



The background features a large, light blue watermark of the International Telecommunication Union (ITU) logo. It consists of a globe with latitude and longitude lines, a satellite dish, and the acronym 'ITU' in a stylized font.

# **Effect of Counterfeit ICT Devices on Quality of Service Delivery**

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

# Outline

1. ITU-T SG11 and Achievement of Q15/11
1. Effect of Counterfeit ICT Devices
2. Measures to combat Counterfeit - NCA
3. Challenges
4. Recommendations

# Q15/11 achievements

- ❑ Q15 is now the most rigorous one
  - ❑ Also attended by WTO, WCO, WIPO, MMF on Counterfeiting
- ❑ WTSA-16 (Hammamet) Resolution 2 mandated SG11 to be the lead study on Counterfeiting & stolen Devices
- ❑ WTSA-16 revised the ToR of SG11 to include addressing ICT Counterfeiting
- ❑ SG11 has published two technical reports on Counterfeit ICT Devices
  - ❑ Technical report of counterfeit ICT Devices (Dec 2015)
  - ❑ Survey Report on Counterfeit ICT Devices In Africa (Feb 2017)
- ❑ Four 4 draft recommendation/technical reports are being developed
  - ❑ Framework for solutions to combat Counterfeit ICT Equipment
  - ❑ Technical Report - Guidelines on Best Practice and Solutions for Combating Counterfeit ICT Devices
  - ❑ Technical Report on Methodologies and use cases for combating the substandard and unauthorized telecommunication/ICT devices

# Effects of Counterfeit ICT Devices

- ❑ With appearance similar to the original, fake phones have become even more attractive with enabled services & functionalities;
  - ❑ multiple SIM
  - ❑ television tuners.
  - ❑ chatting,
  - ❑ browsing,
  - ❑ video calling
  - ❑ money transfer etc



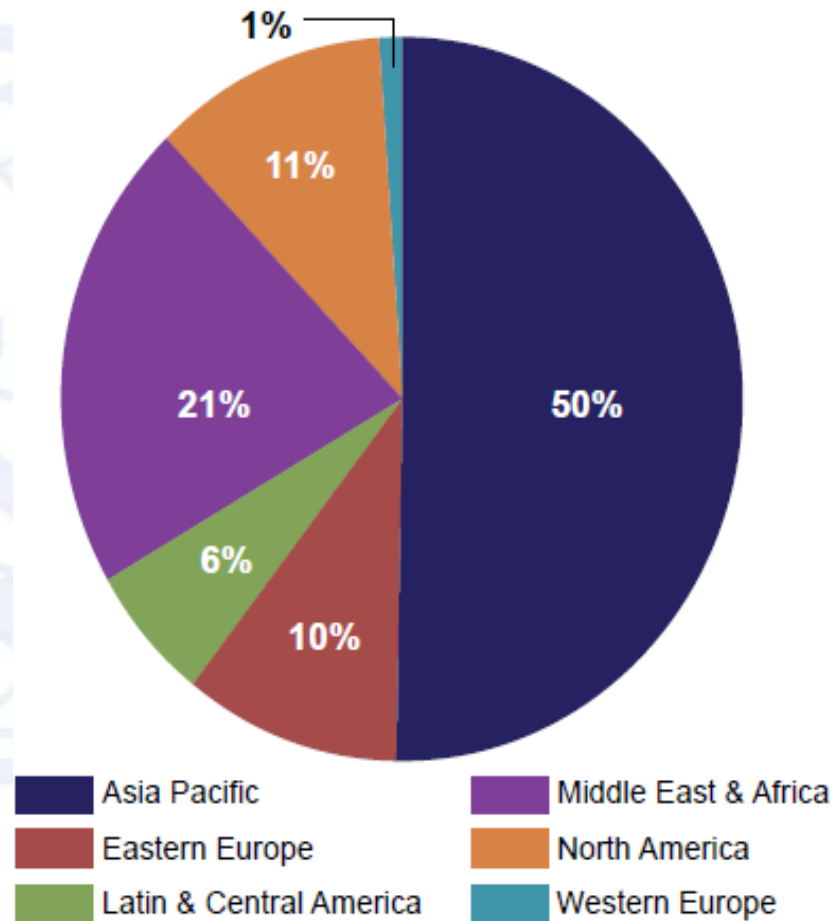
# Effects of Counterfeit ICT Devices

- ❑ But people are ignorant of the effects of fake phones
  - ❑ Health and Safety
  - ❑ Environment
  - ❑ Quality of service delivery
  - ❑ interference and harm to public networks
- ❑ The motivation is that they are affordable and can easily be bought on the streets
- ❑ Only interest is to communicate with friends and relatives regardless of device used.



# Regional Distribution of Counterfeit Devices

A recent study by ARCchart, however, provides a starting point for determining the potential size of this problem. Specifically, the study concluded that in 2011 the number of counterfeit/substandard handsets sold globally was 125 million and this amount is expected to be 148 million units in 2013. According to ARCchart, Asia Pacific is the region with the largest proliferation of these handsets followed by Middle East and Africa, North America, Eastern Europe, Latin & Central America and Western Europe (see figure below).

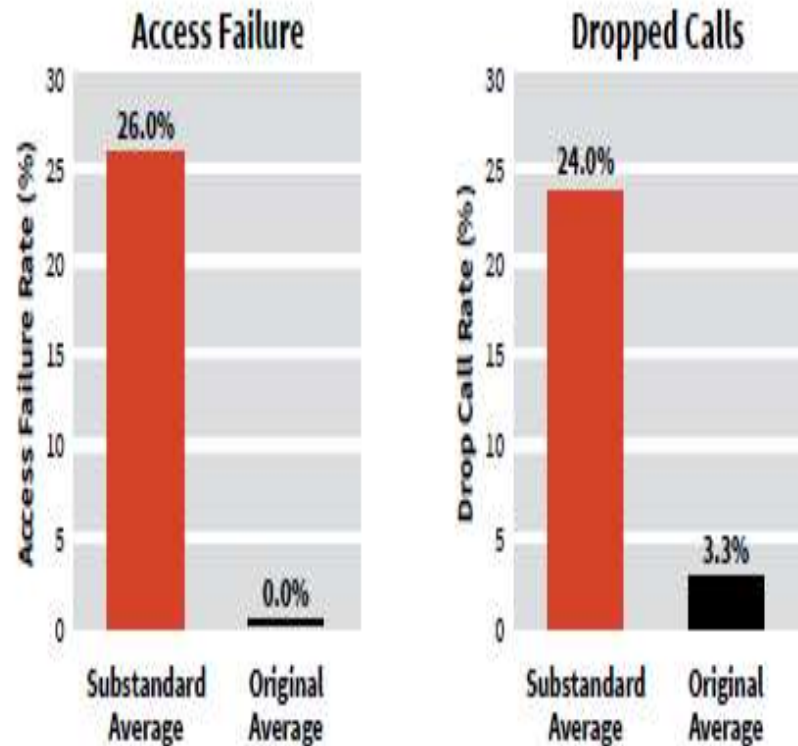




## Some empirical figures: Counterfeit Mobile Devices & their effects on QoS delivery

### Access Failure and Dropped Calls

- Operators typically evaluate service quality by monitoring access failure and dropped calls:
- **Access Failure:** This category measures call attempts that fail in the network.
- **Dropped Calls:** This category measures ongoing calls that are undesirably interrupted (disconnected) from the network.
- **Results:** On both test categories, counterfeit/substandard phones performed significantly inferior to original phones with access failures and dropped call values of 26% and 24%, respectively.



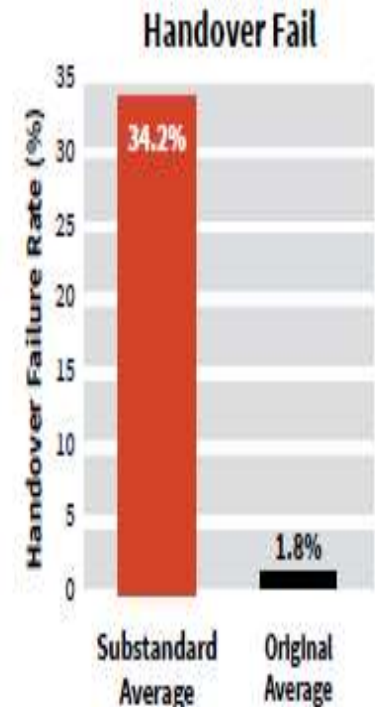
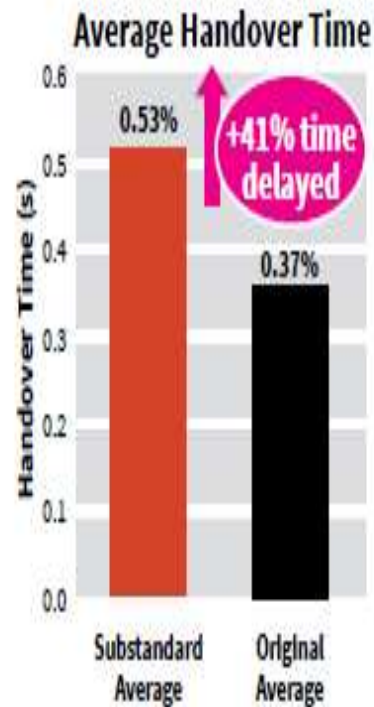
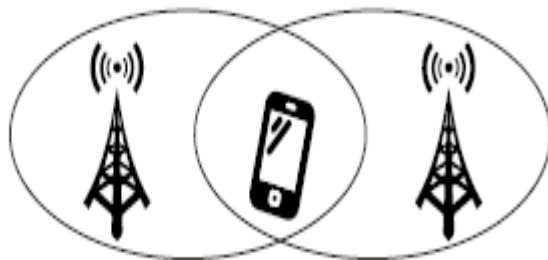


# Some empirical figures: Counterfeit Mobile Devices & their effects on QoS delivery

## Handover Performance

- Successful phone mobility depends on the process of transferring the call from one antenna coverage to another.
- This mechanism is called **handover** and should be as quick as possible. If handover is delayed, the handover can fail and the call can be terminated (ie. dropped).

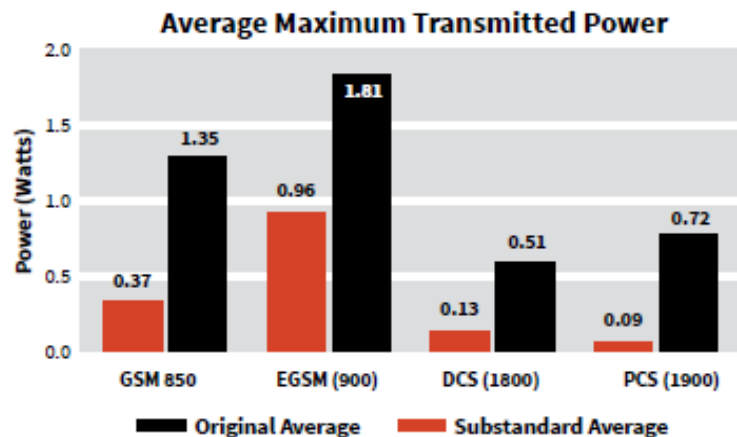
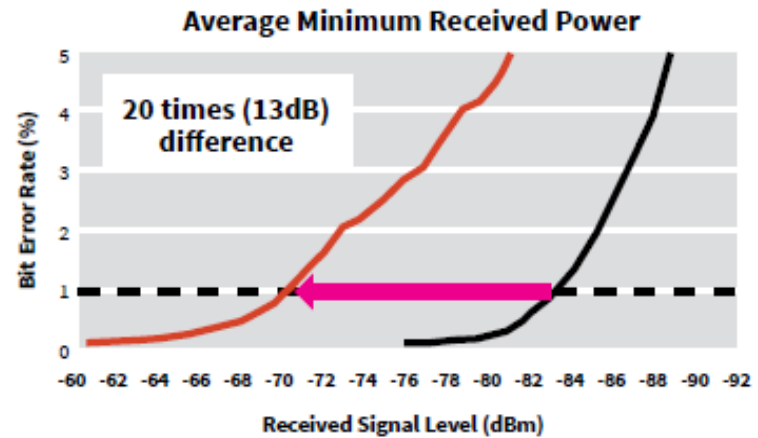
How mobility works



# Some empirical figures: Counterfeit Mobile Devices & their effects on QoS delivery

## Transmission Power Capabilities:

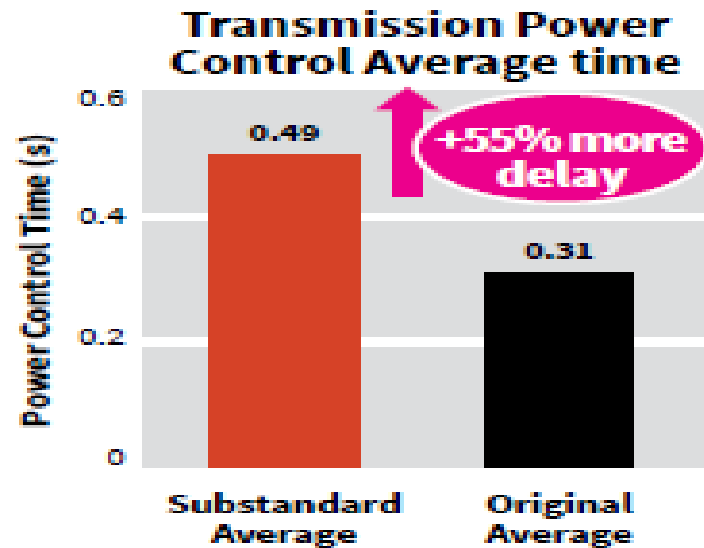
- Transmission power is critically important because it affects geographical coverage as well as quality of connection to the network.
- Maximum distance for coverage is restricted by phones:
  - **Minimum received power** from antenna tower.
  - **Maximum transmission power** to be listened by antenna.
- Maximum distance from antenna tower to phone decreases 57% for a counterfeit/substandard phone to maintain connection (voice call).



# Some empirical evidence about Counterfeit ICT Devices & their effects on QoS delivery

## Transmission Power Control: Should my phone transmit high or low?

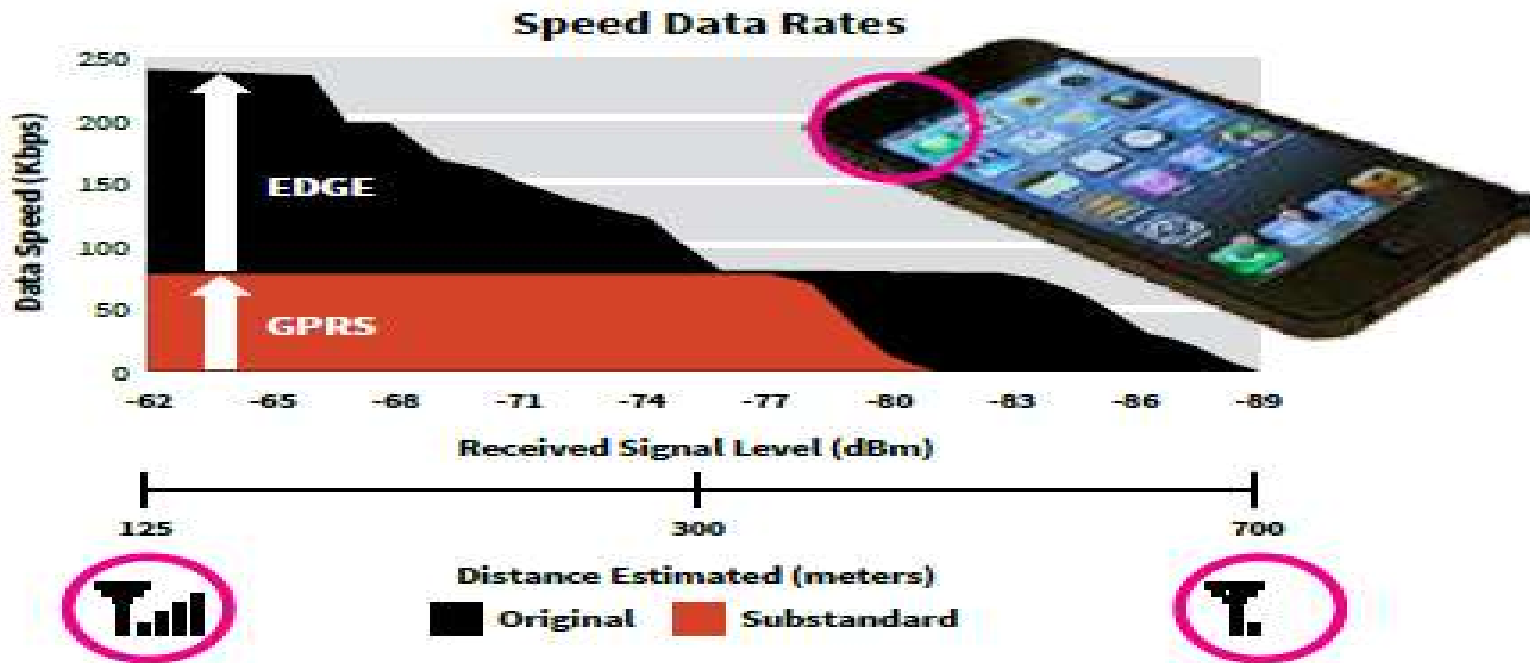
- Phone transmission power needs to be controlled.
- Control mechanism needs to be executed with minor delays.
- If too much power transmitted, handset will interfere with the other phones and if transmits too little, it will degrade its own service.



# Some empirical evidence about Counterfeit ICT Devices & their effects on QoS delivery

## How fast is my internet access?

- The speed of internet access is related to technology (GPRS and EDGE) available and the quality of receiver.
- Most substandard phones tested do not support EDGE technology which allows us around 200kbps.



## Other impacts

- Cyber-security related threats;
- Facilitating drug trade, terrorism, and other local and international criminal activity
- Jeopardizing consumer privacy;
- Impairing safety of digital transactions;
- Damaging the trademarks of genuine manufacturers
- Evading applicable taxes and duties thus affecting government tax coffers.

# How the NCA is Tackling Counterfeit?

## *New Type Approval Management System*

- Done partly through our Type Approval Process;**
  - A proof by a manufacturer or its Authorised agent of a product that specific essential technical and regulatory requirements related to the product have been fulfilled**
  
- The minimum essential technical requirements are to meet the objectives of;**
  - International, Regional and National Standards adoption**
  - Environmental, Health and Safety Standards**
  - Proof of Genuineness**
  - Electromagnetic Radiation and Emissions**
  - Radio Frequency requirements**
  - Network Compatibility/Interoperability**



# Regulatory requirements

- Manufacturers or their Authorized Agents require Type Approval Certificate to manufacture, assemble or sell any Electronic Communication Equipment (ECE) in Ghana.**
- Dealers are also required to deal in only Type Approved and Genuine ECE.**
- Approved Equipment models come with NCA Type Approval Certificate (TAC)**
- Importers must inform the NCA of any ICT equipment importation into the country for checks, TAC and final clearance**
- Two levels of clearance**
  - Customs Clearance
  - Regulatory Clearance





# Regulatory requirements

- TAC must always be displayed and visible to the public
- All communication equipment coming into the country must be inspected and passed by NCA
  - Destination Inspectors go to the point of entries for inspection
- Market Surveillance is a part of the process.

# Challenges

- ❑ **Our TAC is based on manufacturer's own test results, SDoC or from recognized/accredited 3<sup>rd</sup> party testing labs**
- ❑ **Independent verification and market surveillance are required to provide assurance that the products category/model sold in the market have met the requirements of the Authority and may not be counterfeit.**
  - ❑ Lack of testing labs or access to databases for verification, market surveillance & enforcement make it a challenge.
- ❑ **Porous port of entries and un-approved routes**
  - ❑ Counterfeiters have taken advantage
- ❑ **Less consumer education on effect of buying counterfeit ICT devices**
- ❑ **Issue of affordability of high end devices; mostly the reason for buying counterfeits**
- ❑ **Fact that counterfeiters have contributed to the high mobile phone penetration and universal service/access, particularly in developing countries.**

# Some recommendations

- We need testing laboratories in the Region**
  - PPP should be encouraged
  - Market opportunities for ICT testing in the Sub-region
  - Ghana's SAR and RF labs could be used as regional testing hub.
  
- There should be regional coordinated effort in combating ICT Counterfeiting**
  - ATU/WATRA must spearhead

# NCA web sources related to Type Approvals

- ❑ [portal.nca.org.gh](http://portal.nca.org.gh)
- ❑ [www.nca.org.gh](http://www.nca.org.gh)
- ❑ **Type Approval Guidelines**

## ❑ **Contacts**

- ❑ [Typeapproval@nca.org.gh](mailto:Typeapproval@nca.org.gh)



# References

1. Technical Report of Counterfeit ICT Equipment, ITU, November, 2014
2. Counterfeit and Substandard Mobile Phones- A Resource Guide for Government



# THANK YOU