



Espresso . Guinea

experience in tampering of IMEI identifier

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GENEVA

ITU

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Introduction



- ▶ Espresso formally established a corporate office in 2007, operating in the heart of Dubai. We are regulated by the Dubai International Financial Centre (“DIFC”). But really, we are an African telecommunications and information services company – an African brand for the people of Africa.
- ▶ Despite our relatively short history, we are really proud of our achievements. Now we’re focused on evolving and growing our existing business, and delivering returns to our shareholders. We currently have over 500 employees across our three commercial operations in Senegal, Mauritania and Guinea.
- ▶ We offer a wide range of products and services to meet the needs of our customers. Our telecommunications services currently provide coverage in three African markets through both our fixed and mobile network infrastructure, servicing our business customers.

Abstract

- ▶ The increase of counterfeit mobile phones in wireless networks on emerging markets is one of the reasons for the degradation in spectral efficiency. The motivation of this PPT is to have a better understanding of the impact of counterfeit phones on network performance and present a solution to identify these mobile devices. Several laboratory tests and implementations emulating a real cellular coverage were performed. Results showed that counterfeit phones have degraded quality service for the user and also impact other subscribers (14 dB sensitivity difference from the original). Additionally, higher dropped calls and access failures rates (up to three times more) were observed. A new method that can identify, notify the user of, and block counterfeit devices was implemented and tested in the laboratory.

The Facts

- ▶ The management of ME identities is achieved via the use of black, white and grey lists on the Equipment Identity Register (EIR) and the Central Equipment Identity Register (**CEIR**). The integrity of the IMEI is the critical factor in the viability of **CEIR** and EIR equipment and associated processes.
- ▶ The **IMEI** shall uniquely identify each individual unit of ME . As per **GSM 03. 03 / 3GPP 23.003, GSM 02.03 / 3GPP TS 22.016**, the IMEI shall not be changed after it is programmed into the device. It shall resist **tampering**, i.e. manipulation and change, by any means (e.g. physical, electrical and software).
- ▶ Where repairs necessitate the replacement of the components that contain the IMEI a new IMEI shall be used. No means should be provided to replicate the IMEI in new hardware or components. Therefore spare parts with IMEI hardware should be allocated a unique IMEI. When the IMEI have been replaced in this manner the recycling of the now disused IMEI is not permitted.

The Thoughts

There are a number of guidelines that must to be adhered to if the IMEI is to be successfully implemented allowing the use of EIR and CEIR equipment. As an MNO (i.e Espresso) Tampering the IMEI Failure to do so will make it impossible to implement EIR and CEIR equipment effectively and remove the ability to identify equipment types and to take any appropriate action if required. It is in the interests of the whole GSM industry that the integrity of the IMEI is maintained.

The Case

As an MNO (Expresso), conducted an looked in 20 tampered IMEI Smartphone (7 all 0s, 3 all 1s, 10 all 5s) along side with 20 original Smartphone different vendors in one of our urban BTS area in guinea, and we start our investigation in voice and data quality of service prospective as well user experience, in shorten words the result found that there is huge lose in voice and data capacity alongside the drop calls happened in all the manipulated IMEI devices

The Cons

(Bad for business)

- ▶ Quality of Service (congestion and drop calls)
- ▶ Business (marketing due to QoS)
- ▶ Security (subscriber)
- ▶ Safety (SAR)

The end

- ▶ Our main result and out puts and recommendation :
 - ▶ Lowering **QoS** of mobile telecommunication services (loss in voice and data capacities, data transmit speeds, reduced coverage)
 - ▶ Encourage MNO on national base to share national counterfeited IMEI By
 - ▶ potential interference and EMC problems
 - ▶ need of expensive and unnecessary technical measures (more antenna installations, base stations and the need of more spectrum)
 - ▶ Combat and deter counterfeit device may long term positively rise MNO market value and Brand name

Thank you