



13 Marzo 2024

Letter of support for the 6x6 Network Appeal opposing the new Italian law that increases radiofrequency radiation (RFR) exposure limits.

We are contacting you on behalf of the International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF.org), an international organization composed of scientists, engineers, physicians and others, who are dedicated to ensuring the protection of humans and other species from the harmful effects of non-ionizing radiation. Our primary purpose is to make recommendations, based on the best scientific peer-reviewed publications, that include and go beyond setting guidelines on numerical exposure. We are totally independent of industry while promoting technological solutions that protect human health.

**We fully support the Appeal that you have received from the 6x6 Network opposing the new law, issued on December 30, 2023, by the Italian Parliament, pursuant to Article 10 of Law No. 214, which raises radiofrequency human exposure limits.**

We agree with the scientists, physicists, engineers, and doctors who signed the 6x6 Network Appeal, that this new law violates the rights of individuals, their health and environmental quality. As the industry pushes the expansion of wireless exposures into its 5th generation, only a few studies on the biological and health effects of the frequencies and pulsations used by these new systems have been performed. The experience we have from previous generations (1G-4G) indicates that the current exposure limits that were established approximately 25 years ago were based on a behavioral effect in experimental animals that was observed after short-term exposures (up to one hour). Long-term effects of electromagnetic radiation that are of public health concern have been ignored by ICNIRP in their guidelines for limiting RFR exposures.

Increasing exposure limits from current limits that were approved over two decades ago puts the short-term commercial interests of wireless companies above the health and well-being of people and all of nature in Italy. What new information about RFR has become available that justifies increased levels of permissible human exposure to this form of radiation?

Increasing exposure limits does not make sense from a health perspective. In places like Sweden, where 5G is in operation, there are now considerably higher levels of RF radiation due to 5G. Measurements in the residences of the nearby 5G towers have been professionally tested to show 20-35 V/m (peak) and immediate diseases have been documented in eight case studies<sup>i</sup> among people living in these homes. The exposure conditions in those studies should be contemplated in Italy by the new Italian law for the increase of RFR exposure limits. These early studies need to be taken seriously as they provide evidence that people are suffering harm from these increased exposures. Actions should be taken to protect the population.

In 2023, ICBE-EME published a paper titled "Scientific Evidence Invalidates Health Assumptions Underlying FCC and ICNIRP Exposure Limit Determinations for Radiofrequency Radiation: Implications for 5G,"<sup>iii</sup> We are reporting that the current exposure limits set by ICNIRP and FCC are based on invalid assumptions<sup>iii</sup> and continue to present harm to public health. Long-term adverse effects observed at exposures below the assumed SAR (Specific Absorption Rate) range include nonthermal induction of reactive oxygen species, DNA damage, cardiomyopathy, carcinogenicity, sperm damage, and neurological effects, including electromagnetic sensitivity and microwave syndrome. In addition, multiple human studies have found statistically significant associations between RFR exposure and increased brain and thyroid cancer risk. ICBE-EMF recognizes these associations and is calling for greater health protection. We have also proposed engineering solutions that the industry can easily adopt to make use of the mobile phone safer<sup>iv</sup>.

As a result, the current exposure limits encouraged by the World Health Organization and ICNIRP, which are being "harmonized" by Germany and many other national governments around the world, are based on false assumptions of safety. They do not adequately protect workers, children, hypersensitive individuals, and the general population from short-term or long-term RFR exposures.

The industry has for a long time decreased the reported levels of wireless exposures by averaging the EMF strength above 6 minutes, a value justified only in the context of thermal effects. This average is misleading. Based on the pulsatile nature of the waveform of RFR emissions, peak exposure levels from all RFR emission sources can be more than 10 times greater than average levels over 6-minute intervals. As a result, the average time allows extremely short electromagnetic exposures from pulses to greatly exceed the permitted average. This is important because the human body reacts to very brief field impulses when their intensity crosses an activation level.

Urgently needed are protective wireless exposure limits for humans and the environment. These limits must be based on scientific evidence rather than on the industry's misdirected needs for expansion and on flawed safety assumptions. Your taking action is critical given the increasing exposure world-wide of exposure to populations and the environment to RFR, including novel forms of radiation from 5G telecommunications for which there are no adequate health effects studies showing that it is safe to expose humans to the levels allowed by the limits.

We hope that you will investigate our concerns and oppose this new Italian law that increases radiofrequency radiation exposure limits. We can provide additional information upon request.

Kind regards,

*Ronald L. Melnick*

[Ronald L. Melnick \(Mar 13, 2024 16:55 EDT\)](#)

Ronald L. Melnick

Chairman

International Commission on the Biological and Health Effects of Electromagnetic Fields

ICBE-EMF

*Elizabeth Kelley*

[Elizabeth Kelley \(Mar 13, 2024 15:14 PDT\)](#)

Elizabeth A. Kelley

Managing Director

International Commission on the Biological and Health Effects of Electromagnetic Fields

ICBE-EMF

---

<sup>i</sup> Hardell L, Nilsson M. Case Report: Microwave syndrome after installation of 5G emphasizes the need for protection from radiofrequency radiation. *Ann Case Report* 2023; 8:1112. DOI:10.29011/2574-7754.101112;

Nilsson M., Hardell L. Development of the microwave syndrome in two men shortly after the installation of 5G on the roof above their office. *Ann Clin Case Rep.* 2023; 8:2023:2378. <https://www.anncaserep.com/open-access/development-of-the-microwave-syndrome-in-two-men-shortly-after-9589.pdf>;

Hardell L., Nilsson M. Case Report: A healthy 52-year-old woman developed severe microwave syndrome shortly after installing a 5G base station near her apartment. *Ann Clin Med Case Rep.* 2023; 10(16):1-10. <https://acmcasereports.org/pdf/ACMCR-v10-1926.pdf>;

Nilsson M., Hardell L. 5G radiofrequency radiation caused the microwave syndrome in a family living close to base stations. *J Cancer Sci Clin Ther.* 2023; 7: 127-134. DOI: 10.26502/jcsct.5079203;

Nilsson M., Hardell L. A 49-year-old man developed severe microwave syndrome after activation of the 5G base station 20 meters from his apartment. *J Community Med Public Health* 2023; 7: 382. DOI: <https://doi.org/10.29011/2577-2228.100382>;

Nilsson M, Hardell L. Case Report: Both parents and their three children developed symptoms of the microwave syndrome while on a holiday near a 5G tower. *Ann Clin Med Case Rep.* 2023; V12(1): 1-7. <https://acmcasereport.org/wp-content/uploads/2023/12/ACMCR-v12-2046-1.pdf>;

Hardell L, Nilsson M. An woman aged 82-years-old, with electromagnetic hypersensitivity since almost four decades developed the microwave syndrome after SG base stations were installed in her vicinity - ethical principles in medicine are violated. *J Environ Science Public Health* 2024; 8: 1-8. doi:10.26502/jesph.96120200;

Hardell L, Nilsson M. An eight year old boy developed severe headache in a school close to a mast with 5G base stations. *Ann Clin Case Stud.* 2024; 6(1): 1093. <https://www.medtextpublications.com/open-access/an-eight-year-old-boy-developed-severe-headache-in-a-1582.pdf>

<sup>ii</sup> ICBE-EMF, *Scientific Evidence Invalidates Health Assumptions Underlying FCC and ICNIRP Exposure Limit Determinations for Radio Frequency Radiation: Implications for 5G.* *Environ Health.* 2022 Oct 18; 21(1):92. DO: 10.1186/512940-022-00900-9. PMID: 36253855; PMCID: PMC9576312.

<sup>iii</sup> Table summarizing the assumptions stated in the ICBE-EMF publication.

A) Effects of RE radiation at exposures below the putative SAR threshold of 4 W/kg.

Assumption 1) There is an exposure threshold for any adverse health effect caused by RF radiation; in the frequency range of 100 kHz to 6 GHz it is a whole-body exposure that exceeds an SAR of 4 W/kg. Any biological effect of radiation above the threshold exposure is due to tissue heating.

Assumption 2) The RF radiation is incapable of causing DNA damage other than by heating; there is no mechanism for non-thermal DNA damage.

Assumption 3) Two to seven exposures to RF radiation for up to one hour are sufficient to exclude

D) Individual variations in exposure and sensitivity to RF-EMF

Assumption 7) There are no differences among individuals, including children, in the absorption of RF-EMF and susceptibility to this radiation.

Assumption 8) There are no differences among individuals in their sensitivity to this RF radiation-induced health effects.

E) Applied safety factors for EMF-RF workers and the general population

Assumption 9) A 50-fold safety factor for the whole-body exposure to RF radiation is adequate for protecting the general population to any health risks from RF radiation.

---

adverse effects of RF radiation for any duration of exposure, including chronic exposure.

Assumption 4) No additional effects would occur from RF radiation with co-exposure to other environmental agents.

B) Factors influencing dosimetry

Assumption 5) Health effects are dependent only the SAR value; carrier wave modulations, frequency, or pulsing do not matter except as they influence the SAR.

C) Human brain cancer risk

Assumption 6) The multiple human studies that find associations between exposure to cell phone RF radiation and increases in brain cancer risk are flawed because of biases in the published case-control studies, and because brain cancer rates have remained steady since the use of wireless communication devices became widespread.

Assumption 11) Exposure of any gram of cube-shaped tissue up to 1.6 W/kg, or 10 grams of cube-shaped tissue up to 10 W/kg, (duration not specified) will not increase the risk of that tissue to any toxic or carcinogenic effects in the general population.

Assumption 12) Exposure of any gram of cube-shaped tissue up to 8 W/kg, or 10 grams of cubed-shaped tissue, (duration not specified) will not increase the risk that tissue to any toxic or carcinogenic effects in workers.

F) Environmental exposure to RF radiation

Assumption 13) There is no concern for environmental effects of RF radiation or the effects on wildlife or household pets.

G) 5G (5<sup>th</sup> generation wireless)

Assumption 14) No health effects data are needed for exposures to 5G: safety is assumed because penetration is limited to the skin ("minimal body penetration").

<sup>iv</sup>. Héroux, P.; Belyaev, I.; Chamberlin, K.; Dasdag, S.; De Salles, A.A.A.; Rodriguez, C.E.F.; Hardell, L.; Kelley, E.; Kesari, K.; Mallery-Blythe, E.; et al. *Cell Phone Radiation Exposure Limits and Engineering Solutions*. Int. J. Environ. Res. Public Health 2023, 20, 5398. <https://doi.org/10.3390/ijerph20075398>