

Scientific Studies on Wireless and Health and Environment

The widespread use of wireless technology is rapidly [increasing](#) children's exposure to radiofrequency radiation (RFR), a type of electromagnetic field.

There is now substantial published, peer-reviewed scientific evidence indicating that wireless radiation can have a variety of harmful effects—even at exposure levels that meet governments wireless radiation limits. [Hundreds](#) of research studies have linked wireless RFR to numerous effects, including impacts to [memory](#), [brain development](#), [reproduction](#), [behavior](#), [emotional problems](#), [headaches](#), and [DNA](#), as well as increased [thyroid](#) cancer and [brain tumor risk](#).

Studies show that children absorb more intense levels of wireless radiation [deeper](#) and more intensely into their brain compared to adults because they have thinner skulls, smaller heads and a higher water content in their brains. More importantly, children are [more vulnerable](#) to wireless radiation because their rapidly developing brains are more sensitive. Even very “low level” toxic exposures at a critical time in development can result in serious effects later in life. Today's children will have a higher lifetime exposure to wireless radiation than previous generations and their exposures begin during pregnancy.

The American Academy of Physicians has long [called](#) for an update to cell phone radiation regulations because research finds children can absorb up to 10 or more times [higher](#) radiation than adults into their brain, eyes and bone marrow.

Scientific research on the health effects of non-ionizing electromagnetic radiation

We have compiled a short list of published scientific research on this page which documents adverse biological effects from wireless radiofrequency (RF) radiation and non-ionizing magnetic field and extremely low frequency electromagnetic exposures. Adverse effects are found at levels that are legally allowed to be emitted by cell phones, wireless devices, electronics, cell tower networks, and electrical distribution systems.

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Sources of Exposure

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[Conflict of Interest](#)

***Start Here* Papers on Health Effects of Non-ionizing Radiation**

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Cancer and Powerline Magnetic Extremely Low Frequency Fields

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Airpods and earphones

- AirPods, like other Bluetooth headsets and earpods, will constantly transmit signals of microwave radiofrequency radiation (RFR) while they are in your ears, whether you are using them or not.
- Airpods and wireless earphones sit right near your skull. They transmit RFR directly next to your brain and ear, and the RFR is absorbed into your brain and ear tissues.
- Apple's second generation AirPods are Bluetooth Class 1 – meaning they reach hundreds of feet away and emit higher radiation compared to other Bluetooth devices.
- The left AirPod communicates with the right AirPod using a technology called “near field magnetic induction” (NFMI). The fields go right through your brain. Magnetic fields are linked to cancer and oxidative stress.

<https://pubmed.ncbi.nlm.nih.gov/29400585/>

[Static magnetic fields from earphones: Detailed measurements plus some open questions - ScienceDirect](#)

Specific Absorption Rate (SAR) simulations in eyewear and Bluetooth communicating devices operating close to the user's head. [JPEG of Poster](#), [Download the Poster Presentation here](#).

Specific Absorption Rate SAR in the head of Google glasses and Bluetooth users doc. This paper was presented in the 2014 IEEE Latincom Conference, held in Cartagena, Colombia, in Nov/2014.

Read Specific absorption rate (SAR) in the head of Google glasses and Bluetooth user's online at the journal IEEE [here](#).

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How do I find out where cell phone towers and antennas are located?

- The FCC has list of Applications on Environmental Notice
- <https://wireless2.fcc.gov/ASRManager/service/nationalNoticeReport.faces>
- The FCC has a broadband map where you can search with an address to see coverage <https://broadbandmap.fcc.gov/home>



- Several companies also have maps where they post the strength of the signal. Verizon has [a network coverage map here](#). T mobile has a [network coverage map here](#). Comcast Xfinity has [a network coveragemap here](#).
- Go to Antenna Search at <https://www.antennasearch.com>, enter your address to see registered cell phone base station antennas. However “small cells” are generally NOT listed here so you also need to check with your municipality for this.
- In Canada [Canadian Cellular Towers Map](#)
- The small cell tower company Crown Castle has [a webpage](#) that has a feature where you can type in your address to see the location of the companies towers.

Santa Clara Medical Association Magazine Articles

- ["Wireless Silent Spring"](#)
- ["A 5G Wireless Future: Will it give us a Smart Future"](#)
- ["Wi-Fi in Schools Are We Playing It Safe With Our Kids?" PDF](#)
- ["Shallow Minds: How the Internet and Wi-F in Schools Can Affect Learning"](#)

Safer Technology Use

- [Environmental Health Trust Reduce Cell Phone Radiation, Take Action on 5G](#)
- [Environmental Health Trust: Educational Resources, Posters, Flyers](#)
- [New Jersey Educational Association "Minimize health risks from electronic devices" PDF](#)

Scientific Evidence

- Research on [5G](#), [Cell Phones](#), [Pregnancy](#), [Co-Carcinogenic](#), [Wi-Fi](#), [Environment](#), [Bees](#), [Trees](#), [Memory](#), [Screens](#)

Trees

- Research on [Trees](#),
- [Beware the Dangers from AM Radio and 5G Transmission Sites \(PDF\)](#), Tree Care Industry Magazine January 2021: article on the hazards faced by tree care workers in increasing proximity to the ever-expanding universe of antennas, both regular radio and 5G/wireless.

Harvard Investigative Report

- Harvard Press Book ["Captured Agency: How the Federal Communications Commission is Dominated by the Industries it Presumably Regulates"](#)

Investigate Europe's Two Part Investigation on 5G

- [5G The Mass Experiment \(Part 1\)](#)
- [How Much is Safe? Finances Effect Research \(Part 2\)](#)
- [5G Mass Experiment: Video Explainer](#)

The Center for Public Integrity Investigations

- ["5G Cell Service Is Coming. Who Decides Where It Goes?"](#) (New York Times)
- ["Residents worried about small cell safety"](#)



- [“5G wireless pits cities against telecoms and their friends in the FCC”](#)
- [“FCC says small cells will close the digital divide. Most say they won’t”](#)

Massachusetts Boards of Health

- [The Legal Handbook for Massachusetts Boards of Health 3rd Edition Chapter on Cell Tower Radiation Exposure](#)
- [2023 Amicus Brief by the Massachusetts Association of Health Boards for a Legal Case regarding the Residents Reported to Be Injured by a Verizon Cell Tower in Pittsfield Massachusetts\(Courtney Gilardi, et al v. Linda Tyler et al\)](#) stating that, “The PBOH considered credible, independent, and peer-reviewed scientific and medical studies and reports that provide convincing evidence that pulsed and modulated RF radiation is bio-active and affects all living things over the long term.”

Legal Documents

Policy

- EHT et al v. FCC Lawsuit [Final Court Decision](#) 8/13/2021
- [New Hampshire State Commission Report on 5G, Health and Environment](#)
- Pittsburgh Law Review: [The FCC Keeps Letting Me Be: Why Radiofrequency Radiation Standards Have Failed to Keep Up With Technology](#), 2021
- The Harvard Press Book [“Captured Agency: How the Federal Communications Commission is Dominated by the Industries it Presumably Regulates”](#)
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