Contribution ID: **59** Type: **not specified**

What do we know about 5G Wireless Communication and Health Effects?

The introduction of the fifth generation (5G) of wireless communication will increase the number of high-frequency-powered base stations and other devices. The question is if such higher frequencies (here, 6–100 GHz, millimeter waves) can have a relevant health impact. Here, around 100 relevant publications were deeply analysed performing in vivo or in vitro investigations. Each study was characterized for: study type (in vivo, in vitro), biological material (species, cell type, etc.), biological endpoint, exposure (frequency, exposure duration, power density), results, and certain quality criteria. Eighty per cent of the in vivo studies showed responses to exposure, while 58% of the in vitro studies demonstrated effects. It has to be pointed out that about half of the studies are in the range up to 10 mW/cm2 (ICNIRP limit 1 mW/cm2) and the responses affected all biological endpoints studied. Based on these data, there is no indication that higher power densities would cause more reactions, since the percentage of reactions in all groups is already 70%. However, there was no consistent relationship between power density, exposure duration, or frequency, and exposure effects. In summary we can say, that the available studies do not provide adequate and sufficient information for a meaningful safety assessment, or for the question about non-thermal effects. There is a need for research regarding local heat developments on small surfaces, e.g., skin or the eye, and on any environmental impact. Our quality analysis shows that for future studies to be useful for safety assessment, design and implementation need to be significantly improved.

type of presentation

invited

Primary author: Prof. SIMKO, Myrtill (SciProof International AB)

Co-author: Prof. MATTSSON, Mats-Olof

Presenter: Prof. SIMKO, Myrtill (SciProof International AB)

Session Classification: Session 1.2 5G Technology

Track Classification: THZ BIO Abstracts