



Presentation to:  
Franklin County, MA Community

May 18, 2022



by:

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## Conflict-of-Interest Statement

- My position at the time I joined the New Hampshire State Commission was Professor & Chair of the Dept. of ECE at UNH
- Since leaving the university, I am working as a founder in a high-tech startup
- My bias was and is generally in favor of technological developments
  - I also served on the InterOperability Laboratory Advisory Board, which is an international evaluator of wireless technologies
  - Was active in Project 54, addressing the communications needs of police and first responders
  - I am serving as Vice-Chair for the Virtual Learning Academy Charter School BoT and have served on other educational boards
- I served on the Commission without any compensation, including travel expenses
- Because of my service on the Commission, I am asked to present to various groups, including your group, none of which involve compensation
- I present to you today as a fellow citizen, with no realized or expected financial rewards

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## Covered in this Presentation

- The New Hampshire Commission to Study the Environmental & Health Effects of Evolving 5G Technology
- The effect wireless radiation has on people
  - Peer-reviewed science regarding radiation and health
  - Federal Communications Commission (FCC) regulations
  - “Safe” siting for cell towers
  - ElectromagneticHyperSensitivity (EHS), or Microwave Sickness
  - Effect of cell towers on property values
- Political and Financial Driving Forces

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## NH Commission on the Health and Environmental Impacts of 5G and Wireless Technology

- The Commission was convened through [bipartisan legislation](#) that was passed by the legislature and signed by the Governor
  - This is the first legislation passed in the United States calling for the formation of a commission to explore the health effects of 5G
- The 13 Commission members had backgrounds that included physics, toxicology, electromagnetics, epidemiology, biostatistics, occupational health, medicine, public health policy, business, and law
- The Commission met over a one-year period and heard from 9 experts.
  - All but one of the experts were unpaid, except for the expert hired by the Telecom Industry; that expert was the only one who said that there were no risks associated with radiation from wireless devices

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## Conclusions Reached by the Commission

- Conclusions and recommendations are given in the [Final Report](#)
- Cellphone radiation, including 5G, poses a significant threat to human health and the environment
- This is not a scientific issue, it is a political issue
  - The peer-reviewed science is quite clear about the risks about radiation exposure
  - Technology can be used to significantly lower radiation exposure, but that would come at a cost to the industry

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## How Low-Level Wireless Radiation Affects Health (human, wildlife, and plant)

- The primary mechanism is shown to be oxidative stress
  - Oxidative stress creates free radicals
    - A **free radicals** is an oxygen-containing molecule that has one or more unpaired electrons, making it highly reactive with other molecules
    - An excess of free radicals leads to chronic inflammation which can lead to a host of adverse outcomes including neuropsychiatric effects, cancer, lower fertility, diabetes, lowered immune response and premature aging
      - That's why many of us eat anti-oxidant foods like blueberries and we take anti-oxidant supplements like Vitamin C

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# Example of What Can Happen When People Are Exposed to Strong Wireless Radiation (but far below the FCC threshold)



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What happened  
when the cell towers  
were turned on?

Within a week of installation many firefighters developed unusual symptoms of headaches, fatigue, insomnia, memory loss, confusion, nausea and weakness. After a time, firefighters in stations with adjacent cell towers were found to have forgotten CPR or became lost responding to a fire in a city they grew up in.

[Physicians for Safe Technology](#)

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Article Title: Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression

## Firefighters' Symptoms Consistent With Laboratory Findings

Quote from article: "Non-thermal microwave/lower frequency electromagnetic fields (EMFs) act via voltage-gated calcium channel (VGCC) activation. ... Among the more commonly reported changes are sleep disturbance/insomnia, headache, depression/depressive symptoms, fatigue/tiredness, dysesthesia, concentration/attention dysfunction, memory changes, dizziness, irritability, loss of appetite/body weight, restlessness/anxiety, nausea, skin burning/tingling/dermographism and EEG changes."

Pall, Martin L., Journal of Chemical Neuroanatomy, Volume 75, Part B, 2016, Pages 43-51, ISSN 0891-0618

<https://www.sciencedirect.com/science/article/pii/S0891061815000599>

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## What Is the Incentive for Having High Limits on Radiation Exposure

- Enables providers to locate cell towers in populated areas
  - Simplest and usually the least expensive way to provide coverage
    - Utilities are available
    - Access is available
- Can achieve greater coverage area for a cell tower
- Promotes a sense of safety for mobile device users because their exposure is within FCC exposure guidelines

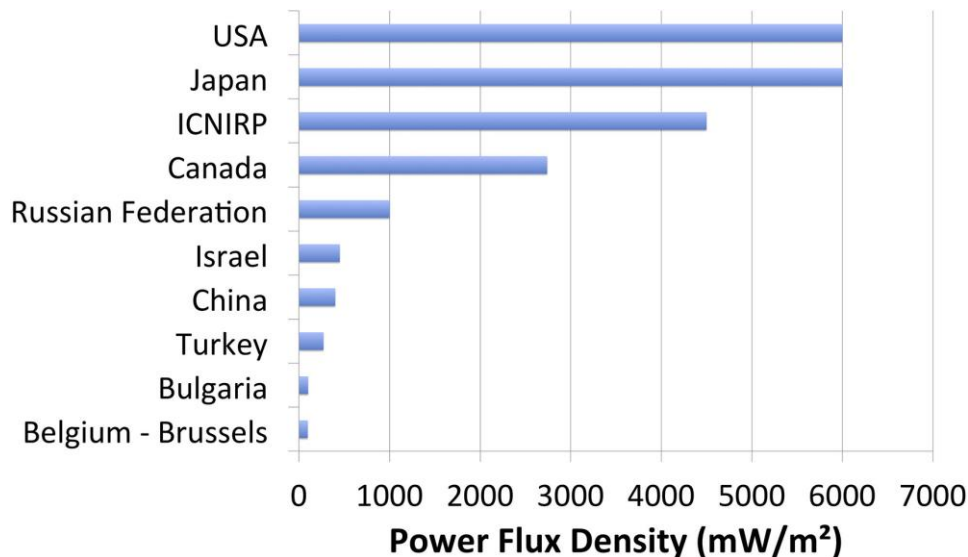
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## How and When Were FCC Radiation Guidelines Set?

- Current Standards were set in the 1980s and were based on short-term (several hours) behavioral studies on rats and monkeys
  - The assumption with these standards that if a radio signal is not strong enough to warm tissues, it will not cause harm
  - The animals were food-deprived, and their task was to press a lever to receive food pellets
  - The animals were exposed to increasing levels of radiation until they could no longer perform their task; that level was designated as the upper exposure limit
  - A safety factor of 50 was then applied to that number to come up with a radiation threshold for the general public

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## How Do FCC Standards Compare Internationally?



Frank M. Clegg, Margaret Sears, Margaret Friesen, Theodora Scarato, Rob Metzinger, Cindy Russell, Alex Stadtner, Anthony B. Miller, Building science and radiofrequency radiation: What makes smart and healthy buildings, Building and Environment, Volume 176, 2020, 106324, ISSN 0360-1323, <https://doi.org/10.1016/j.buildenv.2019.106324>.

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## What Do Human Health Studies Indicate About FCC Radiation Thresholds?

- What is a safe setback distance for a cell tower?
  - Why did the New Hampshire Commission pick a setback distance of 500 meters (1,640 feet)?
  - Will that setback protect everyone?

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Article Title:  
Mortality by neoplasia and cellular telephone base stations in the Belo Horizonte municipality, Minas Gerais state, Brazil

## Mortality versus Distance People Live from Cell Tower Transmitter

- The article reports on research that analyzed the spatial correlation between how close people lived to a cell tower and cases of deaths by neoplasia. Data obtained from Brazilian government databases.
- Covered timeframe 1996-2006
- Conclusions based on study of 856 cell towers and 7,191 deaths
- The largest power density measured during the study was  $40.78 \mu\text{W}/\text{cm}^2$  ( $407.8 \text{ mW}/\text{m}^2$ ) which is less than 5% of the FCC standard

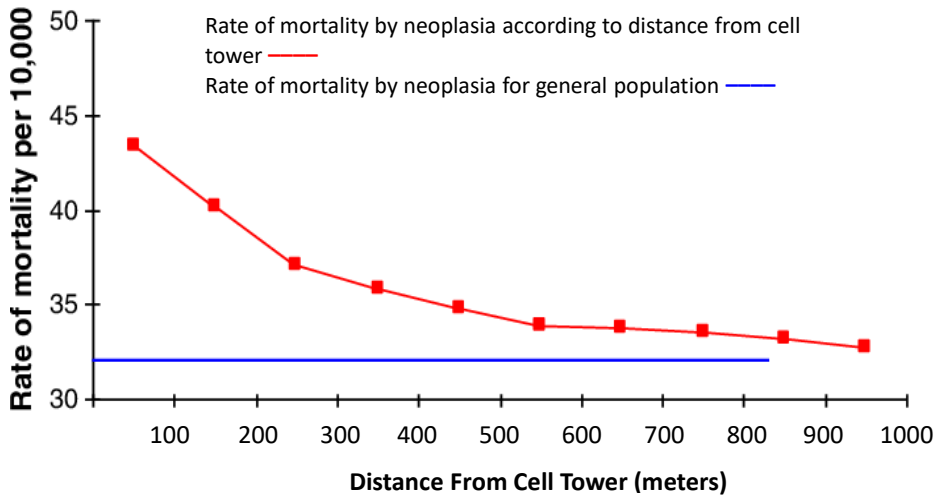
Adilza C. Dode, Mônica M.D. Leão, Francisco de A.F. Tejo, Antônio C.R. Gomes, Daiana C. Dode, Michael C. Dode, Cristina W. Moreira, Vânia A. Condessa, Cláudia Albinatti, Waleska T. Caiaffa,

Science of The Total Environment, Volume 409, Issue 19, 2011, Pages 3649-3665, ISSN 0048-9697

<https://doi.org/10.1016/j.scitotenv.2011.05.051>

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## Take-Away from Article Referenced on Previous Slide



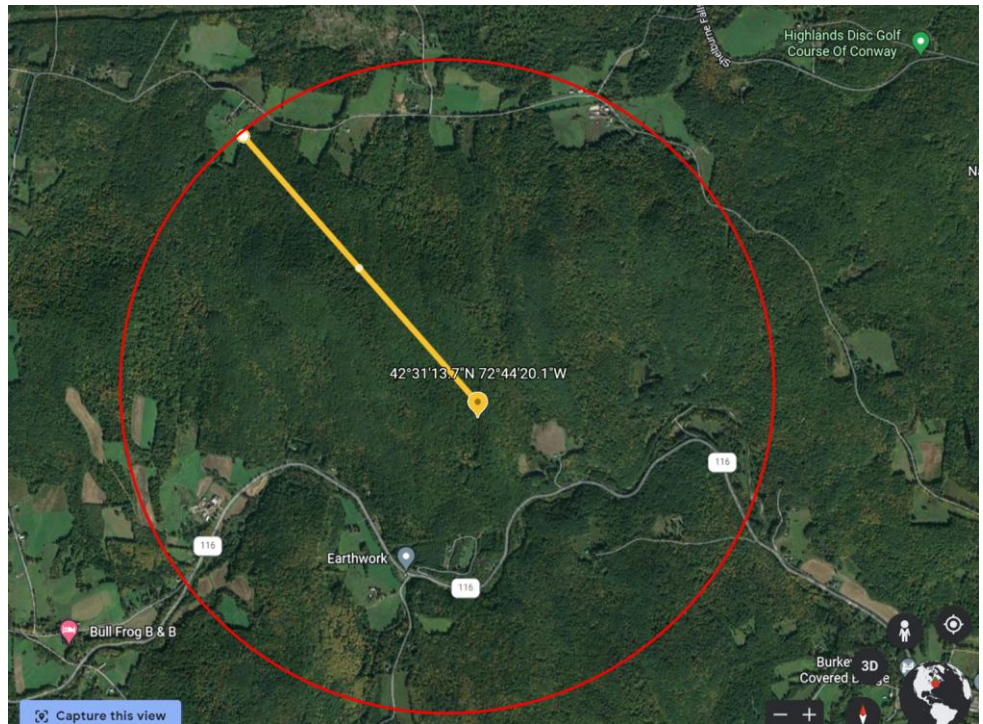
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## Example: Placing Wireless Transmitter Near Center of Desired Coverage Area



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Proposed  
Site in  
Franklin  
County  
(small number  
of people  
within 1,640' of  
tower)



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## ElectromagneticHyperSensitivity (EHS)

*"A phenomenon where individuals experience adverse health effects while using or being in the vicinity of devices emanating electric, magnetic or electromagnetic fields (EMFs)"* Bergqvist et al. (1997) Sweden

- **Symptoms:** headaches, insomnia, dizziness, irritability, fatigue, heart palpitations, nausea, loss of appetite, feeling of discomfort, poor concentration, memory loss, and neuropsychiatric problems such as depression.  
<https://www.liebertpub.com/doi/abs/10.1089/eco.2016.0036?journalCode=eco>
- **Mechanisms are known:** [Stein and Udasin \(2020\)](#) wrote a clear summary of electrosensitivity mechanisms, noting the similarities with multiple chemical sensitivities. The mechanism is related to oxidative stress and alteration of calcium channel signaling.
- **Condition is not uncommon:** [Bevington](#) in 2019 published the results of his extensive review of prevalence rates. He estimates about 0.65% of the general population are restricted in their work access due to disabling symptoms of electrosensitivity (EHS-EMF/IEA), about 5% of the general population have moderate symptoms and up to 30% have mild symptoms.
- **The number of people affected by EHS is likely to increase over time:** [Hallberg & Oberfeld-](#) "The number of reported cases of electrosensitivity has been steadily increasing since it was first documented in 1991"

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# Some Details about EHS

- Symptoms of EHS are evident well below the FCC threshold
  - As low as  $10 \mu\text{Watts}/\text{m}^2$ , or one-millionth of the FCC limit
- People who do not experience EHS symptoms do experience oxidative stress from wireless radiation
- EHS is recognized by the Americans with Disabilities Act (ADA) and Medicare
- People's sensitivity to wireless radiation can vary with other health and physiological conditions
- Many people develop EHS as adults after some form of shock (physical, chemical or electric)
- Shielding can be an effective way to deal with radiation exposure

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## Property Values Decrease near Cell Towers

- "Cellphone towers bring extra tax revenue and better reception to a section of the city, but many are skeptical because of the potential health risks and the [impact on property values](#). Increasing numbers of people don't want to live near cell towers. In some areas with new towers, property values have decreased by up to 20%."
- "If your home is near a cell antenna, the value of your property is going down at least 4 percent. Depending on the size of the tower and the proximity, it is going down 10 percent." [Andrew Campanelli](#)
- [The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods](#) study found that buyers would pay as much as 20 percent less, as determined at that time by an opinion survey in addition to a sales price analysis.

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## Why Aren't Our Regulatory Agencies Doing More to Protect the Public?

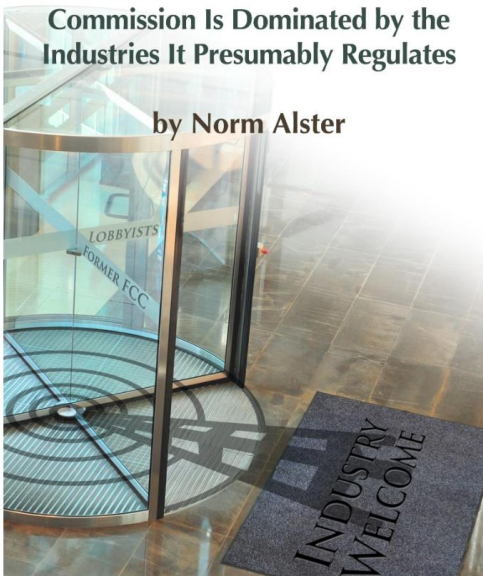
- There are thousands of refereed publications documenting the harm associated with Radio Frequency Radiation (RFR)
- Many other countries have lower RFR thresholds
- FCC standards were set in the 1990s; a lot has changed electromagnetically since then
- The FCC did not answer questions posed to it by the NH Commission

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## Captured Agency:

How the Federal Communications Commission Is Dominated by the Industries It Presumably Regulates

by Norm Alster



[www.ethics.harvard.edu](http://www.ethics.harvard.edu)

## What Role Do Regulatory Agencies Play?

“Industry controls the FCC through a soup-to-nuts stranglehold that extends from its well-placed campaign spending in Congress through its control of the FCC’s Congressional oversight committees to its persistent agency lobbying.”

[https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency\\_alster.pdf](https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf)

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## Harvard Report Shows Wireless Industry Using a Playbook Similar to the One Used by Big Tobacco

- To ensure its access on Capitol Hill, the wireless industry made \$26 million in campaign contributions in 2016, [according to the Center for Responsive Politics](#), and spent \$87 million on lobbying in 2017.
- The playbook's key insight is that an industry doesn't have to win the scientific argument about safety; it only has to keep the argument going.
  - As recently as 1998, even as evidence of tobacco toxicity grew overwhelming, cigarette maker Phillip Morris was writing newspaper advertorials insisting there was no proof smoking caused cancer: [page 20 of Harvard Report](#)

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Despite the Industry's Stranglehold on Regulations, There Have Been Some Notable Legal Actions Challenging Them

Below are examples where the telecom industry has been successfully challenged:

- August 13, 2021: Environmental Health Trust wins [in historic decision](#), federal court orders FCC to explain why it ignored scientific evidence showing harm from wireless radiation.
- February 2, 2022: Pittsfield, MA Board of Health issues [cease-and-desist order](#) against Verizon
- May 11, 2022: Ada County Commissioners Unanimously [Agree to DENY 100' Cell Tower](#) application in Star Idaho
- There are many examples of municipalities denying towers based on aesthetic/historic reasons

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Peer-Reviewed  
Publications Used by  
NH Commission to  
Draw Conclusions  
for Majority Report

- What is shown on next slides are examples of journal articles documenting negative health effects
  - These are not from “fringe publications” nor are they people’s opinions; they have been reviewed by experts in their fields
  - Poor quality journals do exist, but they are readily identified by metrics such as the backgrounds of people serving on their review boards, their reviewers, impact factor, citation indices
    - I was an Assoc. Editor for IEEE Transactions on Antennas and Propagation, and I am aware of how to assess the quality of a journal
  - Articles address exposure to cellphone frequency radiation, and their findings extend to 5G and other forms of high-speed-digital data transmission

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Article Title: Low intensity microwave radiation induced oxidative stress, inflammatory response and DNA damage in rat brains

Quote from article: “In conclusion, the present study suggests that low intensity microwave radiation induces oxidative stress, inflammatory response and DNA damage in the brain by exerting a frequency dependent effect.”

Megha K, Deshmukh P, Banerjee B, et al.,  
NeuroToxicology (2015) 51 158-165,  
[https://DOI: 10.1016/j.neuro.2015.10.009](https://doi.org/10.1016/j.neuro.2015.10.009)

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Article Title: Exposure to non-ionizing electromagnetic fields emitted from mobile phones induced DNA damage in human ear canal hair follicle cells

Quote from article: “Results of the study showed that DNA damage indicators were higher in the RFR exposure groups than in the control subjects. In addition, DNA damage increased with the daily duration of exposure.”

Mehmet Akdag, Suleyman Dasdag, Fazile Canturk & Mehmet Zulkuf Akdag (2018), *Electromagnetic Biology and Medicine*, 37:2, 66-75, DOI: [10.1080/15368378.2018.1463246](https://doi.org/10.1080/15368378.2018.1463246)

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Article Title: Exposure to Global System for Mobile Communication (GSM) Cellular Phone Radiofrequency Alters Gene Expression, Proliferation, and Morphology of Human Skin Fibroblasts

Quote from article: “These findings show that these electromagnetic fields have significant biological effects on human skin fibroblasts.”

Stefania Pacini, Marco Ruggiero, Iacopo Sardi, Stefano Aterini, Franca Gulisano, and Massimo Gulisano, *Oncology Research*, 2002, Vol. 13, pp. 19–24

DOI: 10.3727/096504002108747926

<https://pubmed.ncbi.nlm.nih.gov/12201670/>

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Article Title:  
Radiation and  
Male Fertility

Quote from article: “From currently available studies it is clear that radiofrequency electromagnetic fields (RF-EMF) have deleterious effects on sperm parameters (like sperm count, morphology, motility), affects the role of kinases in cellular metabolism and the endocrine system, and produces genotoxicity, genomic instability and oxidative stress.”

Kesari et al., Reproductive Biology and Endocrinology  
<https://doi.org/10.1186/s12958-018-0431-1>, (2018)

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Article Title: Association of Exposure to Radio-Frequency Electromagnetic Field Radiation (RF-EMFR) Generated by Mobile Phone Base Stations with Glycated Hemoglobin (HbA1c) and Risk of Type 2 Diabetes Mellitus

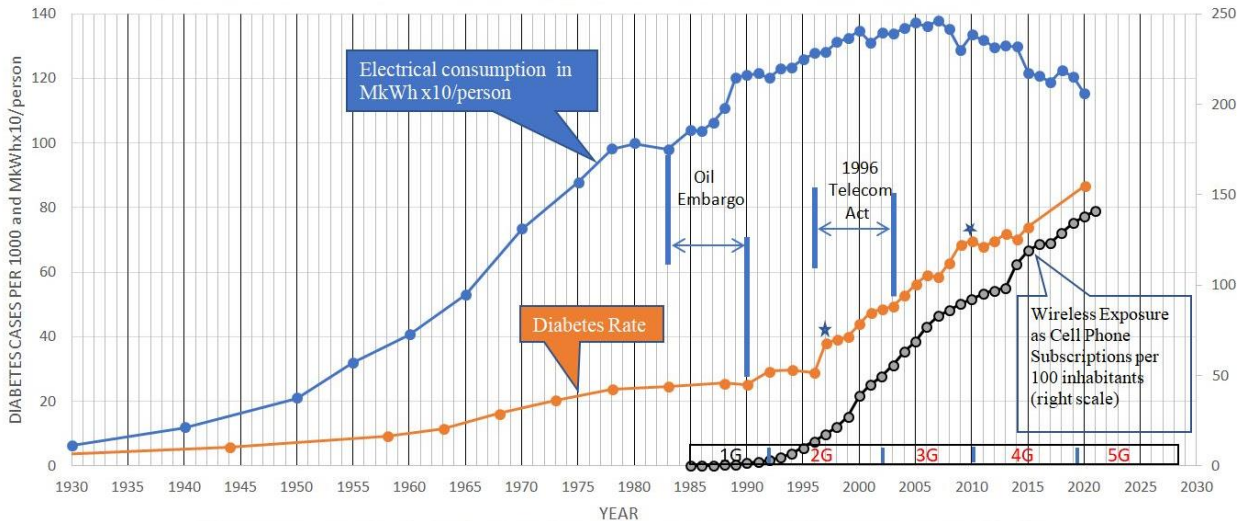
Quote from article: “The findings of this study show that the students who were exposed to high RF-EMF had significantly higher HbA1c than the students who were exposed to low RF-EMF.”

Meo SA, Alsubaie Y, Almubarak Z, Almutawa H, AlQasem Y, Hasanato RM., *Int J Environ Res Public Health*. 2015;12(11):14519-14528, Nov 13, 2015  
doi:10.3390/ijerph121114519

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4661664/>

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## Analysis by Year of Wireless Exposure and Diabetes in US



Diabetes: diagnostic criteria (blue stars), increasing sensitivity in 1997, and decreasing in 2010.

2015-2020 is Institute for Alternative Futures projection.

Cell phones: with 2G, signal modulation becomes pulsed (in red). Blue bars indicate start of service

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Article Title:  
Radiofrequency  
radiation injures  
trees around  
mobile phone  
base stations

Quote from article: “Statistical analysis demonstrated that electromagnetic radiation from mobile phone masts is harmful for trees. These results are consistent with the fact that damage afflicted on trees by mobile phone towers usually start on one side, extending to the whole tree over time.”

Waldmann-Selsam C Balmori-de la Puente, A Breunig H et al.,  
Science of the Total Environment (2016) 572 554-569, DOI:  
10.1016/j.scitotenv.2016.08.045

[https://www.sciencedirect.com/science/article/pii/S0048969716317375?casa\\_token=MQA3pRiHm0IAAAAADyxz-gx8Lsdf2aWs9kbnQb7E8Hne11dbc\\_oUABdB8VgEslGopSgtz7LubafACe\\_QQJAWy8RR7w](https://www.sciencedirect.com/science/article/pii/S0048969716317375?casa_token=MQA3pRiHm0IAAAAADyxz-gx8Lsdf2aWs9kbnQb7E8Hne11dbc_oUABdB8VgEslGopSgtz7LubafACe_QQJAWy8RR7w)

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Article Title:  
Electromagnetic  
radiation as an  
emerging driver  
factor for the  
decline of insects

Quote from article: “The extent that anthropogenic electromagnetic radiation represents a significant threat to insect pollinators is unresolved and plausible.”

Alfonso Balmori, Science of The Total Environment, Volume 767, 2021, 144913, ISSN 0048-9697,  
<https://doi.org/10.1016/j.scitotenv.2020.144913>

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## Do all the published studies show harm with cellphone radiation?

Some show harm while others do not (somewhat dependent on who funds the research)

(New York Times- Nov 13, 2010) University of Washington professor Henry Lai analyzed 326 cellphone radiation studies. He found that **only 28 percent of industry-funded studies** showed biological effects from cellphone radiation exposure — but that of the **studies not funded by industry, 66 percent found biological effects.**

<https://www.nytimes.com/2010/11/14/business/14digi.html>

In 2020, Dr. Lai updated his numbers based on around a thousand studies:

- Neurological RFR studies report effects in 73 % of studies on RF radiation
- Genetic effect studies report effects in 65 % of studies on RF radiation
- Free Radical (Oxidative Damage) effect studies report effects in 91 % of studies on RF radiation

<https://bioinitiative.org/wp-content/uploads/2020/09/6-RFR-Neurological-Effects-Abstracts-2020.pdf>

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## Concluding Remarks

- Unpaid citizen experts on a State Commission concluded that wireless radiation poses a significant risk to health and the environment
  - None of the Commission members (except for the industry representatives) had any financial interest in Telecom
- Paid industry representatives are saying that wireless radiation is harmless
  - There is a huge financial benefit for them in perpetuating this myth

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## References

- New Hampshire State Commission Final Report  
<http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf>
  - Video Overviews of Final Report
    - Kent Chamberlin video: <https://www.youtube.com/watch?v=qT9g5Mm3lSo>
    - Kent Chamberlin and Cece Doucette: <https://www.youtube.com/watch?v=WqKqKPIE8>
- Environmental Health Trust: <https://ehtrust.org/>
- Massachusetts for Safe Technology: <https://www.ma4safetech.org/>
- Bioinitiative Color Charts: <https://bioinitiative.org/rf-color-charts/>
- EMF Medical Conference Training (can be used for CME/CE credits and for the public videos): <https://emfconference2021.com/online-cme-ce-courses/>
- Safe Living Technologies EMF/RF Exposure Guidelines: <https://safelivingtechnologies.com/emf-exposure-rf-exposure-guidelines/>
- Americans for Responsible Technology  
 Activist/Municipal Toolkit: <https://www.americansforresponsibletech.org/tool-kit>
- Frank Clegg (former Microsoft Canada Pres.): <https://www.youtube.com/watch?v=h4TdY344Now>

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# Appendix

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## Commonly-Asked Questions

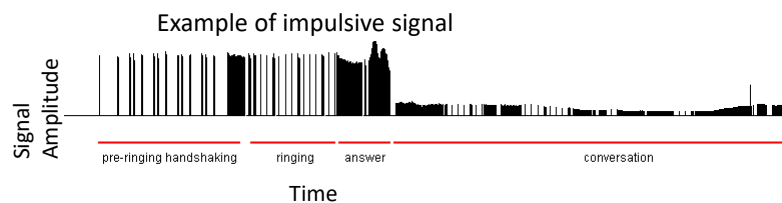
- Why are we concerned about the placement of cell towers?

There is a large and growing body of evidence demonstrating that exposure to cell-phone type radiation is harmful to humans and the environment

- Other types of radiation, such as radiation from radio and TV stations have also been shown to be harmful, but the impulsiveness of cell-phone radiation coupled with the number of transmitters makes them particularly harmful

- What is meant by “cell-phone type” radiation?

High-frequency devices that transmit digital information fall into this category. These devices include: cellphones, cell towers, Bluetooth, baby monitors, smart meters, cordless phones, WiFi (wireless routers) and IoT devices



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## Commonly-Asked Questions

- What are the differences between signals from different wireless devices?

They are all transmitted in high frequency bands (600 MHz to 5 GHz) but frequency varies from device to device

- 5G will extend the upper frequency to around 40 GHz

Different device types use different protocols to transmit digital information

- Generally, devices of the same type (such as cellphone and cell tower) use the same protocol when communicating. Because of this, cellphones and cell towers radiate the same types of signals, although at different powers and different periods of time.

Different device types transmit at different power levels

- Bluetooth & WiFi (up to 100 mWatts)
- Smart Meter ( $\leq 1$  Watt)
- Cellphone (600 mWatts – 3 Watts)
- Cell Tower (typically 10 Watts, but can go as high as 50 Watts)

**Radiation from all these devices pose health risks**

### Notes:

1 Hz = 1 cycle/second

1 MHz = 1,000,000 Hz

1 GHz = 1,000,000,000 Hz

1 mWatt = 0.001 Watt

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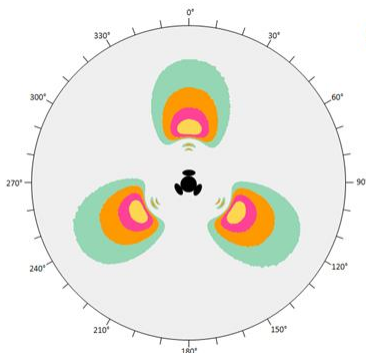
## Commonly-Asked Questions

- What does an antenna do to a cellphone signal?

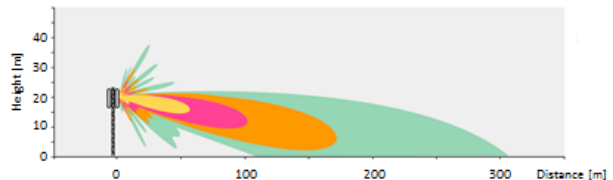
An antenna can focus signal energy in a particular direction, just like a flashlight can focus light in a particular direction; it enables the signal to be concentrated in the direction of the user

An antenna does not change the frequency or information contained in a signal

Example: top-view of 3 directional antennas (horizontal, or azimuthal, pattern)



Example: side-view of directional antenna (vertical, or elevation, pattern)



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# Commonly-Asked Questions

- How does power density from an antenna vary with distance?

Power density varies as inverse square (Power Density =  $P_0/R^2$ )



As reference, assume power density at 1 meter is 1 mW/m<sup>2</sup>



If phone is moved to a distance of 0.5 m,  $P = 4 \text{ mW/m}^2$



In this case, distance is equal to fabric thickness (0.2 mm), so  $P = > \text{kW/m}^2$



Definitely not a good idea!

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## What Power Density Is Needed for Cellphone Reception?

(calculated for highest required power density; 2100 MHz)

### Notes:

1  $\mu$ Watt = 1 micro-Watt  
= 0.000001 Watt

1 nWatt = 1 nano-Watt  
= 0.000000001 Watt

1 pWatt = 1 pico-Watt  
= 0.000000000001 Watt

### Great Signal (4 to 5 bars)

-50 to -79 dBm or 6.16 to 0.0078  $\mu$ W/m<sup>2</sup> or one-millionth of FCC limit

### Good Signal (3 to 4 bars)

-80 to -89 dBm or 6.16 to 0.775 nW/m<sup>2</sup> or one-billionth of FCC limit

### Average Signal (2 to 3 bars)

-90 to -99 dBm or 616 to 77.5 pW/m<sup>2</sup> or 0.1 billionths of FCC limit

### Poor Signal (1 to 2 bars)

-100 to -109 dBm or 61.6 to 7.75 pW/m<sup>2</sup> or 0.01 billionths of FCC limit

### Very Poor Signal (0 to 1 bars)

-110 to -120 dBm or 6.16 to 0.775 pW/m<sup>2</sup> or one-trillionth of FCC limit

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## Electromagnetic-Sensitivity Is recognized by the ADA

By the Center for Electrosmog Prevention, 2019

- The following ADA Accommodations Request Packet may be used by ES (electrosensitivity) sufferers to apply for reasonable accommodations to help avoid RF radiation from “small cells” and wifi *in public government areas*, related to accessibility or any other [Title II](#) application. “[Title II of the Americans with Disabilities Act](#) applies to State and Local Governments.

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## Electromagnetic-Sensitivity Is Recognized by Medicare

Medicare Accepted ICD-10 codes

- Billable - [W90.0XXA](#) Exposure to radiofrequency, initial encounter
- Billable - [W90.0XXD](#) Exposure to radiofrequency, subsequent encounter
- Billable - [W90.0XXS](#) Exposure to radiofrequency, sequela
- Billable - [W90.1XXA](#) Exposure to infrared radiation, initial encounter
- Billable - [W90.1XXD](#) Exposure to infrared radiation, subsequent encounter
- Billable - [W90.1XXS](#) Exposure to infrared radiation, sequela
- Billable - [W90.2XXA](#) Exposure to laser radiation, initial encounter
- Billable - [W90.2XXD](#) Exposure to laser radiation, subsequent encounter
- Billable - [W90.2XXS](#) Exposure to laser radiation, sequela
- Billable - [W90.8XXA](#) Exposure to other nonionizing radiation, initial encounter
- Billable - [W90.8XXD](#) Exposure to other nonionizing radiation, subsequent encounter
- Billable - [W90.8XXS](#) Exposure to other nonionizing radiation, sequela

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# CTIA Sues Berkeley, CA Over Ordinance Requiring Retailers to Warn Cellphone Users

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**Berkeley Ordinance:** “To assure safety, the Federal Government requires that cell phones meet radio frequency (RF) exposure guidelines. If you carry or use your phone in a pants or shirt pocket or tucked into a bra when the phone is ON and connected to a wireless network, you may exceed the federal guidelines for exposure to RF radiation. This potential risk is greater for children. Refer to the instructions in your phone or user manual for information about how to use your phone safely.”

Similar information is contained in all cellphones or in their manuals

-For iPhone, go to Settings/General/Legal & Regulatory/RF Exposure

A federal judge [ruled in favor](#) of a wireless communication trade group five years after they claimed the city of Berkeley’s law that required retailers to warn customers about cellphone radiation violated their First Amendment rights. *July, 26, 2021*

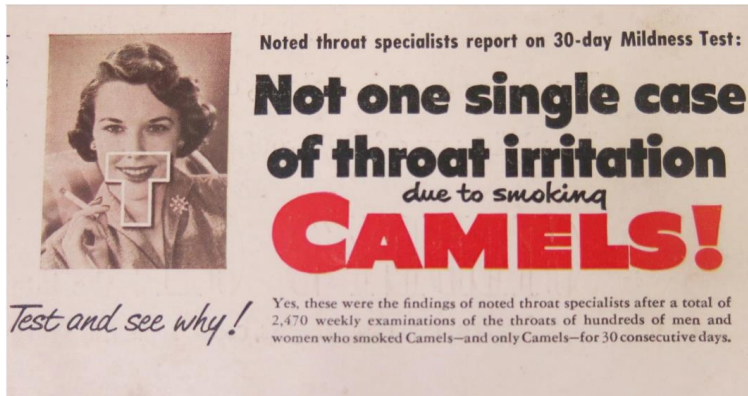
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Verizon  
Acknowledges  
the Risks of  
Wireless  
Radiation to  
its  
Shareholders

From page 17 of [Verizon’s 2022 10-K Report](#):

- “...our wireless business also faces personal injury and wrongful death lawsuits relating to alleged health effects of wireless phones or radio frequency transmitters. We may incur significant expenses in defending these lawsuits. In addition, we may be required to pay significant awards or settlements.”

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Noted throat specialists report on 30-day Mildness Test:

**Not one single case  
of throat irritation  
due to smoking  
CAMELS!**

*Test and see why!*

Yes, these were the findings of noted throat specialists after a total of 2,470 weekly examinations of the throats of hundreds of men and women who smoked Camels—and only Camels—for 30 consecutive days.

*“Doubt is our product since it is the best means of competing with the “body of fact” that exists in the minds of the general public. It is also the means of establishing a controversy.”* Tobacco executive (22) in *Doubt is Our Product*  
by David Michaels

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## “Doubt is our product”

- Carlo’s October 7, 1999, letters to wireless-industry CEOs are the smoking-gun equivalent of [the November 12, 1982, memo](#) that M.B. Glaser, Exxon’s manager of environmental-affairs programs, sent to company executives explaining that burning oil, gas, and coal could raise global temperatures by a destabilizing 3 degrees Celsius by 2100. For the tobacco industry, Carlo’s letters are akin to [the 1969 proposal](#) that a Brown & Williamson executive wrote for countering anti-tobacco advocates. “Doubt is our product,” the memo declared. “It is also the means of establishing a controversy...at the public level.”

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## Insurance Companies Won't Insure Against RFR

- *The Nation* has not been able to find a single insurance company willing to sell a product-liability policy that covered cell-phone radiation. “Why would we want to do that?” one executive chuckled before pointing to more than two dozen lawsuits outstanding against wireless companies, demanding a total of \$1.9 billion in damages. Some judges have affirmed such lawsuits, including a [judge in Italy who refused to allow industry-funded research as evidence](#).