Guidelines of Type Approval Regulation (Roadmap and framework for C&I Testing)

"Legal, Policy and Regulatory Aspects of C&I"
15th to 19th November, 2021

NATIONAL COMMUNICATIONS AUTHORITY

Presentation Outline

- Legal Framework
- C&I Infrastructure
- Conformity and Interoperability testing
- Roadmap to establish a procedure for type approval testing – The Ghana Case
  - Feasibility study
  - Budget
  - Business Models
  - Tender and Evaluation
  - Selection and Award of Contracts
  - Installation and testing
  - Launch and commercial testing
- Accreditation process and procedure
- Import procedures for testing proposals
- Market Surveillance and Enforcement
- Consultation Process and Procedures
- Fees and Payment

Legal Framework

- ***Telecommunication or ICT Laws (Acts,)***

Overarching Legal documents which provide broad mandate for regulation of different aspects of C&I.

- ***Regulations***

Spell out how Regulatory Authorities implementat the provisions in different parts of the Acts.

- ***Guidelines***

Point to specific areas within the Regulations, and seek to provide clarity and guidance to industry.

- ***Directives***

Used to ensure quick implementation of regulatory measures or government policy.

- ***Standards and Technical Specifcations***

Technical documents to guide brand owners/manufacturers to ensure conformace and interperability.

C&I Infrastructure

- Type Approval Management System

  Digital infrastructure used to adminster and manage the Type Approval process

- Type Approval Sample Storage Facilities

  Physical infrastructure used to store samples received for type approval

- Testing Infrastructure

  A combnination of physical and digital infrastructure used for testing conformance of ICT devices to standards

- Telecommunications/ICT Equipment Warehouse

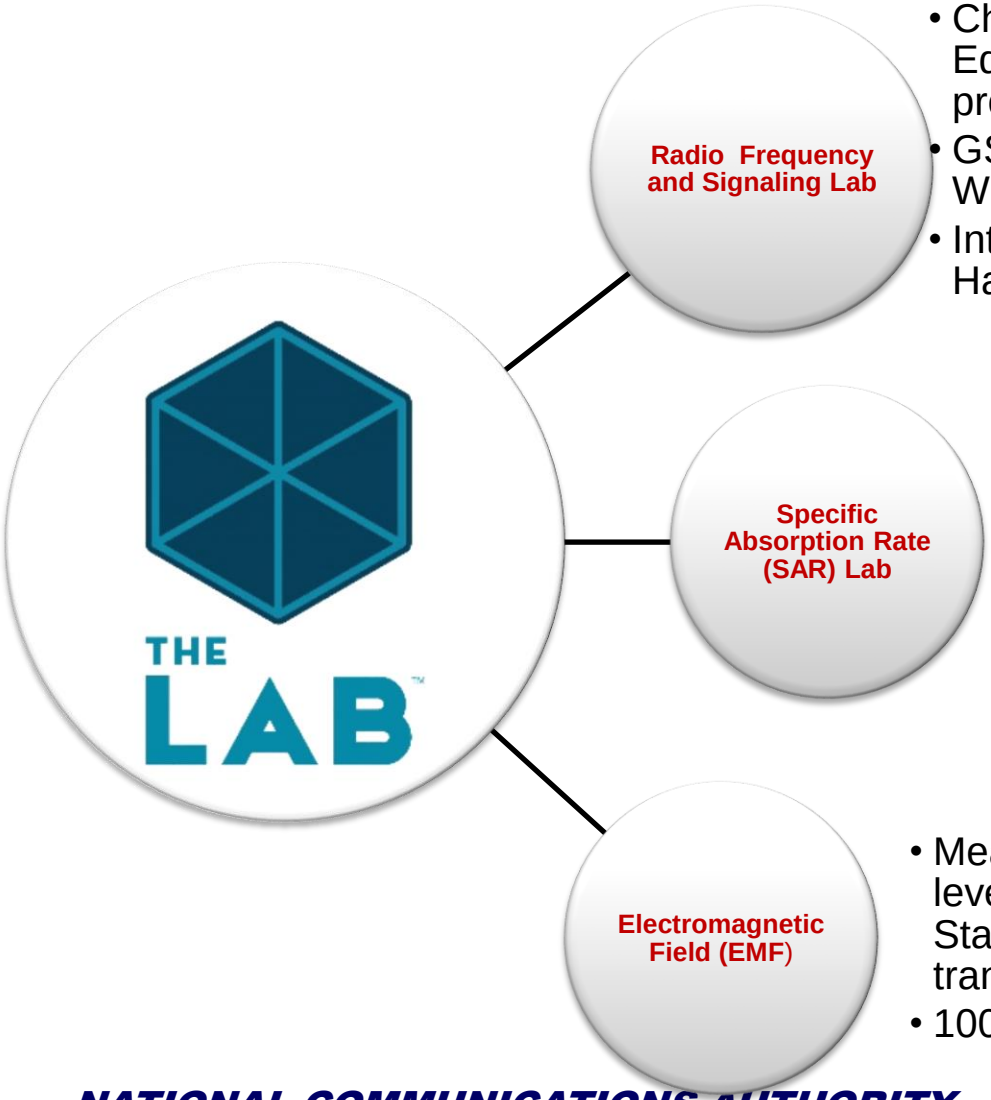
  Physical infrastructure used for equipment storage during market surveillance or port inspections

C&I Infrastructure Con't

Testing Infrstructure used to verify conformance to accepted standards, interoperability and functional requirments of ICTequipment.

Areas of Competence	
Specific Absorption Rate	Electromagnetic Compatibility Lab
User Experience Lab	Radio & Signaling Lab
Broadband Access Lab	Powering Efficiency Lab
Mobile Value Added Services Lab	Quality of Material Lab
Electrical Safety & Protection Lab	Personal Area Network Lab
Electroacoustic Lab	Fixed Test Plant
Mobile Test Plant	

Contribution of Testing Laboratories to C&I

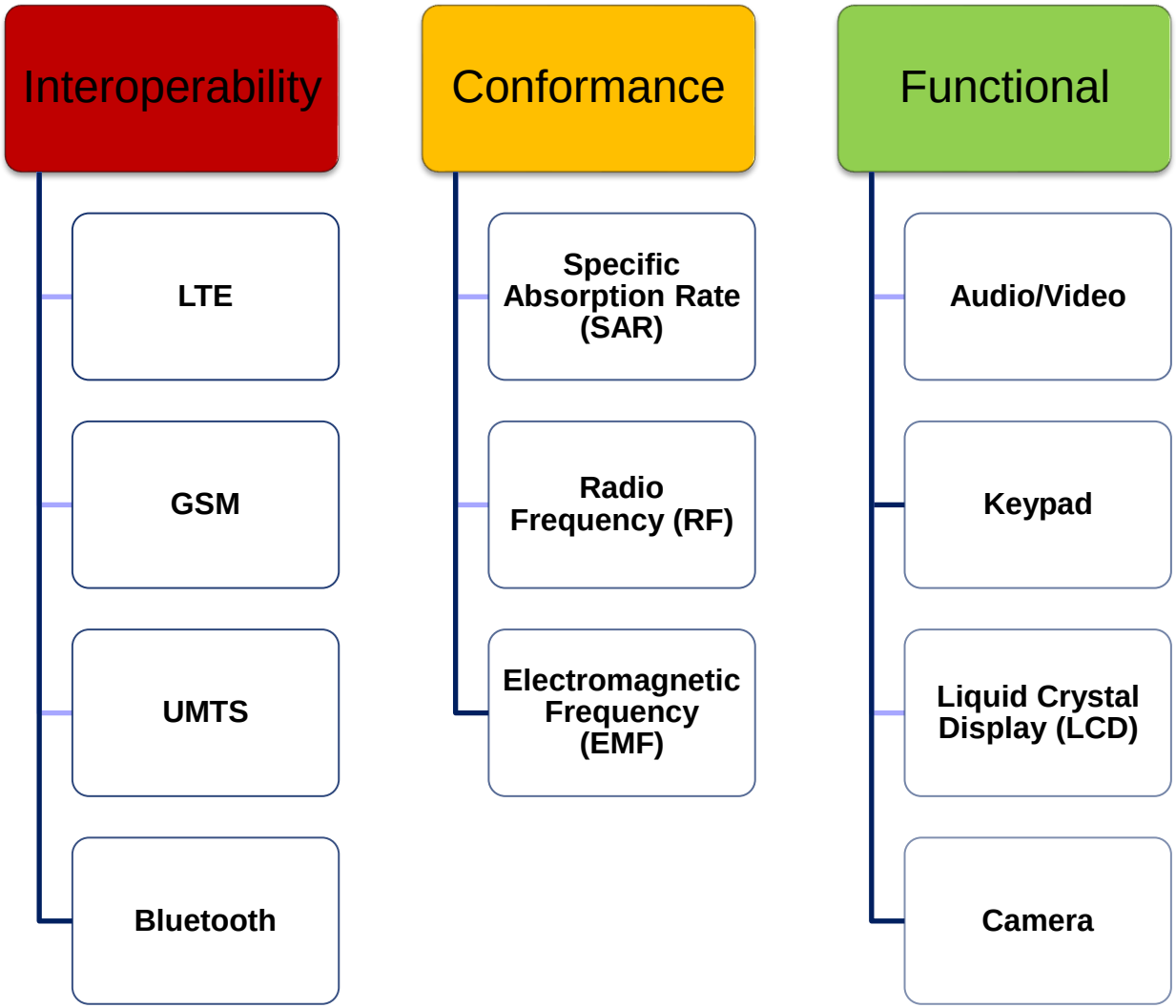


- Checks if User Network Equipment implement the protocols for:
- GSM, UMTS, LTE, WLAN/WIFI UE
- Intra/Inter Technology Handover.

- Measures the amount of radiation absorbed by the head or body when using wireless transmitting devices
- FCC Limit 1.6 W/Kg
- EU/ICNIRP 2W/Kg

- Measures emission levels from Mobile Base Stations, FM and TV transmitters and alerts
- 100kHz -6GHz

Functions of the Labs



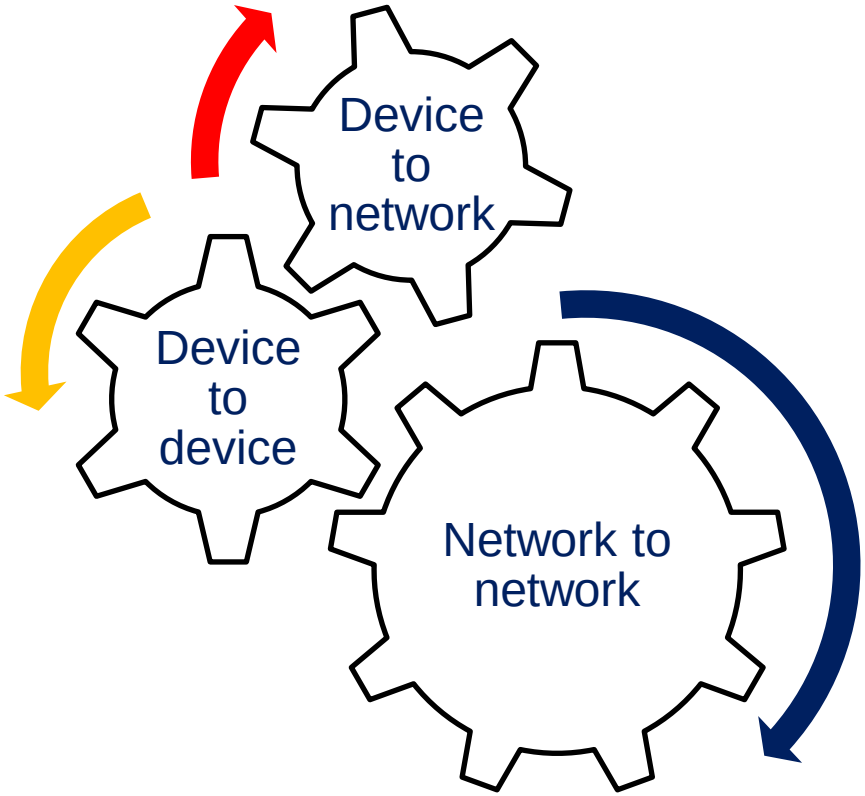
Conformance Testing

- ECE's are tested to ensure conformance to adopted standards and ensure the veracity of equipment that come into the market post Type Approval.

  - **Why Conformance to standards is important?**
    - Equipment from different vendors conforming to the same standards have a higher likelihood of interoperability
    - Different vendors can independently implement standards with higher assurance of product interoperability
    - Equipment buyers can buy products that will interoperate with previously purchased equipment form different supplier

Interoperability

The ability of networks, systems, devices, applications or components to exchange information between them and to use the information exchanged.



Interoperability Testing

- Measures if two or more devices implement the technical specification necessary to ensure successful integration supporting particular communications protocols.
  - **Why Interoperability is important?**

The ultimate objective is that independent implementations of the same standard interoperate

Why Interoperability Testing

Interoperability is beneficial to all actors in the Telecommunications value chain:

- The user benefits because he can communicate with whom he wants or needs anywhere and anytime, with a single terminal.
- The network operator benefits because it can select the best equipment from different manufacturers according to the best price and performance.
- The manufacturer benefits because it can sell the same equipment to different countries or operators, and benefit from economies of scale in fabrication and marketing.

Why Interoperability Testing 2

Public authorities benefit because they can coordinate responses from different critical infrastructure networks.

Safety issues and security policy show how important is to be able to interoperate between different emergency networks, satellite, fixed and mobile:

- Disease epidemic
- Terrorism attacks
- Volcanic eruptions and hurricanes
- Protection against crime
- Coordination of utility grids
- Disaster management

Causes of Interoperability Problems

- **Standards**
  - Errors and ambiguities in standards
  - Incompatible standards (standards with different QoS, traffic priorities)
- **Implementations**
  - Human errors, e.g. programmer errors
  - Different interpretations of the standard
  - Different choice of options allowed by the standard
- **Technology**
  - Networks use different traffic queuing techniques
  - Device compatibility –host system configuration

Functional Testing

- A quality assurance process to test the basic user interactions and verify the functionalities of an ECE.
  - This form of testing performs various test including LCD display test, capacity touch panel test, audio test, keypad test, camera test and others

Roadmap to establish procedure for Type Approval Testing – Feasibility Study

- Lack of fully fledged testing facilities, access to databases, market surveillance & enforcement issues.
- Challenges in independently verifying health and safety usage of ICT devices
- Porous port of entries and unapproved routes
- Less effective Type Approval process
- Less consumer confidence in the Regulator
- Concerns on revenues to NCA
- Legal Authority

Type Approval Testing Lab - Expected Deliverables

Address the following:

- Public health and safety concerns
- Radio Frequency interference issues
- Pre & Post market surveillance support
- Support for Research & Development
- Quality of Service delivery support
- Value for money of devices purchased in the Ghanaian market

Roadmap 1/4

- Business plan/feasibility study and proposals (Sept. 2014)
- Board Approvals - Budget estimate of 2M Euros and pre-selected vendors (Jan. 2015)
- Preselection - Contacted 8 vendors based on track record for submission of profile - July 2015
  - SGS (Asia)
  - Anritsu (USA)
  - Rohde & Schwarz (Europe)
  - Agilent Technologies (USA)
  - Planet Network International (PNI) (Europe)
  - RDT Equipment and Systems (Israel)
  - Microwave Vision Group (MVG) Europe)
  - Tilabs (Europe)

Roadmap 2/4

- By July 2015, four vendors had submitted profiles
  - RDT Systems
  - Rohde & Schwarz
  - Microwave Vision Group (MVG)
  - Planet Network International
- Secured office space in former NCA HO Building (July 2015)
- Administrative, Commercial and & Technical, specifications for procuring equipment prepared (Aug. 2015)
- Public Procurement Authority approved restricted tender (Jan. 2016)

Roadmap 3/4

- Engagement in pre-bidding discussion with pre-selected vendors
- Formal request for expression of interest (March 2016)
- Submission of application (April, 2016)
- Evaluation (April, 2016)
  - Two stage evaluation process
    - Stage1 – Administrative & Technical evaluation of applicants
    - Stage 2 – Financial evaluation
- Selection of qualified vendors (May, 2016)
- Reported to NCA entity Tender Committee (May, 2016)

Roadmap 4/4

- Approval from Central Tender Committee (May 2016)
- Signed contract with qualified Vendors (Sept. 2016)
- Factory Acceptance Test (Oct. 2016)
- Site preparation (Nov. 2016)
- Equipment supplied (Nov/Dec. 2016)
- Installation & Testing (Jan. 2017)
- Pilot testing (Jan 2017 – June 2018)
- Launch & Commercial Testing (July 2018)
- MoU to be signed with ITU for Training & Capacity building - Pillar 3 of C&I Programme (July 2018 during RDF)

ISO 17025 Accreditation Process

ISO/ IEC 17025 is a global standard for calibrating and testing laboratories.

- There are two main clauses in ISO/IEC 17025:
  - Management requirements are related to the operation and effectiveness of the system of quality management within the laboratory.
  - Technical requirements cover the skills of the team, the testing methodology, equipment and quality reports on the results of tests and calibrations.

ISO 17025 Accreditation Process

Management Requirements:

1. Organization
2. Management system
3. Documentary checks
4. Review of requests, tenders and contracts
5. Subcontracting of tests and calibrations
6. Purchasing services and supplies
7. Customer Service
8. Claims
9. Control calibrations and / or non-compliant testing
10. Improvements
11. Corrective actions
12. Preventive actions
13. Control recordings
14. Internal audits

ISO 17025 Accreditation Process 2

Technical Requirements:

1. Staff
2. Housing conditions and environmental
3. Testing and calibration methods
4. Validation
5. Equipment
6. Measurement Traceability
7. Sampling
8. Handling of calibration and testing elements
9. Quality assurance of test results and calibration
10. Reporting of results

Sustainability Models

- **Short Term:**

The labs operate on fees for service basis

(conducting C&I testing and market surveillance)

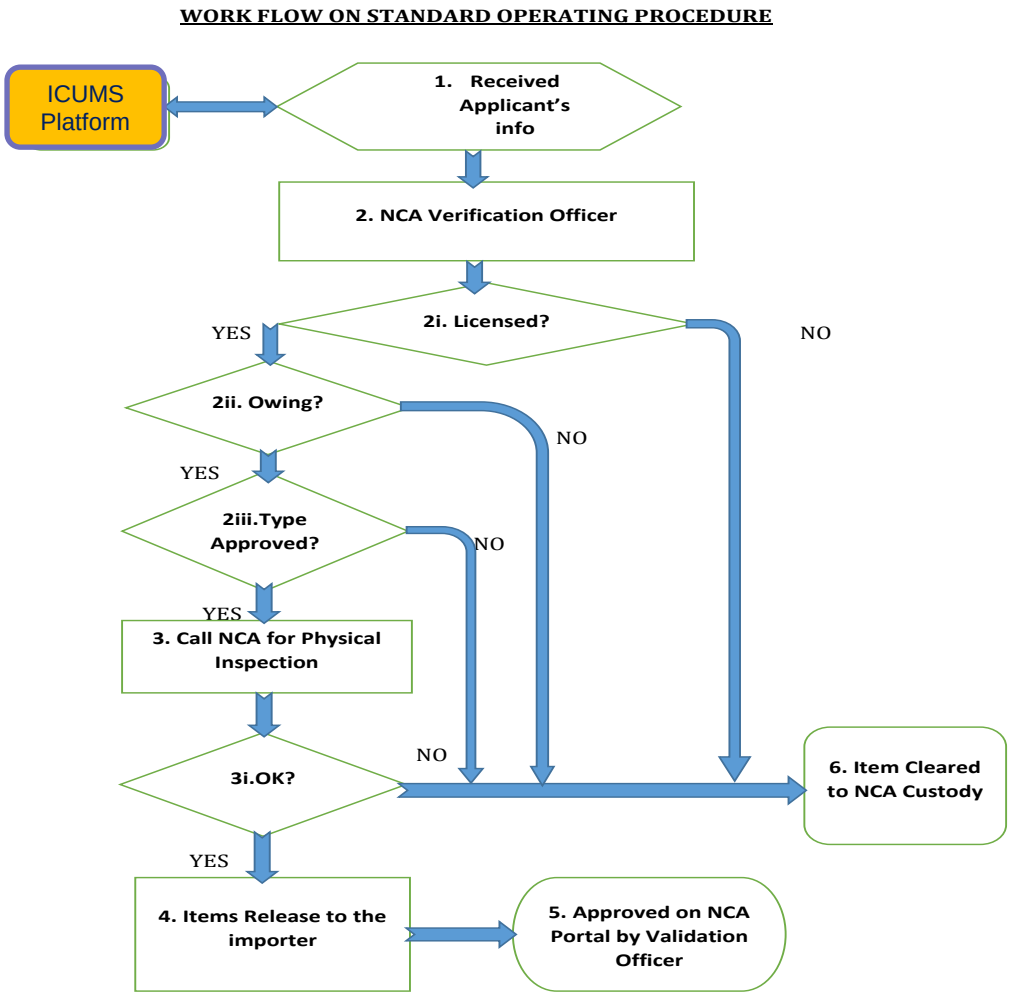
- **Medium Term:**

The labs will attain ISO/IEC 17025 status for Regional recognition & collaborate with regional regulators through MRAs

- **Long Term**:

Regional test center and training institution

Import Procedure



Market Surveillance

- **Purpose**

  - To ensure the ICT products placed on the market comply with all the requirements set out in the relevant legislation and regulations

  - To ensure that ICT products placed on the market do not cause electromagnetic interference, harm the public telecommunications network, and endanger health, safety or any other aspect of protection of public interests

  - To take necessary action (e.g. prohibitions, withdrawals, recalls) to stop the circulation of products that do not comply with all the requirements set out in the relevant legislation and regulations, to bring the products into compliance and to apply sanctions.

Market Surveillance – Guide 1/2

- conduct audits according to the regulators' requirements
- Audits can be random or targeted based on complaints or past surveillance results
- Audit samples may be obtained from:
  - the manufacturer
  - the domestic representative of a manufacturer or supplier
  - the importer or distributor
  - the marketplace

Source: ITU-D

Market Surveillance – Guide 1/2

- Market Surveillance Requirements may include:
  - Conduct audit of a certain percentage of equipment certified annually
- use the following criteria to select audit samples:
  - past history of compliance
  - whether the sample comes from a new applicant
  - whether the sample is based on new technology
  - popularity of the technology
  - price of the sample relative to the average price of similar technology
  - potential harm to the network or people as a result of non-compliance

Source: ITU-D

Consultation Process

- Publish Draft Type Approval Regulations and Requested for Comments from Stakeholders
- Hold Public Sensitization workshops on the Regulations.
- Accept comments from all stakeholders
- Review and respond to comments from all stakeholders
- Hold one-on-one meeting with respondents to comments
- Incorporate accepted comments/suggestions into draft Regulations

Fees and Payment

Three Fee Models

- Free (No Fees)

Provides service at no charge to the applicant.

- Revenue Generation

Provides services with the intention to generate Revenue.

- Cost Recovery

Provides service to recoup the cost of investments in developing systems and infrastructure

Source: ITU-D

Thank you.

Any Questions?