

***The ITU Forum on Conformance and Interoperability
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**Establishment of Equipment Testing
Laboratory in the African Region:
*Tanzania's experience***

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Discussion Topics:

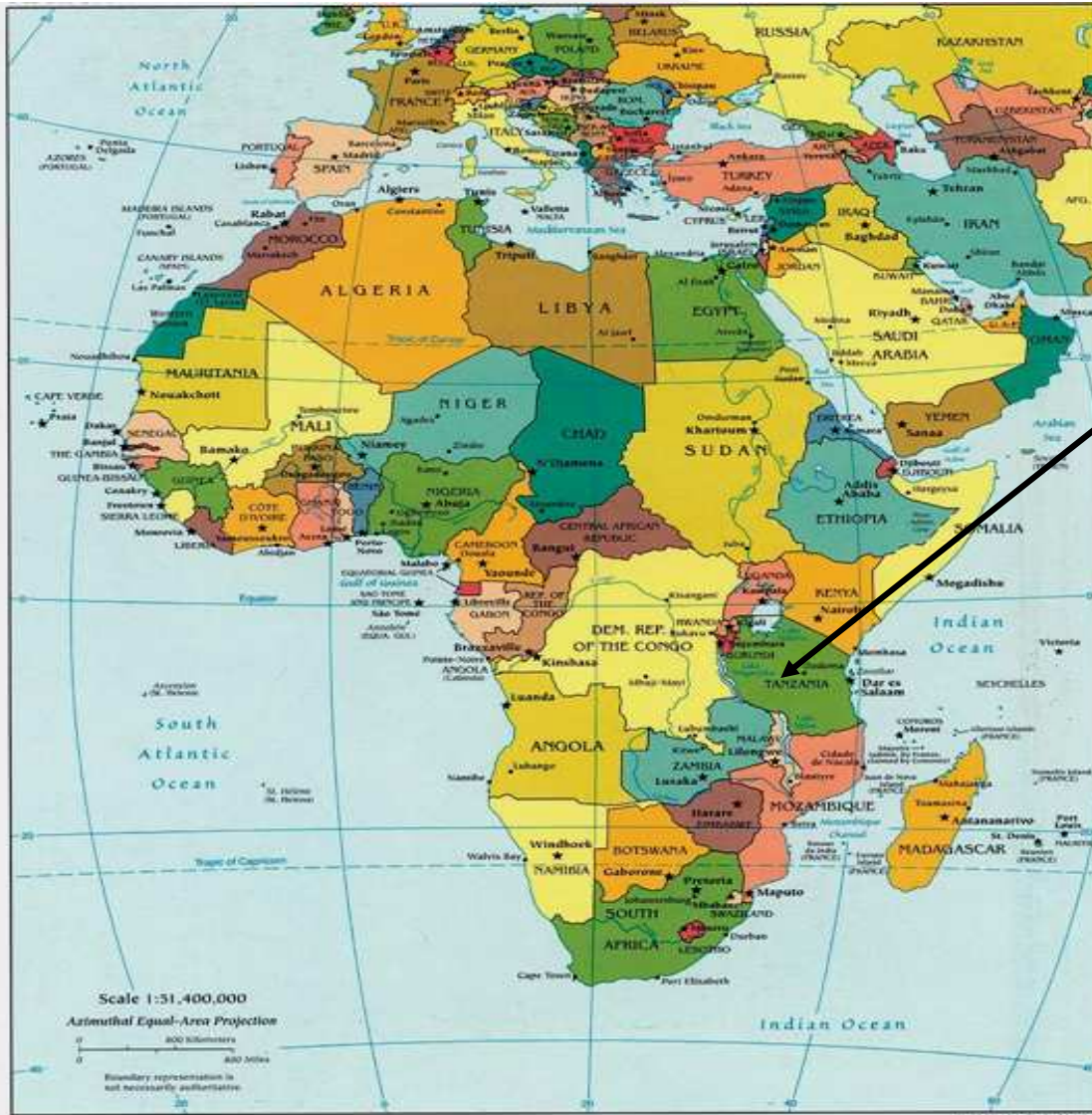
1. Country Profile - *Tanzania*
2. Some Key Standardisation Terminologies
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1.0 Country Profile - Tanzania



TANZANIA

- Population: > 40 million
> 80% Living in Rural areas.
- Size: 945,000 Square Kms
- Phones SIMs ~26 million;
Internet ~ 5million
- Share Borders with 8countries
- Per Capita Income ~ \$500
- Climate: varies from tropical along coast to temperate highlands
- Terrain: plains along coast; central plateau; highlands in north, south



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2.0 Key Standardisation Terminologies

- *Technical Standards*
- *Safety Standards*
- *Inter-working and Performance Standards*



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2.1 What is a Technical Standard?

Apart from known definitions.....

- A **Technical Standard** is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices
(wikipedia);

Also.....

- A technical standard can be a controlled **artifact** or similar formal means used for calibration.



2.2 What are the Safety Standards?

Safety Standards are set to ensure safety of people, animals and environment when equipment or network is in operation or when idle. These standards deal for example with:

- *Insulation requirements for equipment*
- *Maximum exposure levels (occupational and general public)*
- *Shielding requirements (domestic /workplace)*
- *Maximum emission limits (e.g. SAR)*



2.3 The Interoperability & Performance Standards

- These are standards that deal with specifications for connectivity between devices and their performance:-
 - *They can define physical layer characteristics of connectors, electrical levels even size of connectors;*
 - *They also state the performance requirements of various pieces of equipment.*



2.4 Categories of Communications Equipment

(i) Terminal equipment:

- *Any communication equipment at user side of the communication network infrastructure is categorized as terminal equipment;*

.....for fixed network the boundary is the line jack and for wireless interface the boundary varies depending on the type of technology.



Categories of Communications Equipment (2)

(ii) Network Equipment:

- *The network equipment includes switches, Access Points, Base Stations, transmission equipment, etc.*
- *This does not include passive equipment (ducts, batteries, towers, etc).*



3.0 The Importance of Standardisation

➤ **Electrical & Electromagnetic Safety:-**

- *Electrical Standards; e.g. 220/240 VAC, 50/60Hz Power Supply for Tanzania;*
- *International Electromagnetic Compatibility Standards*

➤ **Minimises Equipment damages & Interferences:-**

- *Operation within Limits of Standardised Parameters*

➤ **Facilitates effective monitoring of QoS/QoE performance**



The Importance of Standardisation (2)

In a nutshell Equipment/Systems Standardization:

- ***Ensures equipment/system compliance to specific standards. For example in respect to electromagnetic compatibility (EMC), the equipment/system***
 - ✓ *Does not emit spurious signals and emissions exceeding some permitted levels; and*
 - ✓ *operates under some low levels of electromagnetic fields*
- ***Ensures Equipment/Systems Interoperability***
 - ✓ *Equipment Connected to Public Networks need to Inter-work through Standardised Protocols*



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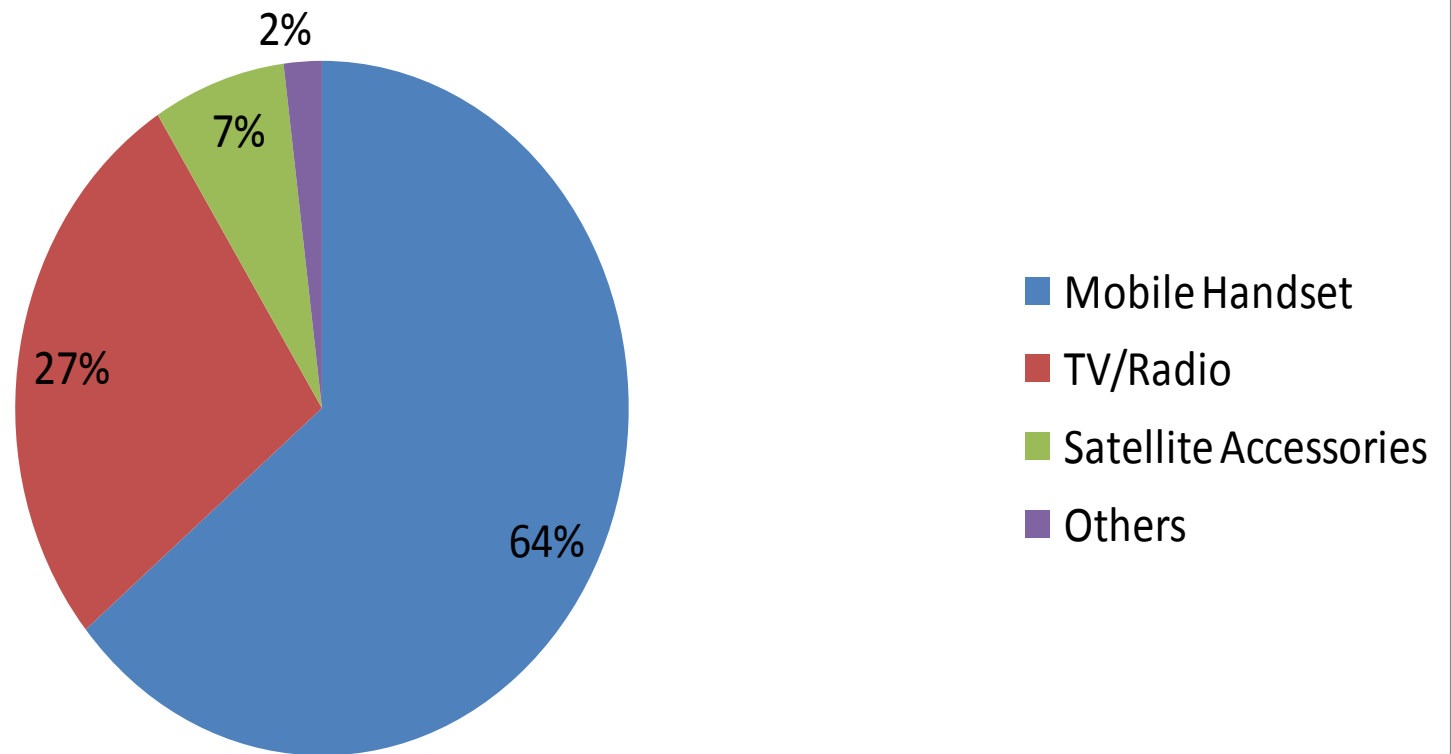
4.0 The Situation in Tanzania

- In the year 2007/8 the Authority conducted a Survey on available Communications Equipment countrywide;
- The Report (*not published*) showed that:-
 - *Most of the Equipment in the market were **counterfeited** Equipment with Fabricated Labels attached to them (Brand Names, S/N, etc);*
 - *The Labels could not guarantee quality and authenticity of the equipment;*



The Situation in Tanzania (2)

Communications Equipment Market Share



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The Situation in Tanzania (3)

After the Survey, as Enforcement strategies...

- Preparations of legal document was initiated and in 2012 a new Law (The Electronic and Postal Communications Act No. 3/2010) was enacted;
 - ✓ Empowers the Authority to establish Technical Standards for any Equipment to be Connected to any Public Network;
 - ✓ Makes it Mandatory to Type Approve any Communications Equipment to be connected to any Public Network;
 - ✓ Empowers the Authority to undergo Equipment Certification Process, **including Testing of such Equipment.**



The Situation in Tanzania (4)

After the Survey,

- The country through **TCRA** and in consultation with **ITU**, embarked on a plan to establish a Type Approval Laboratory (**TAL**) Project by initiating consultancy procurement processes to conduct the feasibility study for the project;
- The Consultants in February 2011 concluded the consultancy services for Feasibility Study on the Establishment of Electronic communications Equipment Type Approval Testing Laboratory in Tanzania.



The Situation in Tanzania (5)

- **The Study declared the TAL project naturally viable;**
- The estimated Cost to fully roll-out and operationalize the facility is about **Euro 27 million;**
 - ✓ *However, taking into considerations the priorities and the required time to build the Modern Type Approval Laboratory in Tanzania, the Study proposes a **Four Phased** approach and each phase will grow in terms of **equipment** and **human resources requirements***

The proposed Four-Phased approach

Implementation Approach	Laboratory Functions & Equipment Covered
PHASE 1:	Conformance [DVB-T/T2 & Mobile Terminals; Efficient use of RF spectrum]
PHASE 2:	EMC (Emission); Health & safety; Conformance (DVB-C, S/S2; Analogue, FM, T-DAB Transmitter; Quality Measurements; IP-based Networks; NGN)
PHASE 3:	EMC (Immunity), Conformance (Base Stations, Network Equipment, Legacy Network equipment)
PHASE 4:	Expansion of the TAL Services to the entire African region or part of

The Situation in Tanzania (6)

➤ The Tanzania TAL Housing concept



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The Situation in Tanzania (7)

➤ **The Tanzania TAL will provide:**

- *Hands-on Training opportunities in the region;*
- *Capability to verify Equipment Specifications;*
- *Collaborative avenue with other Equipment Certifying or Accreditation Bodies in the world; and*
- *Means to do spot check for imported communications equipment not only in the country but also in the East African Region and beyond.*



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The Situation in Tanzania (8)

Further, the Tanzania **TAL** will

- *Serve as a way of implementing the ITU-T **WTSA-08** (Johannesburg) **Resolution 76** (Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU mark programme); and*
- *Help to reduce counterfeit Communications Equipment in the country and therefore maintain better **QoS** and **QoE**.*



The Situation in Tanzania (9)

As an update on the current Status.....

- Recognising the ‘ **...Start Small but Think Big ...**’ as a promising concept, TCRA has plans to start the project (**PHASE 1**) using own sources of funding to cater for part of the required finances by establishing a Mini-TAL within its premises



- The estimated cost for **PHASE1** is about **Euro 8 million.**

The Situation in Tanzania (10)

As an update on the current Status.....

- To kick-start, TCRA has published its General Procurement Notice 2012/13 that is available at:

<http://www.tcra.go.tz/tenders/GPN2012-13.pdf>

- ✓ *Supply, Installation and Commissioning of Type Approval Laboratory Equipment;*

Tender No. AE-02/2012-13/G/35

- ✓ *Renovation of Room for TAL;*

Tender No. AE-020/2012- 13/W/40



5.0 Challenges

- Generally, User Awareness and Low purchasing power in our countries, lead to opting for low quality (mostly counterfeits) communications equipments;
- **Establishing TAL is an expensive undertaking but a necessity;**
- Technology Neutrality Vs product/Innovation life cycle stages.



6.0 Invitation for Partnerships

- Implementation of the Communications Equipment Type Approval Laboratory – **TAL** is one of the strategic decision in Tanzania, but the **ITU** and other **UN** families like **UNIDO** are invited to extend their helping hands in order to share the implementation costs;
- Considering the common markets in various country groupings (blocks) like East Africa, West, South, etc., the Test Centre(s) should be a regional agenda that needs high level of collaboration including using services and facilities as they become available within the region.



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7.0 Concluding Remarks

- It has been said, Conformance testing measures how accurately a product implements a technical specification. So, equipment standards play an important role towards achieving overall quality of services as perceived subjectively by end users;
- Standards are important to ensure not only consistent performance of communications networks, but safe operations of communications equipment and value for money to end users;
- Tanzania through **TCRA** would wish to keep all available equipment in multi-vendor environment interoperable;



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