ICBE–EMF
INTERNATIONAL COMMISSION ON THE BIOLOGICAL EFFECTS OF ELECTROMAGNETIC FIELDS

New Global Framework for the Protection of Human Health and the Environment from Nonionizing Radiation

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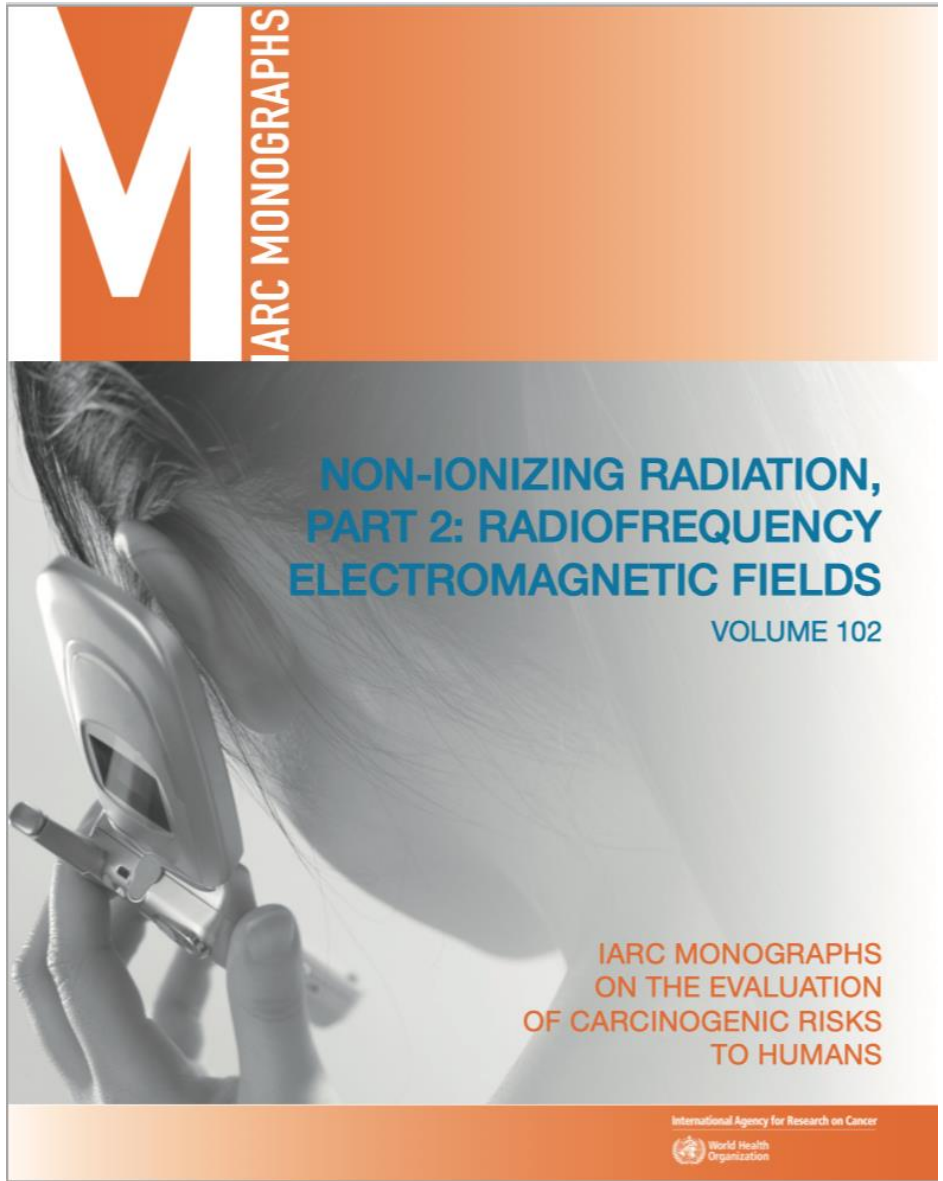
Radiofrequency Electromagnetic Fields: Possibly Carcinogenic to Humans (IARC)



ICNIRP GUIDELINES

FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC, MAGNETIC AND ELECTROMAGNETIC FIELDS (UP TO 300 GHZ)

PUBLISHED IN: **HEALTH PHYSICS 74 (4):494-522; 1998**

INTERNATIONAL COMMISSION ON NON-IONIZING RADIATION PROTECTION

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ICNIRP GUIDELINES

FOR LIMITING EXPOSURE TO ELECTROMAGNETIC FIELDS (100 KHZ TO 300 GHZ)

PUBLISHED IN: **HEALTH PHYS 118(5): 483–524; 2020**

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Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G

International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF)*

Abstract

In the late-1990s, the FCC and ICNIRP adopted radiofrequency radiation (RFR) exposure limits to protect the public and workers from adverse effects of RFR. These limits were based on results from behavioral studies conducted in the 1980s involving 40–60-minute exposures in 5 monkeys and 8 rats, and then applying arbitrary safety factors to an apparent threshold specific absorption rate (SAR) of 4 W/kg. The limits were also based on two major assumptions: any biological effects were due to excessive tissue heating and no effects would occur below the putative threshold SAR, as well as twelve assumptions that were not specified by either the FCC or ICNIRP. In this paper, we show how the past 25 years of extensive research on RFR demonstrates that the assumptions underlying the FCC's and ICNIRP's exposure limits are invalid and continue to present a public health harm. Adverse effects observed at exposures below the assumed threshold SAR include non-thermal induction of reactive oxygen species, DNA damage, cardiomyopathy, carcinogenicity, sperm damage, and neurological effects, including electromagnetic hypersensitivity. Also, multiple human studies have found statistically significant associations between RFR exposure and increased brain and thyroid cancer risk. Yet, in 2020, and in light of the body of evidence reviewed in this article, the FCC and ICNIRP reaffirmed the same limits that were established in the 1990s. Consequently, these exposure limits, which are based on false suppositions, do not adequately protect workers, children, hypersensitive individuals, and the general population from short-term or long-term RFR exposures. Thus, urgently needed are health protective exposure limits for humans and the environment. These limits must be based on scientific evidence rather than on erroneous assumptions, especially given the increasing worldwide exposures of people and the environment to RFR, including novel forms of radiation from 5G telecommunications for which there are no adequate health effects studies.

Some Framework Features for Nonionizing Radiofrequency Radiation

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- Assess the risks to human health caused by exposure to NIR and set exposure limits that reduce those risks in a manner similar to that for other hazardous environmental agents
- Implement precautionary principles
  - public health agencies need to inform the public of potential health risks from exposure to RF radiation and promote exposure reduction strategies
  - establish setback distances between cell phone base stations and high risk areas, e.g., schools, residential areas, and hospitals
  - require the use of fiber optic cables for internet access in classrooms
  - establish radiaton free or low radiation zones in public places for pregnant women, children and people suffering from EHS.
- Compel manufacturers to develop and implement technologies that reduce emissions to users of wireless devices
- Require environmental impact assessments
- Delay deployment of 5G antennas and other future wireless systems near residences or public places until adequate health effects studies are completed and health protective exposure limits are established.