# Assessment of Electromagnetic Radiation Levels from Selected Mobile Telephones used in Kenya

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**A thesis submitted in partial fulfillment for the Degree of Master of Science in Physics in the Jomo Kenyatta University of Agriculture and Technology**

**2011**

## ABSTRACT

The use of mobile phones in Kenya has escalated in the recent past. This has increased the general population exposure to mobile phone radiation. Numerous mobile phone manufacturers, producing different handset models with varying qualities, have also emerged. Consequently, this has raised many concerns over the level of the radiation transmitted from these devices as well as the effect of their physical condition under different exposure conditions, and the effectiveness of anti-radiation filters in suppressing the said emissions. In this regard, the intensity of radiation around various GSM phones has been measured using broadband radiofrequency meter and spectrum analyzer, and the results assessed based upon the established international safety standards on non-ionizing radiation. The radiation levels from the 22 selected mobile phones ranged from 0.0113 to 0.4669 $mWcm^{-2} \pm 5.773\times10^{-5}$ $mWcm^{-2}$ with the highest from Nokia Series N95 and lowest from Nokia 1110. These radiation levels are all within the FCC recommended exposure limits, and only N95 is above ICNIRP reference level. It has further been established that high radiation intensities from a transmitting handset appear between the dial and reception of a call. The use of different anti-radiation filters in abating mobile phone radiation has also been found effective, but with different degrees of efficiencies of which none meets the 99% efficiency asserted by the respective manufacturers. It has also been established that the radiation levels from a mobile phone are affected by the physical condition of the body. The intensity of radiation from a naked handset, for instance, was found to be higher than that of a well covered handset. Only 20% of the mobile phones under study were compliant to the regulations regarding the International

Mobile Equipment Identity (IMEI); 80% of handsets were however found to contravene such standards.