption Rate (SAR) Testing
 - Radio Frequency (RF) and Signaling Testing
 - Electromagnetic Field Testing (EMF) Testing

SAR LAB

The purpose of the SAR LAB is to measure of the amount of radio frequency energy (radiation) absorbed by the head or body when using wireless transmitting device such as mobile phone, laptop, tablets, etc.

The higher the SAR rating the more radiation that is absorbed into the head or body.

This is measured in watts per kilogram (W/kg) in either 1g or 10g of tissue.



Region / Country	- Reference to - SAR measurement protocol	Reference to SAR limit	Limit
Europe	European Specification ES 59005 (1998)	ICNIRP Guidelines 1998 (ICNIRP 1998)	2.0 W/Kg in 10g of tissue
US	Federal Communications Commission (FCC) Guidelines (FCC 1997)	American Standard ANSI C95.1 (ANSI 1992)	1.6 W/Kg in 1g of tissue

TEST Equipment



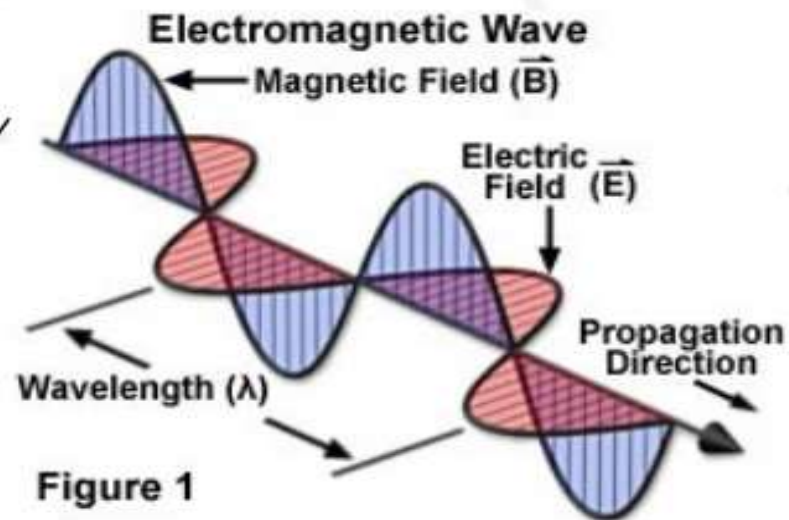
TEST Equipment



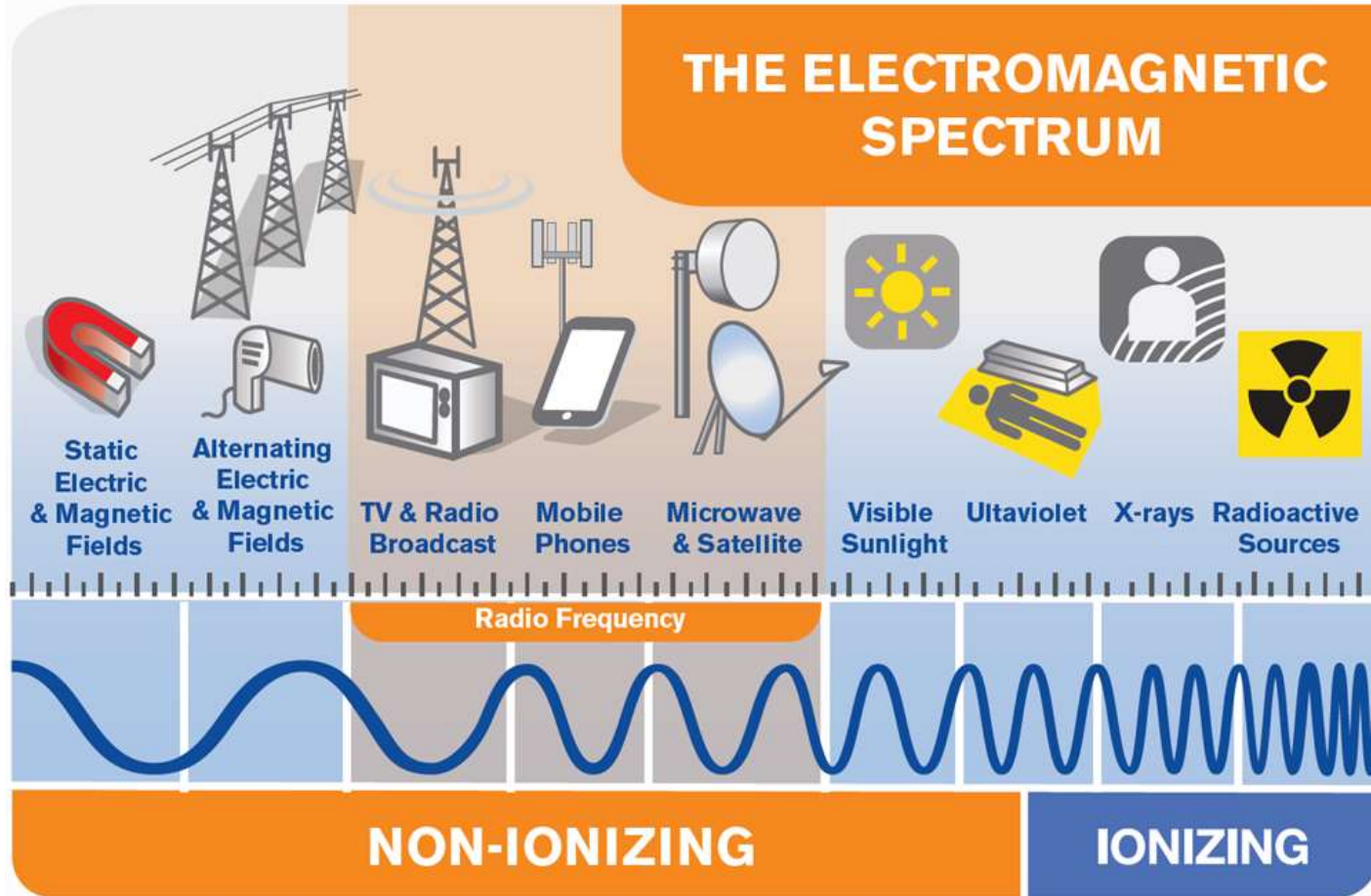
Electromagnetic Field Testing (EMF)

What is EMF?

- EMF stands for *electromagnetic field*.
- This is a physical field produced by electrically charged objects.
- It is called "electromagnetic" because it contains properties of both magnetism and electricity.



THE ELECTROMAGNETIC SPECTRUM



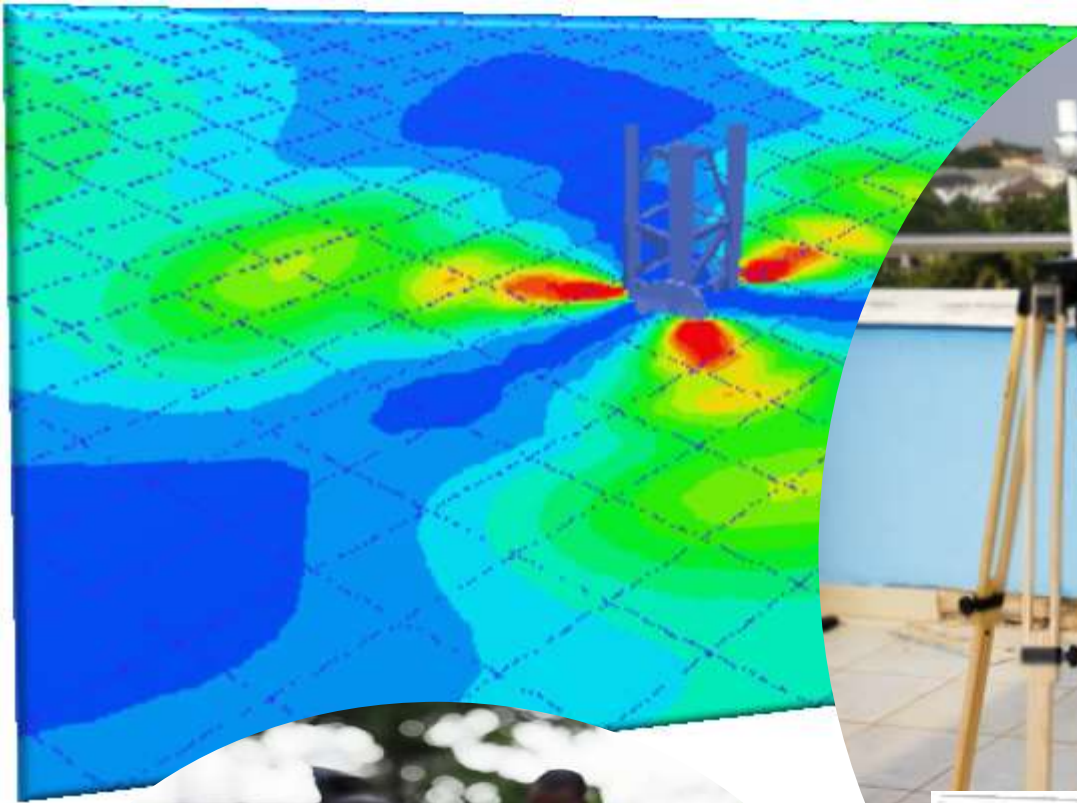
EMF LAB measures...

Public and Worker exposure to EM Fields from telecommunication bases, Wi-Fi/WIMAX antennas and other telecom infrastructure and networks using probes/ANTENAS systems capable of measuring frequencies from 100kHz – 6GHz, mostly access frequencies.



Simulate amount of radiation by antenna on a rooftop either FM or Telecom Mast or even indoor radiation





Signalling and Radio Frequency Testing (SigRaF) Lab

- This Lab measures..
 - User Terminal to Network Interface (UTNI) parameters using both Conducted and Radiated emission testing.
 - SigRaF test checks functional and conformance testing of devices to be connected to mobile network

Types of Measurements at SigRaF Lab

- GSM MS conformance and functional testing
- WCDMA UE Conformance and functional testing
- WLAN/WIFI Conformance testing
- Intra Technology Handover (eg GSM to GSM or WCDMA to WCDMA)
- Inter Technology Handover (eg GSM to WCDMA) and vice versa



RF and Signaling Testing Lab



Challenges

- Lack of public awareness
- Porous and unapproved routes continue to exist
- Public confusion of Type Approval process with Dealership Licence
- Labs has not been accredited yet
 - ISO/IEC Accreditation required
- Marking or labelling requirement

Operational & Sustainability Plan

- Advertise the labs through ATU/SG11 RG-AFR/ECOWAS as testing hub for West Africa
 - Development of sub-regional MRA
- Propose to SG11 RG-AFR & ITU to make the labs the Centre of Excellence within the sub-region
- The labs will be used to train (ITU members) at least twice a year
 - Pillar 3 (Capacity Building)
 - Will convert into training institution and include other subject areas
- In the long term, we will collaborate with international giants such as SGS to enable us expand the lab and also for technological and skills improvement.



A large, light blue watermark of the ITU logo is centered on the page. It features a globe with a satellite dish and a lightning bolt, with the letters 'ITU' overlaid in a bold, sans-serif font.

Any Questions?