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Nordic Appeal: More Stringent Regulatory Framework on Microwave Radiation from Wireless Technologies is Needed - Stop Further Rollout of 5G

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1. Abstract

In recent years, people's exposure to pulsed radiofrequency (RF) or microwave radiation from wireless technologies has exploded, mainly due to the roll-out of 5G. In addition to more base stations, millions of so-called smart water and electricity meters are being installed. This technology is forced upon people near or in their own homes, despite a complete lack of research showing that 5G and wireless water and electricity meters are not harmful to human health. At the same time, the first two studies to date on the effects of 5G have shown that 5G base stations cause adverse health effects in humans and that radiation similar to 5G damages neurons in the brain in animal experiments. The brain damage observed could eventually lead to Alzheimer's and other neurological diseases. In parallel with this explosion in radiation exposure, guidelines for permissible radiation are still being applied based on a seriously outdated approach. These guidelines only protect humans from harmful effects resulting from extreme intensive exposure that causes acute warming of the body. This means that people are completely unprotected from a range of harmful effects, such as cancer, DNA damage, oxidative stress and neurological effects that the science has repeatedly shown occur at levels well below these guidelines. They offer no protection whatsoever against harmful effects on biodiversity. Given what is known today about the risks of this technology, it must be considered a violation of human rights to impose this harmful radiation on people in their own homes without their informed consent. More stringent regulatory framework on microwave radiation from wireless technologies is urgently needed. In the meantime, further rollout of 5G must be stopped.

2. Introduction

The authors represent organizations that have performed own investigations on RF radiation or follow the research in this field. We are constantly receiving new testimonies from people who have suffered from ill health after 5G base stations have been installed in their vicinity or after wireless water and electricity meters have been installed in their homes. We are concerned about serious con-

sequences for human health and the environment from the increasing exposure to microwaves/RF radiation.

Measurements carried out in the spring 2021 as part of an international collaborative project showed that radiation in cities has increased significantly, with peak values (pulses) reaching between 200 000 and over 1 million microWatts per square metre (μW/m²) [1]. Another study reports that peak levels over 2 million μW/m² have been measured at the Skeppsbron in Stockholm, Sweden [2]. These are values that far exceed the levels known to cause adverse effects on human health, early known as the microwave syndrome [3,4]. In the first case study to date of the health effects of 5G, it was observed that 5G caused an extreme increase in radiation in a dwelling directly below a 5G base station. Radiation increased with maximum peak level from 9,000 to >2,500,000 μW/ m² [5]. There is a complete lack of research showing that these high levels do not cause ill health with prolonged whole-body exposure.

3. Harmful Effects

5G is being rolled out, forcibly exposing people to microwave radiation in their own homes without informed consent, despite a complete lack of research showing that 5G is safe for human health.

The first studies on the impact of 5G were recently published, after deployment had been on-going during two years. Both showed serious effects. The first, a case study, showed that a 5G base station caused an extreme increase in microwave radiation in an apartment. Residents suffered typical symptoms of exposure to microwave radiation within a few days, including severe sleep disturbances, dizziness, skin complaints, concentration problems, tinnitus, impaired short-term memory, confusion, fatigue, tendency to depression, heart and lung symptoms, heart palpitations, and heaviness across the chest [5]. These symptoms were shown in research already 50 years ago as an effect of exposure to microwave radiation and have been referred to in the scientific literature as the microwave syndrome [4].

The second study on the effects of 5G was published in October 2022. The study showed that experimental animals exposed to 5G frequency 3,5 GHz (GSM modulated) had an increased incidence of damage to neurons and increased oxidative stress in the brain. These are effects that could eventually lead to degenerative diseases such as dementia, according to the researchers. In addition, hormones, which have a protective effect on the brain, were negatively affected [6].

The scientific review of the available science commissioned by the European Parliament has found that RF radiation used in wireless technologies ”are probably carcinogenic to humans”, “clearly affect male fertility”, and “possibly affect female fertility”. Further, the review concluded that these frequencies “possibly have adverse effects on the development of embryos, foetuses and newborns” [7]. Research has extensively shown that RF radiation from previous generations of wireless technology causes oxidative stress, DNA damage, cancer, harmful effects on blood, sperm, nerves, the brain, altered behavior, and an increased risk of brain tumours, acoustic neuroma, and thyroid cancer from mobile phone use [8-10].

4. Consequences for Wildlife

The ongoing dramatic increase in human exposure to microwave radiation from wireless technologies is expected to lead to serious consequences in terms of deteriorating public health and harmful effects on plants, insects, birds and other animals. Research is increasingly showing that radiation is harmful to humans and other biological life at levels well below those approved by the responsible Nordic authorities. Research reports have concluded that the increasing radiation in our environment can cause catastrophic consequences for wildlife, especially birds and insects [11].

5. Outdated Recommendations

Scientists, doctors and elected officials have been calling for years on governments to reconsider current thermal (heating) based guidelines as they are seriously inadequate to protect against demonstrated health risks. Adequate science based exposure limits must be introduced allowing only much lower exposures, no more than 1-100 μW/ m² [12], thus far below the current guidelines of 10 000 000 μW/ m² averaged over 6 minutes.

Sixteen scientists joined under the new International Commission on Biological Effects of Electromagnetic Fields, ICBE-EMF, concluded that current guidelines developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and recommended by the EU, the WHO, and adopted by most countries over the world, are based on outdated and erroneous assumptions. The main invalid assumption being that radiation can only harm health if it is so intense that it heats up tissue within a very short time. Many harmful effects have been shown at levels well below the ICNIRP guidelines. ICBE-EMF therefore concluded that RF radiation “continue[s] to present a public health harm” [8].

6. Appeals for Better Protection

In 2017, the 5G Appeal to EU was launched (www.5Gappeal.eu). The appeal, which is currently signed by 430 medical doctors and scientists from around the world, asks policymakers to halt 5G deployment because of the risk of serious human health consequences until the risks have been investigated by scientists with no ties to industry [13].

The EMF Scientist Appeal was launched in 2015 (www.emfscientist.org) and is currently signed by 258 scientists from this field of research. They call for better protection of the general public by strengthened guidelines and regulatory standards and furthermore by informing the public and the medical profession about the risks.

In 2011, the Parliamentary Assembly of the Council of Europe made a recommendation that member states should strive to keep

radiation levels in society as low as possible, and to reduce the permissible radiation limit to 100 μW/ m² from the current extremely high guidelines from ICNIRP 2020. The ICNIRP allows exposure to be as high as 10 000 000 μW/m² whole body exposure averaged over 30 minutes and 40 000 000 μW/m² local exposure averaged over 6 minutes [14,15]. Children and other vulnerable people should be given special protection. Governments were also urged to ensure that the public is widely informed about known risks [16].

7. Risks and the Need for Stronger Protection are Ignored

Despite the accumulating scientific evidence of harmful effects and repeated appeals from the scientific community, the medical profession, elected representatives, and the responsible authorities continue to ignore the increasing evidence of clear risks. They argue that the current guidelines, which allow people to be exposed to radiation that science has shown to be harmful, would be sufficient to protect them. In support of their position, the authorities rely on a rather limited group of experts that are not representative of the scientific community at large. The majority of them have conflicts of interests in terms of ties to the telecom companies or membership of the ICNIRP that recommended the inadequate guidelines [14,17].

8. Call for Urgent Measures

1. New guidelines must be developed to protect against all demonstrated health and environmental risks at levels far below current reference values. This must be done with the help of experts who are free from ties to the concerned industry, and with representatives from the vast majority of scientists who have concluded that the risks are considerable at levels well below the ICNIRP guidelines.

2. 5G deployment must be halted until an independent commission has investigated the risks. Again, the risk assessment of 5G must be carried out by experts who are free from ties to the concerned industry or to the ICNIRP, and with representatives from the part of the scientific community that have identified the risks as significant.

3. In order to prevent injuries, risk education must be organized at all levels of society. This applies, for example, to health care, schools, nursery schools and the general public.

4. Best available techniques must be used to protect human health and the environment. Priority must be given to wired technologies that minimize harmful radiation.

9. Conclusion

There is now clear evidence that the ICNIRP guidelines [13,14] are not adequate scientific basis for the protection of health and the environment for exposure to RF radiation. Not only heating (thermal) but also non-thermal effects need to be taken into account in risk evaluation. RF radiation not only causes tissue heating, as ICNIRP claims, but many other serious biological effects far below ICNIRP's tissue heating thresholds. New policy must consider long term total radiation and signal complexity including aggregations of pulses [18], and taking full account of long term, non-thermal harmful effects. For a sound scientific evaluation, a new committee comprised of qualified scientists independent of industry is urgently needed.

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