

# The Body Electric + Microwave Radiation

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**ElectroSonix**  
LLC  
Founder

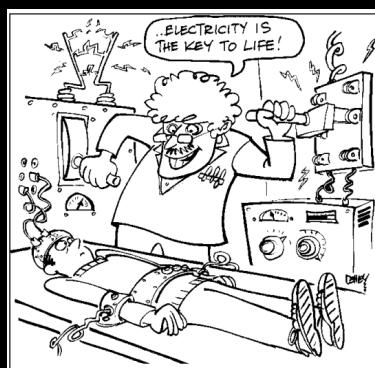


PA For Safe Technology / Stop 5G  
April 24, 2020

Disclaimer: Views in this presentation do not necessarily represent those of the University of Arizona or ElectroSonix LLC

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## Is Electricity the Key to Life?

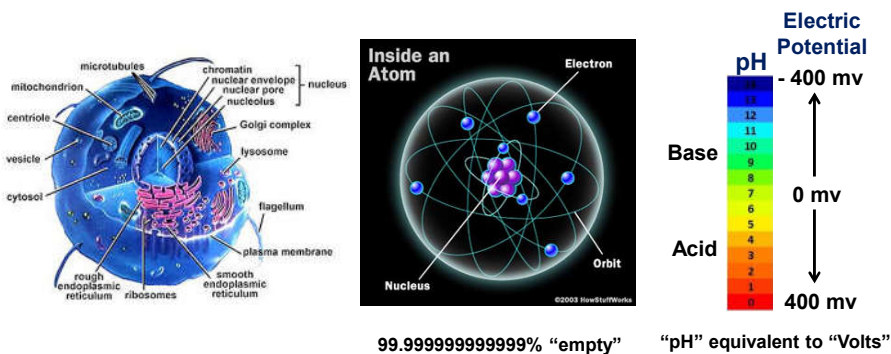


“If you want to find the secrets of the universe, think in terms of energy, frequency and vibration.”

-- Nikola Tesla

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## Chemistry (Matter) vs. Vibration (Energy)

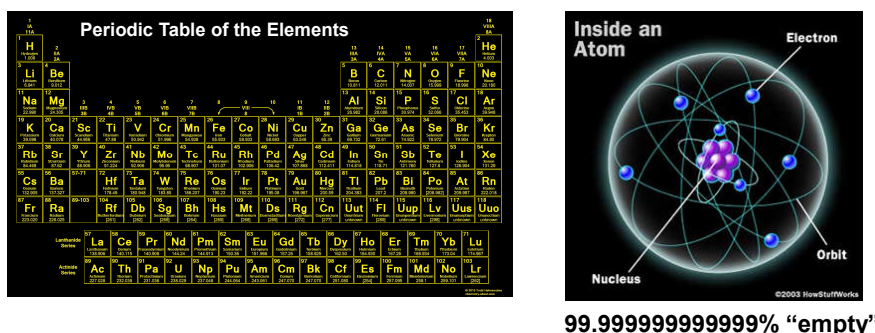


“There are two ways of altering functions in the body; one is to add particular molecules to the system, and the other is to add the electromagnetic signature of those molecules .”

– J. Oschman, PhD (Energy Medicine)

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## Chemistry (Matter) vs. Vibration (Energy)

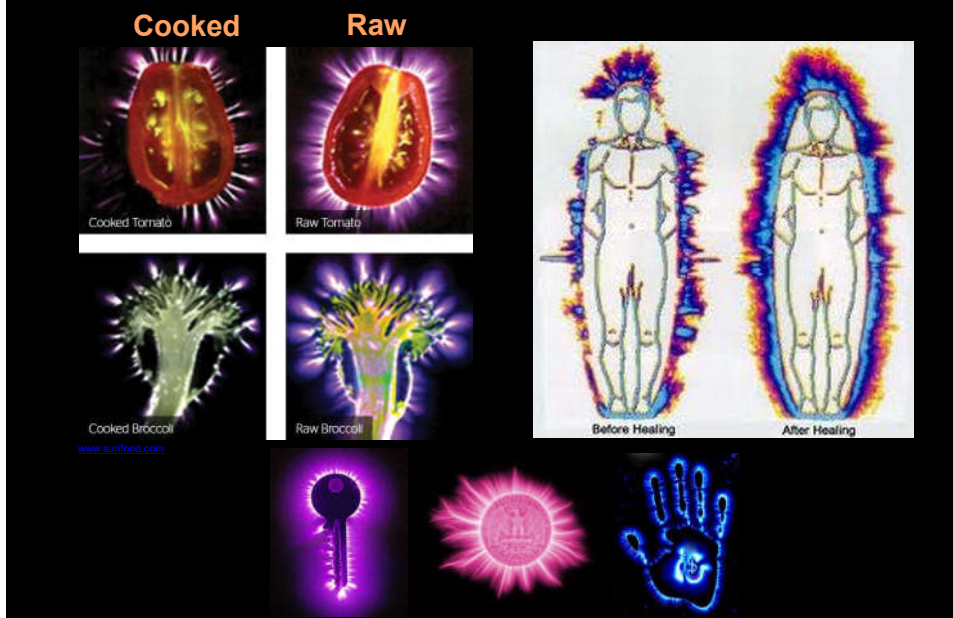


“As a man who has devoted his whole life to the most clear headed science, to the study of matter, I can tell you as a result of my research about atoms this much: There is no matter.”

–Max Planck (1944), Father of Quantum Mechanics

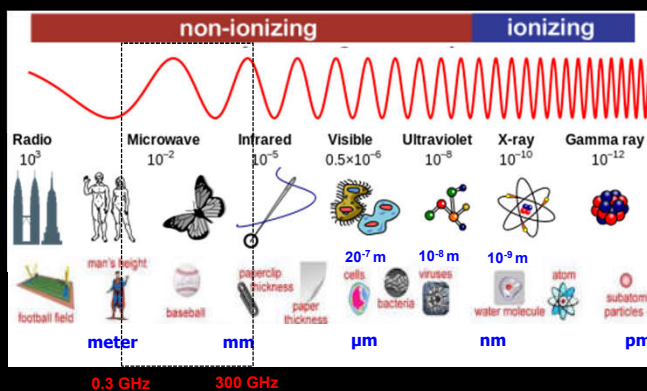
4

## "Morphogenic Field" with Kirlian Photography



6

## Electromagnetic Spectrum and Scale



[http://upload.wikimedia.org/wikipedia/commons/c/cf/EM\\_Spectrum\\_Properties\\_edit.svg](http://upload.wikimedia.org/wikipedia/commons/c/cf/EM_Spectrum_Properties_edit.svg)

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# Electromagnetic Radiation and Wave Properties

## Properties of Waves

- Frequency (rate)
- Amplitude (power)
- Intensity (power density)
- Pulse (beats)
- Modulation (information content)
- Spatial radiation pattern
- Polarity (orientation)

**All properties affect biological systems!**

## Sample RF Radiation Pattern

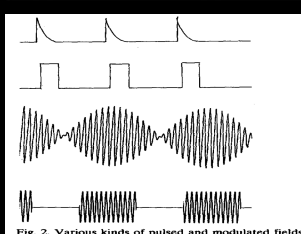
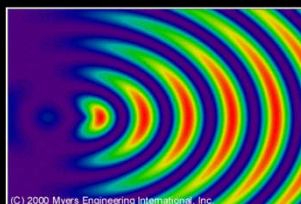
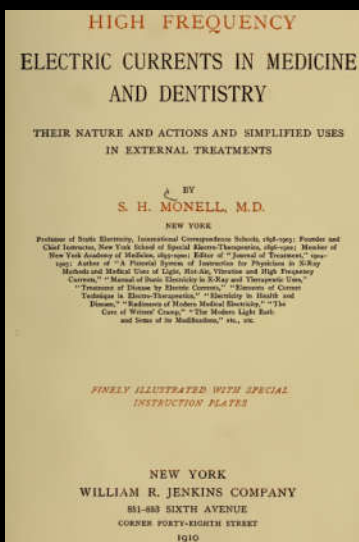


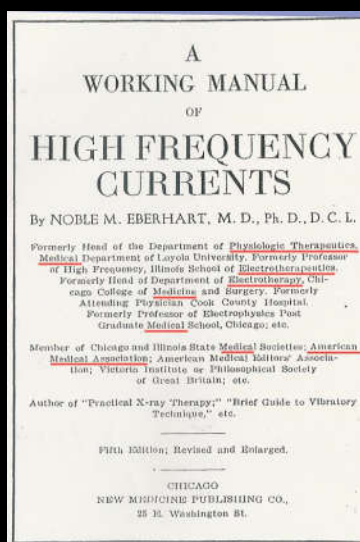
Fig. 2. Various kinds of pulsed and modulated fields.

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# Electromedicine: Very Popular in 1910

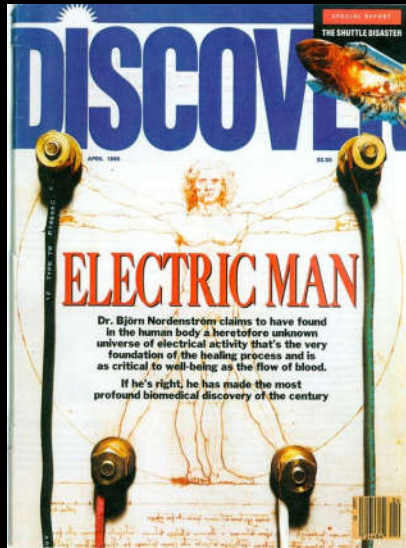


1910



1911

11



**Björn Nordenström**

(inventor of the needle biopsy and former Chairman of the Nobel Assembly)

*Biological Closed Electric Circuit Clinical, Experimental, and Theoretical Evidence for an Additional Circulatory System. (1983)*

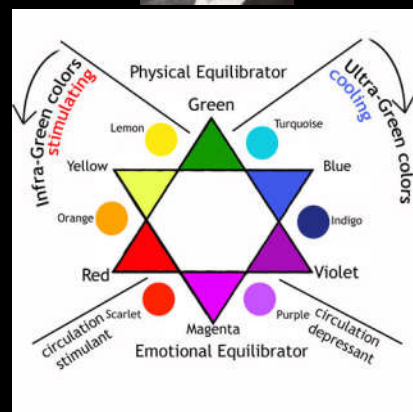
“...all living systems contain numerous functioning electrical circuits. ...These circuits exist in all bodily functions and...determine the well being of the body.”

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## Spectrochrome by Dinshah Ghadiali



**Dinshah Ghadiali**



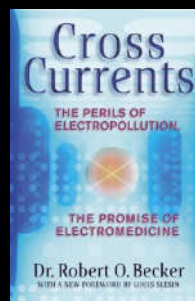
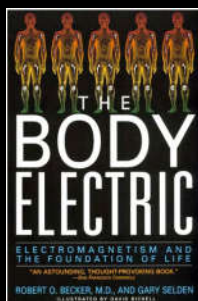
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## The Body Electric and Tissue Regeneration

Robert Becker  
1923-2008



Orthopedic Surgeon  
Nominated twice for Nobel Prize



“We are now in the process of revising the past century’s biochemical concept, under which all major life processes are chemical in nature, to one that proposes that such processes are electromagnetic in nature.”

-Robert Becker, M.D.

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## White Cells kill Microbes via Electrocutation!

Science and Vie, 1998

MEDECINE  
IMMUNOLOGIE

### Bactéries électrocutées

Le système enzymatique de ce leucocyte électrocute les microbes.

défense est déclenché dès que les récepteurs du globule blanc détectent la présence d'un microbe. Ce signal active un système enzymatique situé dans la membrane du leucocyte et constitué par une enzyme au repos (NADPH oxydase) et par sa coenzyme (NADPH). La réaction commence par le réveil de l'enzyme, qui reçoit des électrons de sa coenzyme et les transporte à travers la membrane. Ejecté du globule blanc, le flux électronique est focalisé vers la bactérie par des molécules d'oxygène: la bactérie succombe. Cette découverte devrait ouvrir le champ des recherches sur les déficiences immunitaires de patients privés de ce système enzymatique.

M.-S. G.

“Leukocytes kill bacteria and pathogenic fungi by electrocuting them.... This is triggered as soon as the receptors of the white cell detect the presence of a microbe. This signal activates an enzymatic system located in the membrane of the leukocyte composed of a 'sleeping enzyme' (NADPH oxydase) and co-enzyme (NADPH). The reaction begins by the enzyme 'waking up', receiving enzymes from it's co-enzyme, and transporting them through the membrane. Ejected out of the white cell, this electronic flux is focused towards the bacterium via oxygen molecules; and the bacterium dies. This discovery might open new lines of research on immunity deficiencies in patients who are deprived of this enzymatic system.”

Our study is the first to demonstrate electron currents across the plasma membrane of a eukaryotic cell. These currents are generated by the phagocyte NADPH oxidase. The precise functions of the NADPH oxidase in host defence remain to be defined, however. The direct product of the NADPH-oxidase reaction, superoxide, is a relatively unreactive oxygen metabolite and its importance in microbial killing is unclear. Our results indicate that the NADPH oxidase can generate large currents, even against major electrical gradients (Fig. 4e). This feature is unique compared with other

Schrenzel et al. 1998,  
Nature Letters

Science & Vie Magazine, Issue #972, September 1998, pg. 44

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## Disabling Viruses with Weak DC Electricity

### Scientists say electric current may help fight AIDS

REUTERS NEWS SERVICE

NEW YORK — Doctors at a prestigious New York medical center are testing a new way to fight AIDS — using electrical energy to weaken the killer virus — and say their first results are encouraging.

Researchers William Lyman and Steven Kaul of the Albert Einstein School of Medicine said Tuesday that initial laboratory tests have

shown electrical current can weaken the virus believed to cause acquired immune deficiency syndrome.

The two men said they plan to move to the next phase of the experiment in April using blood samples from people with AIDS.

If their tests are successful, the researchers hope it could lead to new way to treat AIDS patients, possibly involving a dialysis-type

machine in which an AIDS patient's blood would be treated with electrical current outside the body.

"What we have done is expose the AIDS virus in laboratory circumstances to electrical current and then incubated the virus with white blood cells susceptible to the virus. We found that the virus became much more ineffective," Kaul, a specialist in the medical use of electrical current, said.

Lyman, an AIDS researcher and associate professor of pathology at Einstein, likened the new technique to chemotherapy.

"You are not going to get rid of the tumor, but you could get rid of enough of it to help the patient lead a normal life. This is not a cure but a new tool," Lyman said.

He added that the use of electrical energy has no toxic side effect and that a similar technique has been used as a treatment for reducing herpes.

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Revised May, 1999

Page 14 of 57



#### Percent reduction in infectivity

Dilution	25uA	50uA	75uA	100uA	(DC applied)
1:160	75.5%	95.0%	95.0%	98.9%	
1:320	75.0%	96.5%	94.8%	100.0%	

“Inactivation of herpes simplex virus type 1 & adenovirus type 5 by direct electric current at a biocompatible level in vitro.” (Roohandeh et al 2011)

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## Stimulating ATP & Amino Acid Production with Weak Microcurrents

### The Effects of Electric Currents on ATP Generation, Protein Synthesis, and Membrane Transport in Rat Skin **1982**

NGOK CHENG, M.D., HARRY VAN HOOF, M.D., EMMANUEL BOCKX, M.D., MICHEL J. HOOGMARTENS, M.D.,\* JOSEPH C. MULIER, M.D.,\* FRANS J. DE DUCKER, PH.D.,\*\* WILLY M. SANSEN, PH.D.,\*\* AND WILLIAM DE LOECKER, M.D.

- Microcurrents (<1 mA) stimulate ATP and amino acid production ~500%
- Higher current (>1 mA) reduces ATP production

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## Treating Bodily Fluids with Electricity

### United States Patent [19]

Kaali et al.

[54] METHOD AND SYSTEM FOR TREATMENT OF BLOOD AND/OR OTHER BODY FLUIDS AND/OR SYNTHETIC FLUIDS USING COMBINED FILTER ELEMENTS AND ELECTRIC FIELD FORCES

[76] Inventors: Steven Kaali, 88 Ashford Ave., Dobbs Ferry, N.Y. 10522; Peter M. Schwolsky, 20 Haslet Ave., Princeton, N.J. 08540

[21] Appl. No.: 730,690

[22] Filed: Jul. 16, 1991

### United States Patent [19]

Kaali et al.

[54] ELECTRICALLY CONDUCTIVE METHODS AND SYSTEMS FOR TREATMENT OF BLOOD AND OTHER BODY FLUIDS AND/OR SYNTHETIC FLUIDS WITH ELECTRIC FORCES

[76] Inventors: Steven Kaali, 88 Ashford Ave., Dobbs Ferry, N.Y. 10522; Peter M. Schwolsky, 4101 Cathedral Ave., NW., Washington, D.C. 20016

[21] Appl. No.: 615,800

[22] Filed: Nov. 16, 1990

Blood viewed with dark field microscope



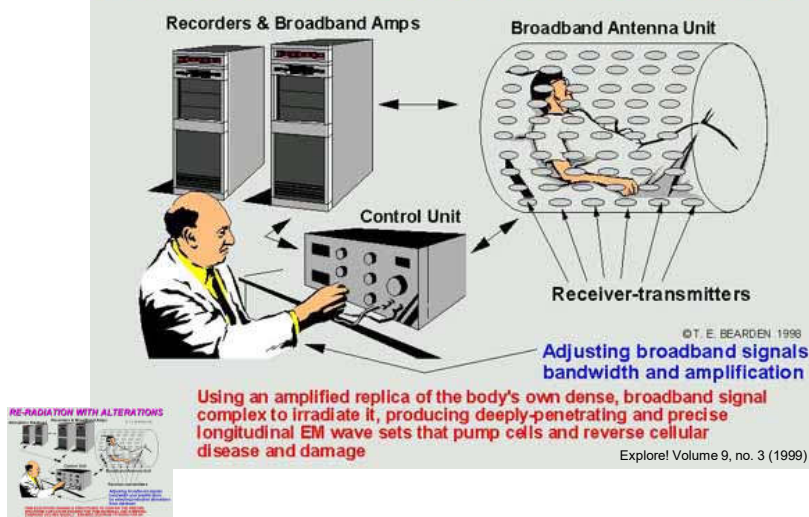
agglutinated blood w/ fibrin

"Both viruses were inactivated completely by 200  $\mu\text{A}$  DC in 10 minutes (current density = 20  $\mu\text{A}/\text{mm}^2$ ) while this amount of DC had no significant changes on the viability of Vero cells (viability > 90 %)"

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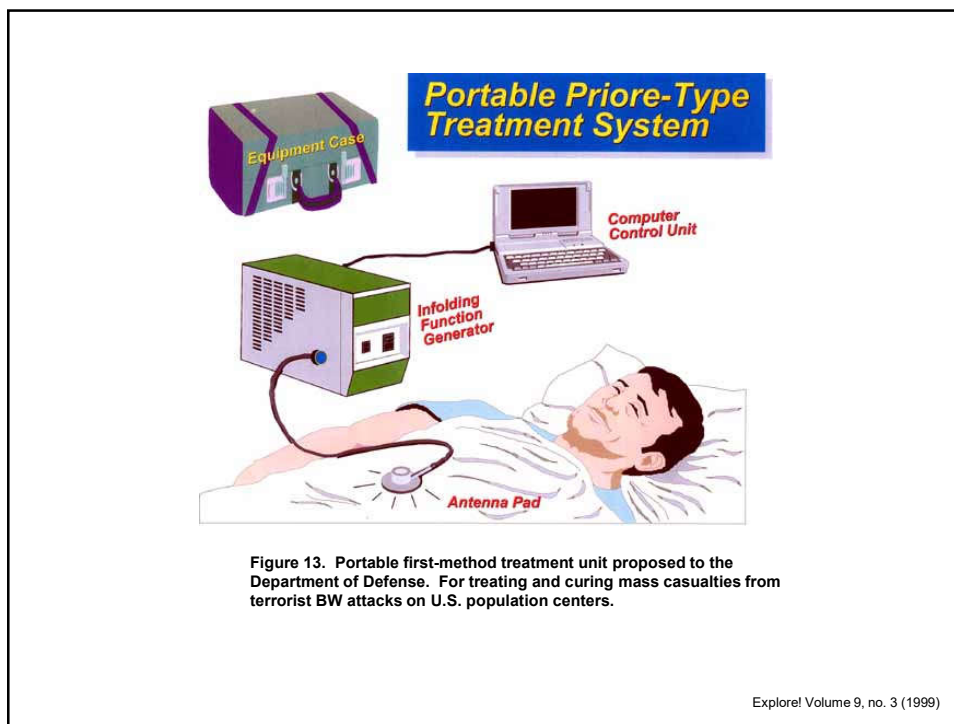
## Prioré Treatment Adopted by the DOD

### RETRODIATION WITH EMITTED TW EM WAVES



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## Vibrational Medicine: Alive and Well Today

<b>2001</b>	<b>2010</b>	<b>2011</b>	<b>2011</b>

**“Energy Medicine is the future of our health.”**  
Norm Shealy MD, retired neurosurgeon and psychologist

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# What about dangers from . . . ?

## Then

No child was too young for the tobacco marketers.



Stanford University

## Now

SMOKING CAUSES



cruk.org

LUK

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# Debating the Microwave Danger (1960s)

Allen Frey

Herman Schwan



## Debating the Microwave Danger

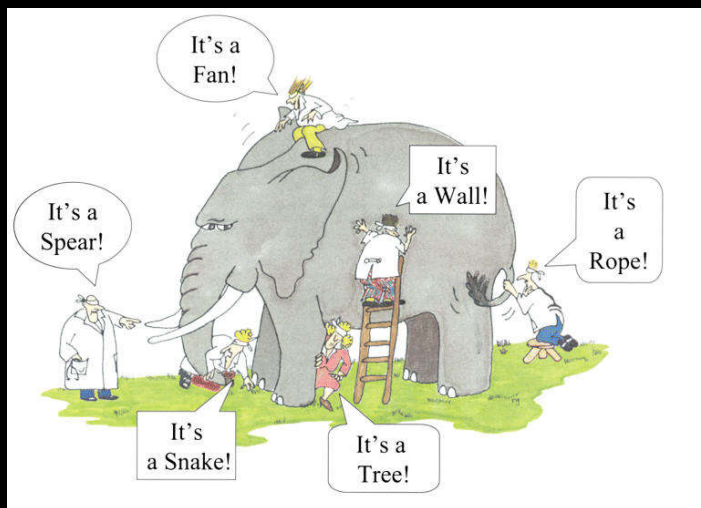
Some scientists believe the threat is small; others, including the Russians, believe it may be grave. Do they know something we don't?

**Caption:** Allen Frey like the Russians, has probed the effect of microwave radiation on animal organs. Herman Schwan's research typifies the major American trend of looking for microwaves' thermal effects.

**DEBATING THE MICROWAVE DANGER:** Some scientists believe the threat is small; other, including the Russians, believe it may be grave. Do they know something we don't? From: Microwave Debate by Nicholas Steneck, p.193. (MIT press, 1984, out of print).

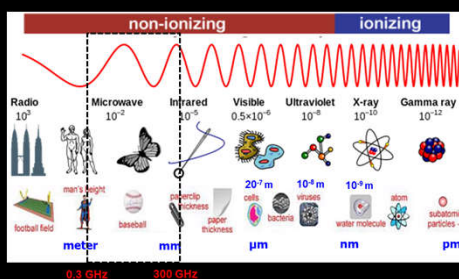
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## The Elephant and the Six Blind Scientists



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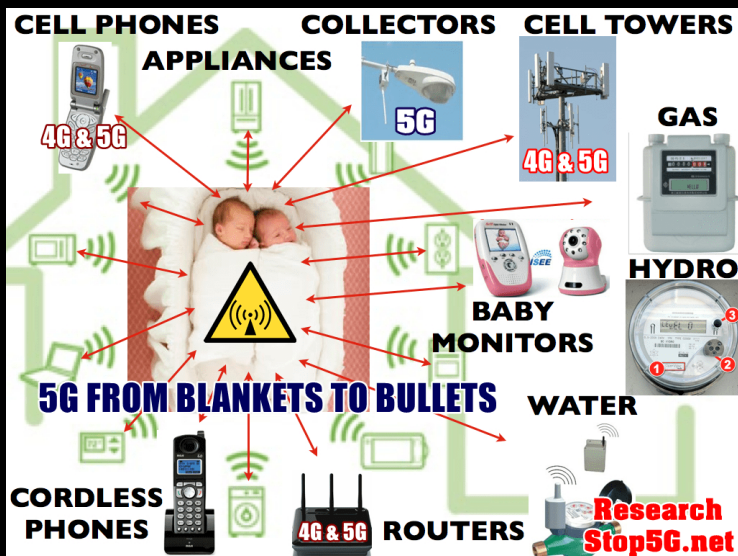
## What about *Microwave* Radiation? (0.3 GHz- 300 GHz)



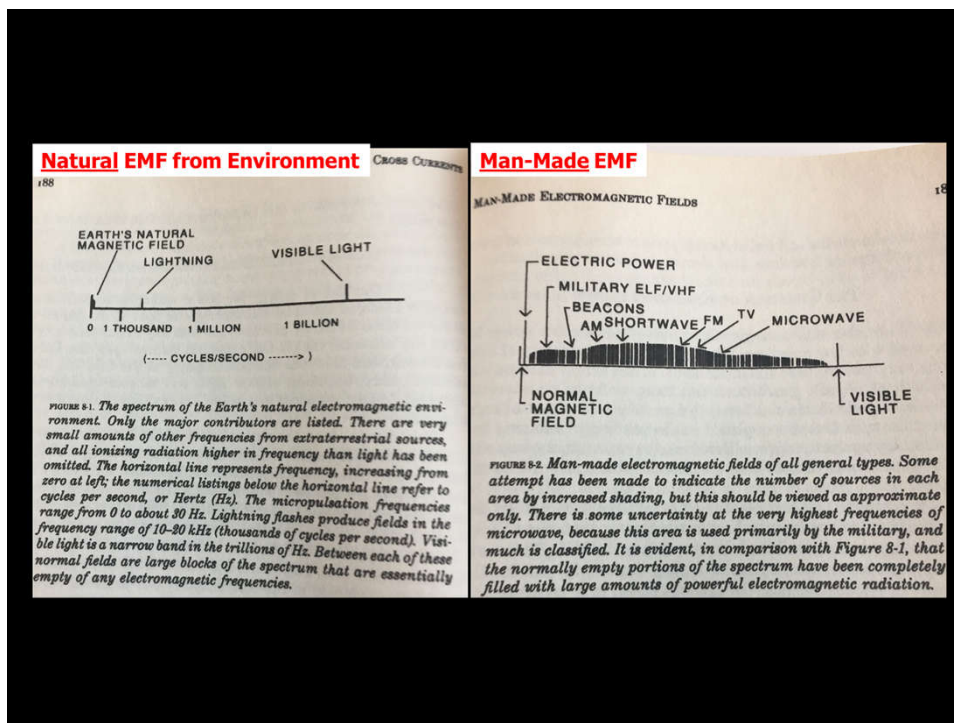
2G	3G	4G	5G
1991	1998	2008	2017
Texting	Texting, Streaming	Texting, Streaming, Video	Texting, Streaming, Video, Smart Home
2G Frequencies GSM 2G Upto 1.9 GHz	3G Frequencies HSDPA 3G Upto 2.1 GHz	4G Frequencies LTE 4G Upto 2.5 GHz	5G Frequencies IoT 5G Upto 95 GHz

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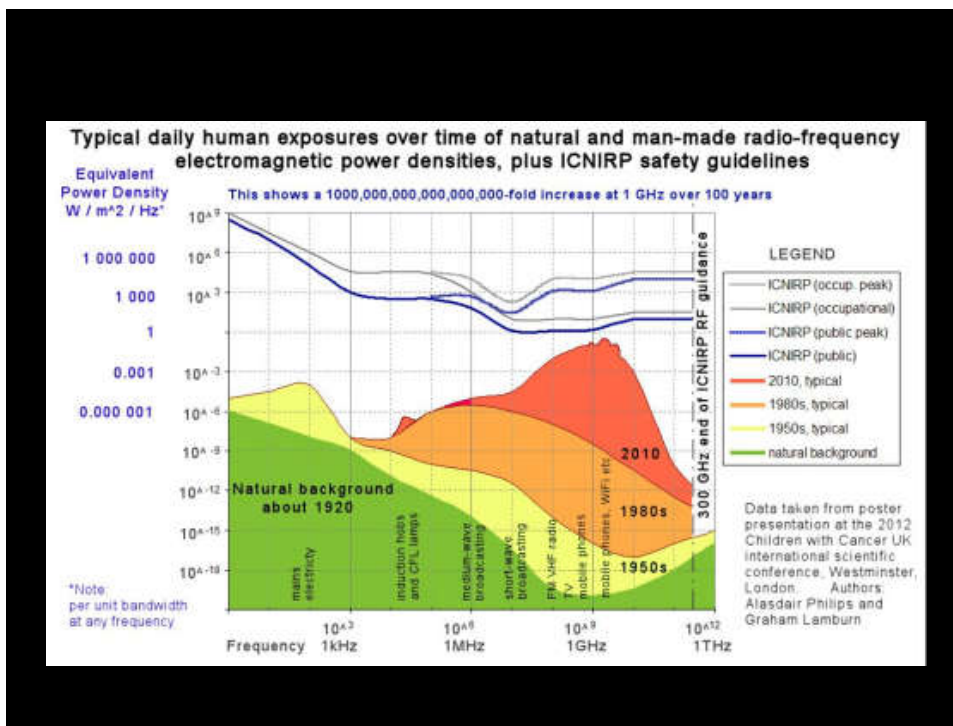
## What about *Microwave Radiation?* (0.3 GHz- 300 GHz)



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## Electromagnetic Radiation due to Cellular, Wi-Fi and Bluetooth technologies: How safe are we?

**IEEE Access**  
Multidisciplinary | Rapid Review | Open Access Journal

**NAREN<sup>1</sup>, ANUBHV ELHENCE<sup>1</sup>, VINAY CHAMOLA<sup>1</sup>, AND MOHSEN GUIZANI<sup>2</sup> (FELLOW, IEEE)**

<sup>1</sup>Department of EEE, Birla Institute of Technology and Science (BITS), Pilani 333031, India  
<sup>2</sup>Department of Computer Science, Qatar University, Qatar (e-mail: mguizani@ieee.org).  
Corresponding author: Mohsen Guizani, Author (e-mail: mguizani@ieee.org).

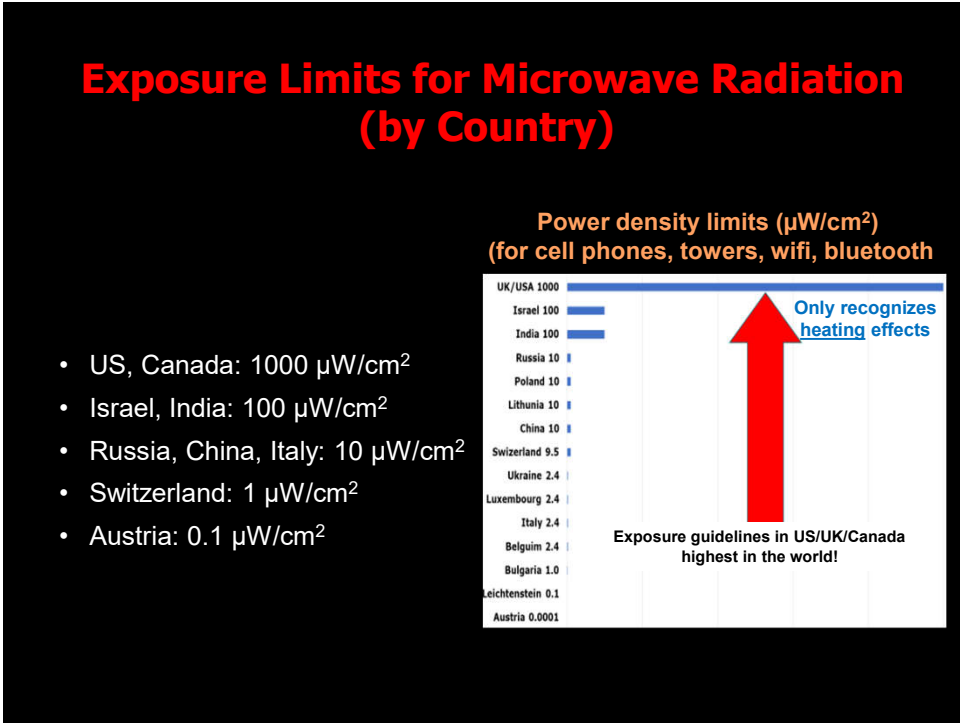
**IEEE Access**  
Naren et al., "Electromagnetic Radiation due to Cellular, Wi-Fi and Bluetooth technologies: How safe are we?"

**FIGURE 10:** Placement of different devices in a collective exposure scenario (in  $\mu\text{W}/\text{m}^2$ ).

**FIGURE 11:** EMR readings at different points of in a collective exposure scenario (in  $\mu\text{W}/\text{m}^2$ ).


factor to the cumulative exposure. Therefore, it is highly recommended to avoid keeping a Wi-Fi router on the table.

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## Hidden Warning in Manuals for Cell Phones and Laptops



**iPhone 7**

"During testing, iPhone radios are set to their highest transmission levels and placed in positions that simulate uses against the head, with no separation, and when worn or carried against the torso of the body, with 5mm separation. To reduce exposure to RF energy, use a hands-free option, such as the built-in speakerphone, the supplied headphones, or other similar accessories. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified."



**Chrome Schoolbook**

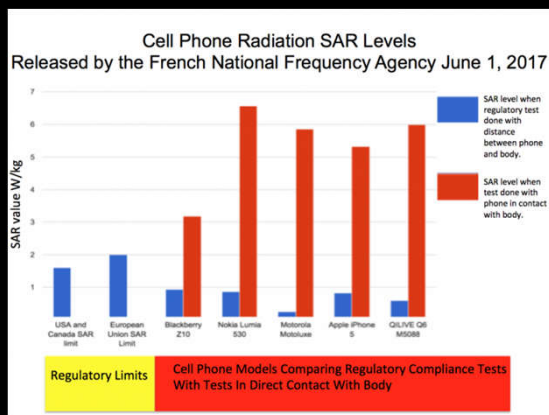
This device should be used **more than 20 cm (8 inches)** from the body when wireless devices are on.

Do not hold any component containing the radio such that the antenna is very close or touching any exposed parts of the body, especially the face or eyes, while transmitting.

<https://ehtrust.org/key-issues/cell-phoneswireless/fine-print-warnings/>  
 "Cell-Phone Safety: What the FCC Didn't Test", Time, Oct 26, 2010.

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## Hidden Warning in Manuals for Cell Phones and Laptops



<https://ehtrust.org/key-issues/cell-phoneswireless/fine-print-warnings/>  
 "Cell-Phone Safety: What the FCC Didn't Test", Time, Oct 26, 2010.

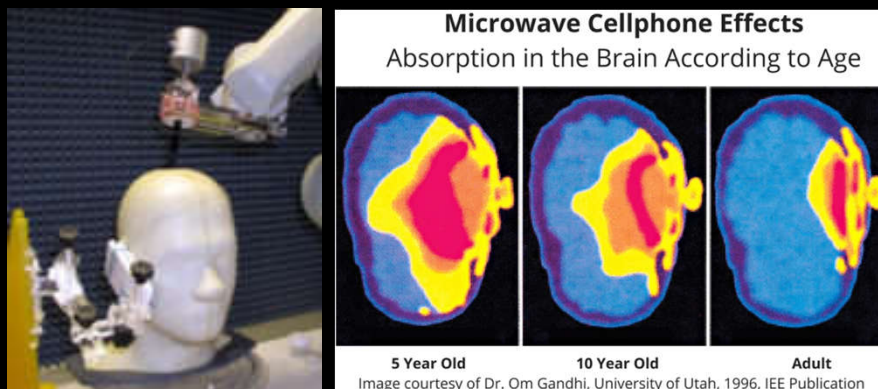
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## Exposure limits are based on heat and modeling in tissue-mimicking phantoms



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## Children are most vulnerable to microwave radiation

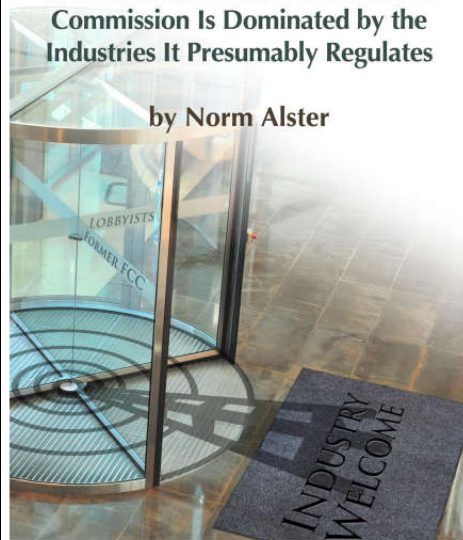


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## Captured Agency:

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

by Norm Alster

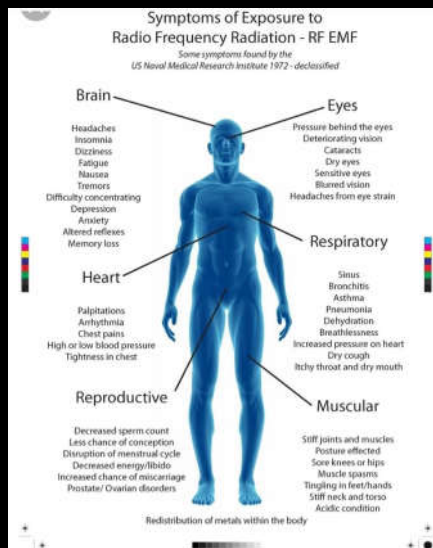
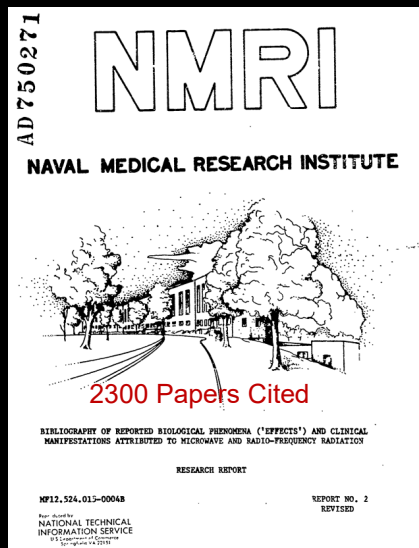


[www.ethics.harvard.edu](http://www.ethics.harvard.edu)

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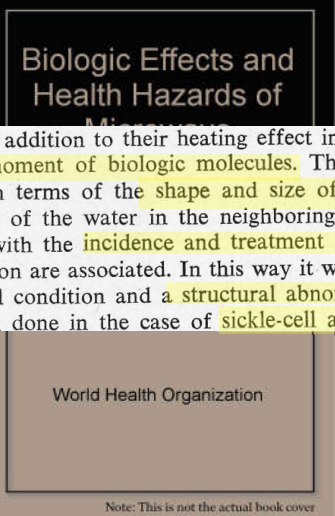


## Conclusions from the U.S. Navy (1972)



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## Conclusions from WHO Conference (1973)



Session B. Influence of Microwave Radiation on the Nervous System and Behavior

PSYCHOGENIC STRESSORS ARE POTENT MEDIATORS OF THE THERMAL RESPONSE TO MICROWAVE IRRADIATION

*D. R. Justesen, D. M. Levinson and L. R. Justesen*

(b) In addition to their heating effect in tissues microwaves interact with the electric dipole moment of biologic molecules. These interactions may be observed and interpreted in terms of the shape and size of the macromolecules and the nature of the structure of the water in the neighboring environment. Such parameters may be correlated with the incidence and treatment of certain diseases with which the molecules in question are associated. In this way it would be possible to find a direct link between a clinical condition and a structural abnormality at a molecular level as, for example, has been done in the case of sickle-cell anemia and hemoglobin.

SELECTED CASES OF MICROWAVE CATARACT IN MAN ASSOCIATED WITH CONCOMITANT ANNOTATED PATHOLOGIES

RETINAL CHANGES IN MICROWAVE WORKERS

*B. Tengroth and E. Aurell*

Department of Ophthalmology, University of Gothenburg, Gothenburg, Sweden.

ASSESSMENT OF LENS TRANSLUCENCY IN JUVENILES, MICROWAVE WORKERS AND AGE-MATCHED GROUPS

*S. Zydecki*

Institute for Postgraduate Study, Military Medical Academy, Warsaw, Poland

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## Conclusions from Ford Foundation (1965)

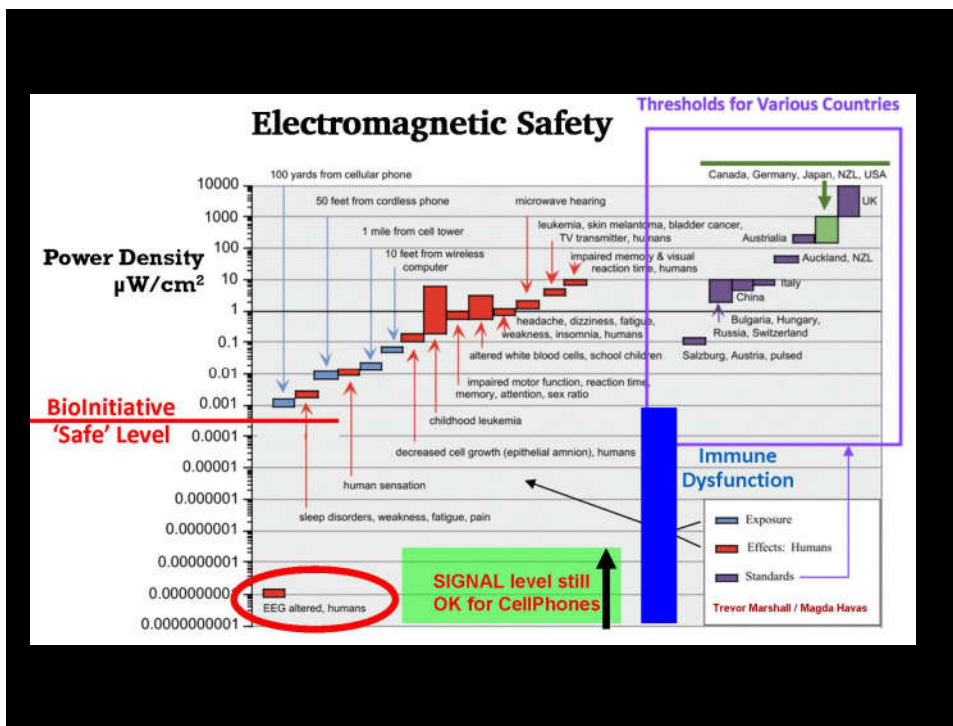
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I. Influencing the central nervous system by short waves as well as by high-frequency currents	3
1. Influence on the motor and sensory nerves	3
2. Influence on circulation and respiration	12
3. Influence on the EEG	14
4. Influence on temperature control	16
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4. "Filtration" of the higher harmonic of the fundamental frequency influencing the ganglion cells	63
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## Sources on Microwave Bioeffects (from >15,000)

- [2] Army: **Bioeffects of Selected Non Lethal Weapons** (Friedman 2006, 20 pages): <https://myurl.com/ndbkb3>
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- [4] Naval Medical Research Institute Document (Z. Glaser, 1971, 106 pages).  
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<https://myurl.com/rfkgp5>
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<https://www.cia.gov/library/readingroom/docs/CIA-RDP88B01125R000100120005-6.pdf>
- [8b] EPA (Elder and Cahill, 278 pages) **Biological Effects of Radiofrequency Radiation** (includes mechanisms)  
<https://myurl.com/rofn8v>
- [9a] NIH (National Toxicology Program) 2018 Cell Phone Radiofrequency Radiation Study. **Largest study (\$30 Million) ever on biological effects of cell phone radiation.** Toxicology and **carcinogenesis** studies in B6C3F1/N mice exposed to whole-body radio frequency radiation at a frequency (1,900 MHz) and modulations (GSM and CDMA) used by cell phones  
[https://ntp.niehs.nih.gov/ntp/htdocs/lt\\_rpts/r596\\_508.pdf](https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/r596_508.pdf)
- [9b] NIH (National Toxicology Program) 2018 Toxicology and carcinogenesis studies in Sprague Dawley SD rats exposed to whole-body radio frequency radiation at a frequency (900 MHz) and modulations (GSM and CDMA) used by cell phones  
[https://ntp.niehs.nih.gov/ntp/about\\_ntp/tpanel/2018/march/r595speedraft.pdf](https://ntp.niehs.nih.gov/ntp/about_ntp/tpanel/2018/march/r595speedraft.pdf)
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<https://onlinepubs.tri.edu.com/doi/pdf/10.1002/em.22243>
- [9d] Ramazzini Institute (2018). World's largest animal study on cell tower radiation confirms cancer link  
<https://ehtrust.org/worlds-largest-animal-study-on-cell-tower-radiation-confirms-cancer-link/>
- [10] A Rationale for **Biologically-based Public Exposure Standards** for Electromagnetic Fields (ELF and RF)  
<https://bioinitiative.org/>

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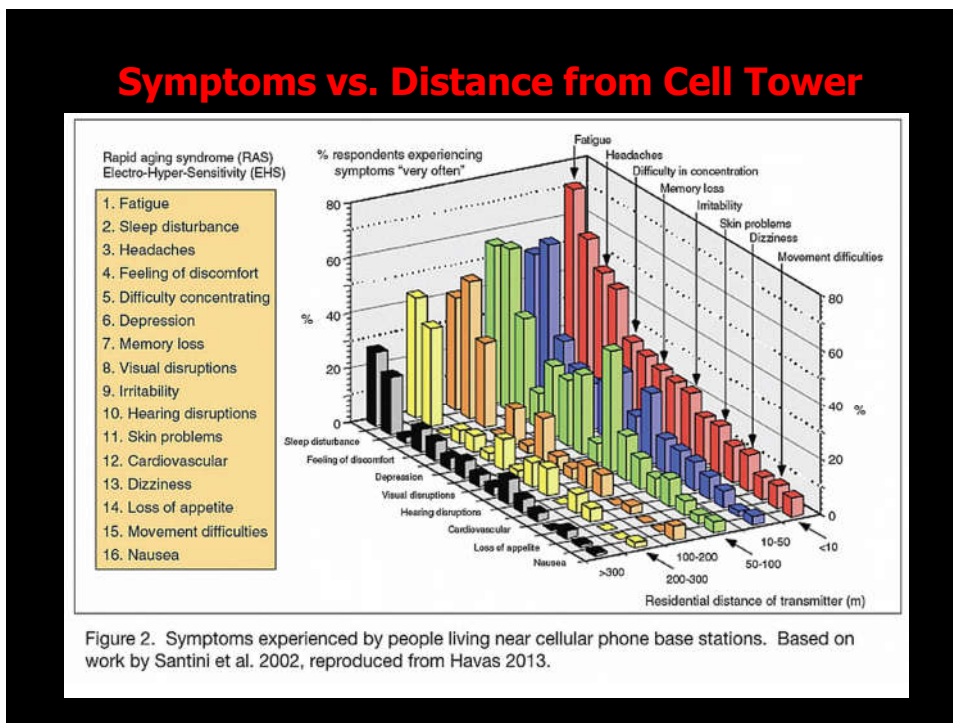


Figure 2. Symptoms experienced by people living near cellular phone base stations. Based on work by Santini et al. 2002, reproduced from Havas 2013.

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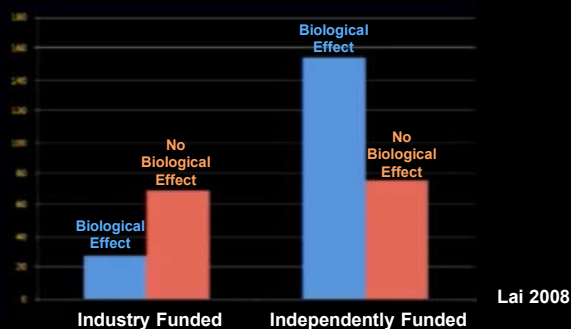
## Playbook by Wireless Industry

### WIRELESS COMMUNICATIONS INSTRUMENTS ANTICIPATED QUESTIONS/RECOMMENDED RESPONSES

- Q6. Cellular phones generate electromagnetic fields. Aren't those fields dangerous?*
- A6. All electrical devices, from TVs to toasters to hair dryers, from computers to power tools to electric blankets, generate electromagnetic fields. There is no evidence to date that the type of fields common to cellular phones have any adverse health consequences.
- Q7. Don't cellular phones emit microwave frequencies that can be harmful?*
- A7. Microwave ovens and cellular phones occupy frequencies that are relatively close on the electromagnetic spectrum, but it is the *energy, or power*, of microwave ovens — not their operating frequency — that causes them to generate heat and affect tissue.
- Clearly, microwave radiation at very high power causes heat. That is how microwave ovens cook food. But cellular phones are far too weak to have this effect, operating at a maximum power of 0.6 watts.
- Cellular phone signals are able to travel the distances they do because of the sensitivity of the receiving tower, not the power of the phone. Portable phones transmit at a maximum of only 0.6 watts and or even less — they are built to automatically step down to the lowest level of power necessary to communicate with the nearest tower. In a typical urban market, cellular phones operate at full power only 5 percent of the time.
- Q8. What government agencies oversee the safety of cellular phones? And what have they, or others, said about the safety of cellular phones?*
- A8. The Federal Communications Commission regulates the allocation and use of the electromagnetic spectrum. It adopts exposure standards for radio-wave emitters like cellular phones, which fall well within the current and latest proposed standards.
- The Food and Drug Administration (FDA) counts minimizing exposure from radiation-emitting electronic products among its responsibilities.
- The general issue of RF exposure has been addressed in the past by the National Institute of Occupational Safety and Health, the National Council on Radiation Protection and Measurements, and the International Radiation Protection Association.
- The current widely accepted standard for RF exposure was set through a process of rigorous, multidisciplinary review by the Institute of Electrical and Electronic Engineers (IEEE) and the American National Standards Institute (ANSI). The IEEE has stated: "Under conditions of normal use, the general conclusion is that cellular telephones are considered safe for the users and the public." The specific issue of health effects related to cellular telephone use is under review by the Food and Drug Administration and the Environmental Protection Agency.
- Q5. What about noncancerous health effects?*
- A5. No adverse health effects of any kind have been observed in experiments conducted at frequencies and power levels characteristic of those used by cellular phones.

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## Evidence of Sponsorship Bias

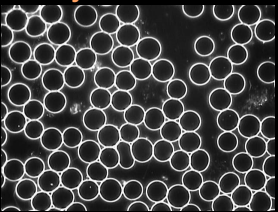


55

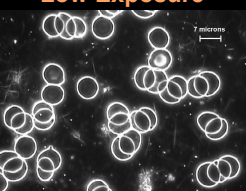
## Dark-field Phase Contrast of Human Blood: Tool for Assessing the "Biological Terrain"

- Clean Plasma
- Round RBCs
- Separable

**Healthy Red Blood Cells**

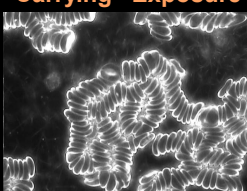


**Low Exposure**



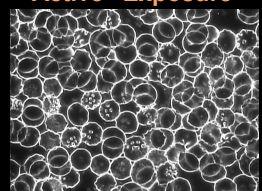
**Healthy RBCs**

**"Carrying" Exposure**



**"Rouleaux" Aggregates**

**"Active" Exposure**



**Spikey RBCs (echinocytes)**


Smart Phone Microwave Exposure

<https://www.westonaprice.org/health-topics/does-short-term-exposure-to-cell-phone-radiation-affect-the-blood/>

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## Effects of ionizing and non-ionizing radiation on DNA from the European Commission's 2004

### REFLEX Study

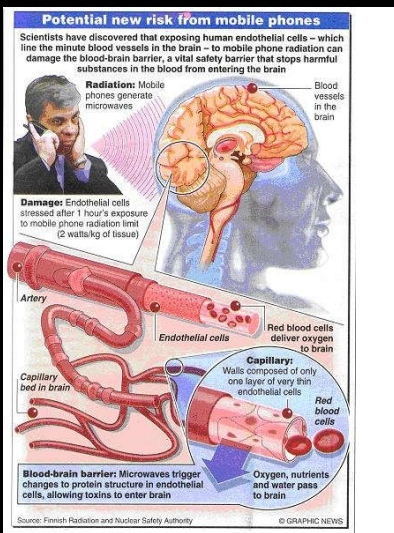


<p><b>Sham</b></p> <p style="font-size: x-small;">Comet Assay - a typical picture after RF-EMF-exposition of HL60 leukemia cells. Image source: Adkeler (2004).</p>	<p><b>Gamma-irradiation, 0.5Gy</b> (1,600 chest x-rays)</p>	<p><b>24h mobile phone, RF-EMF, 1800MHz at SAR = 1.3W/kg, ICNIRP/WHO = 2W/kg</b></p>
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Microwave Cell Phone Radiation Damages DNA

57

## Many studies report a compromised BBB after non-thermal exposure to microwaves



Oscar, K.J., and Hawkins, T.D. 1977. Microwave alteration of the blood brain barrier system of rats. *Brain Res.* 126:281.

Preston, E., Vavasour, E.J., and Assenheim, H.M. 1979. Permeability of the blood-brain barrier to mannitol in the rat following 2450 MHz microwave irradiation. *Brain Res.* 174:109.

Frey, A.H. 1980. On microwave effects at the blood-brain barrier. *Bioelectromagnetics Soc. News.* Nov. 1980.

μwaves increase BBB permeability

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## Cell Phone Radiation: Effects on Rat Blood Brain Barrier

Sham

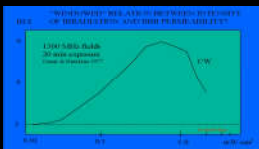


2 hours @  
915 MHz  
<8 mW/Kg



Dr Leif Salford

<https://youtu.be/OXcLmh5ZGBg>



Persson, B. R. R. & Salford, L. G. 1996. "Permeability of the blood-brain barrier in rats induced by continuous wave and pulse-modulated 915 MHz electromagnetic radiation exposure in TEM-cells." CEC-XIII-244/6-96 edn, A. Chabrera & J. Jutilainen, eds., EU DG XIII, Brussel, pp. 66-72.

Persson, B. R. R., Salford, L. G., & Brun, A. 1997. "Blood-Brain Barrier permeability in rats exposed to electromagnetic fields used in wireless communication." *Wireless Networks*, vol. 3, pp. 455-461.

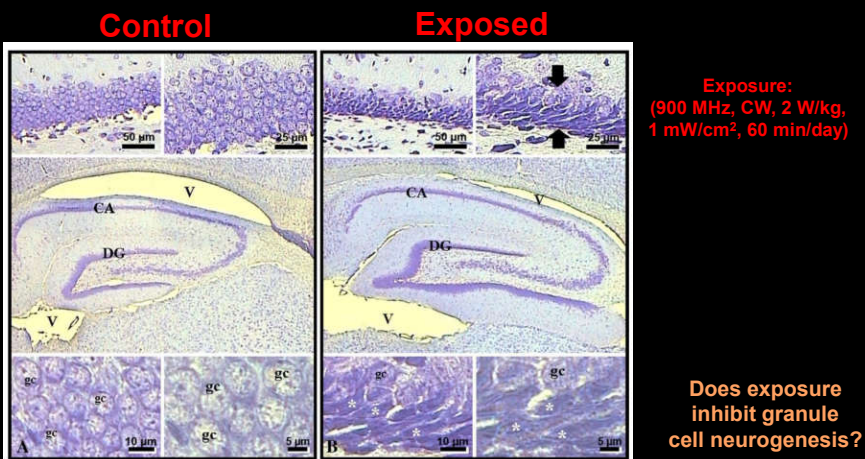
Salford, L. G., Brun, A., Eberhardt, J., Malmgren, L., & Persson, B. 1992. "Electromagnetic field-induced permeability of the blood-brain barrier shown by immunohistochemical methods," in *Interaction Mechanism of Low-Level Electromagnetic Fields in Living Systems*, B. Norden & C. Ramel, eds., Oxford University Press, Oxford, pp. 251-258.

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## Prenatal Exposure to 900 MHz: Neuronal Cell Loss

Effects of prenatal exposure to a 900 MHz electromagnetic field on the dentate gyrus of rats: a stereological and histopathological study<sup>☆</sup>

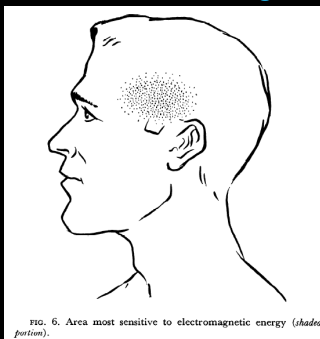
Ersan Odaci<sup>a,\*</sup>, Orhan Bas<sup>b</sup>, Suleyman Kaplan<sup>c</sup> **Brain Research**  
31 October 2008, Pages 224–229



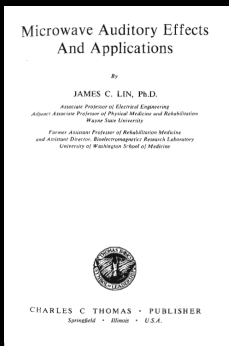
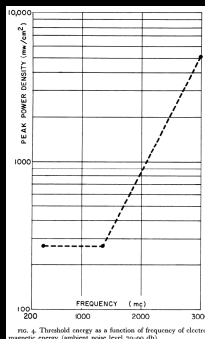
60

## Microwave Auditory Effect

### Microwave Hearing



A. Frey 1961



J. Lin 1978

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## Microwave Hearing: Patented Technology

**U.S. Patent 4858612 Stocklin**  
**Microwave Hearing Device**  
 August 22, 1989

FIG. 2  
 MICROWAVE AMPLIFIER BANK 13

OSCILLATOR 1  
 OSCILLATOR 2  
 OSCILLATOR N

AMP  
 AMP  
 AMP

20  
 20  
 20

21  
 22  
 23  
 24  
 25

26  
 27  
 28  
 29  
 30  
 31  
 32

MICROWAVE GENERATOR

The Antenna (26) is placed next to the subject's head and in the region of the subject's auditory cortex (21). By placement of the antenna (26) in the region of the auditory cortex (21), the microwave field which is generated stimulates the auditory cortex (21) and causes the subject to hear.

**\* REMEMBER: THIS WAS DC-ABLE IN 1974!**

Steady tone, near the high end of the hearing range, say, 15,000 Hz

Output is now more or less a steady tone, like tinnitus, but with hypnosis embedded.

Hypnotist's Voice, varying from, say, 300 Hz to 4,000 Hz

Mic. → FREQUENCY MODULATOR, VOICE CONTROLS FREQ. → TRANSMITTER

Each vertical line is one short pulse of microwave signal at a frequency to which the human brain is sensitive... then brain converts the train of microwave pulses back to inaudible voice; there is no conscious defense possible against the hypnosis.

Timing of each microwave pulse is controlled by each down-slope crossing of the voice wave (Sharp's original 1974 method).

HOW SILENT (CONVERTED-TO-VOICE-FM) HYPNOSIS CAN BE TRANSMITTED

OSCILLATOR TO GENERATE THE "VOICE"  
 ICE-TO-SKULL FOR DISTANCE AND COVER  
 no2s.gif  
 Mar 21/00

**U.S. Patent 7490538B2**  
 issued Feb 17, 2009  
 \*Weapon having lethal and non-lethal directed-energy portions

Directed Energy Weapon mounted on an M16

Fig 1:

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## Cell Phones and Tinnitus

Original article

**Tinnitus and mobile phone use**

Hans-Peter Hutter,<sup>1</sup> Hanns Moshhammer,<sup>1</sup> Peter Wallner,<sup>2</sup> Monika Cartellieri,<sup>3</sup> Doris-Maria Denk-Linnert,<sup>4</sup> Michaela Katzinger,<sup>4</sup> Klaus Ehrenberger,<sup>4</sup> Michael Kundi<sup>1</sup>

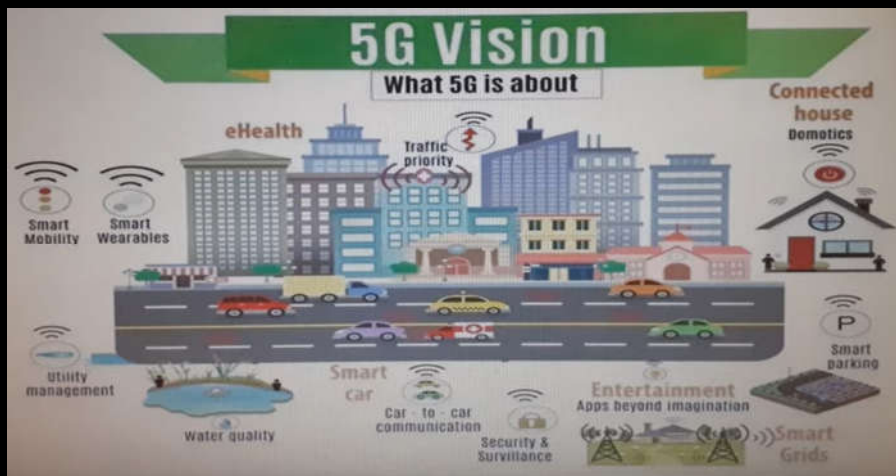
**CONCLUSIONS** Mobile phone use should be included in future investigations as a potential risk factor for developing tinnitus.

Hutter et al., 2010

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**Do we really want a "5G Future" . . .**



**. . . in a soup of microwave radiation?**

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**Do we really want a "5G Future" . . .**



**. . . in a soup of microwave radiation?**

70

## Spot the 5G Antennas

### The Obvious

Examples of 5G Small Cell Installations

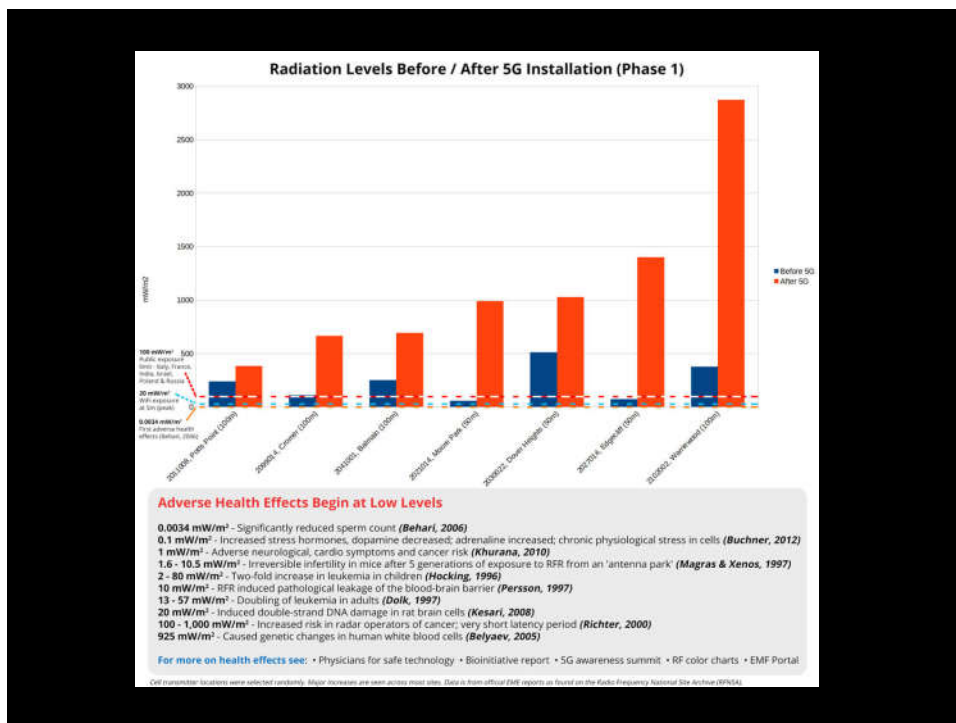
https://www.5gonline.com/identify/763d4b4a1120e0c1f194e46229e2c2411801f5d97d74e9e1616d822154

**Raycap**  
 Small Cell  
 Concealment  
 Solutions  
*We've Got 5G Covered™*

### The Stealth

<https://www.stealthconcealment.com/>

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### A Comparison of WiFi Emissions to the Scientific Research

Radiation Levels (µW/cm <sup>2</sup> )	Effects	Researcher	Year
10,000,000	FCC Exposure Guidelines, 30 min public exposure, based solely on thermal effects	FCC	1986
500,000	2 feet from microwave oven		
60,000	DNA damage in cells	Philips	1998
52,500	Induced stress response	Kiwan	2001
50,000	2 feet from a WiFi router, or WiFi enabled iPad		
50,000	Impaired nervous system activity	Dumansky	1974
50,000	Drop in hbc lymphocytes (immune function decrease)	Biovolto	2001
40,000	Slowed memory/altered immune function in children	Chiang	1989
40,000	Changes in hippocampus, part of brain memory, learning	Tattersall	2001
30,000	Irreversible infertility (in mice at 3 generations)	Magrak	1997
22,000	2 feet from a WiFi enabled Laptop	Shaid	2011
20,000	Double-strand DNA damage	Kiesari	2008
13,000	2x rate of leukemia in adults	Doh	1997
12,500	Affected kidney development	Papazogrodin	2004
10,000	Headaches, dizziness, irritability, fatigue, weakness, insomnia, chest pain, difficulty breathing, indigestion	Simonsenko	1998
10,000	Affected functions of the immune system	Novozelova	1999
8,000	Emotional behavior changes (free-radicals)	Aboer	2002
6,000	Change in calcium ion efflux from brain tissue	Datta	1986
5,000	Decreased sperm motility and increased DNA fragmentation	Adhendano	2010
3,800	Affected calcium metabolism in heart cells	Schwartz	1990
3,500	Pathological leakage in blood-brain barrier	Sulford	2003
3,000	Affected neurological system, brain function	Vorobyev	2010
2,200	Reduced density and number of young in bird populations	Balmori	2009
2,000	Decreased survival in children with leukemia	Hacking	1996
2,000	2x rate of leukemia in children	Hacking	1996
1,700	Irreversible infertility (in mice at 5 generations)	Magrak	1997
1,600	Negatively affected memory, attention, motor function of schoolchildren	Kalodnyski	1996
1,500	Reduced memory function	Hetty	2007
1,300	Decreased cognition, well-being	Zwambag	2003
1,000	10 feet from a WiFi Router		
700	Sperm head abnormalities in mice	Ottolago	2010
658	Decreased cognitive function	Papazogrodin	2011
600	Slowing of heart, change in EEG	Selnyak	1980
500	400 yards from a cell tower		
500	Adverse neurological, cardiovascular symptoms and cancer risk	Miyama	2010
500	10x increased risk of cancer in women, with short latency	Wool	2004
400	10 feet from a WiFi enabled Laptop		
300	Headaches, memory changes, depressive symptoms, sleeping problems	Rasouli et al.	2000
100	Behavioral disruption	Navabakhian	1994
100	Significant increase in breast cancer and brain tumours	Oberfeld	2008
100	Fatigue, headaches, sleeping problems	Navarro	2003
100	Headaches, concentration problems, sleeping problems	Hutter	2006
60	Headaches, fatigue, cardiovascular issues	Kundi	2009
50	In adults (30-60), chronic exposure caused sleep disturbances	Mohler	2010
30	In children and adolescents (8-17 yrs) behavioral problems in school	Thomas	2010
30	In children and adolescents (8-17 yrs) headaches, irritation, concentration difficulties in school	Heinrich	2010
20	Sleep disorders, abnormal blood pressure, nervousness, fatigue, joint pain, digestive disorders, fewer schoolchildren promoted	Altwater	1995
6	Fatigue, depressive tendency, sleeping disorders, concentration difficulties, cardiovascular problems	Oberfeld	2004
5	Decreased cell proliferation	Valizarov	1999
3	Significantly reduced sperm count	Behari	2005
0.001	Low Radiation Natural Environments		

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## Recommended Books on Biological Effects of Electromagnetic Microwave Radiation



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### **Tips to Reduce Exposure to Microwave Radiation from Wireless Devices**

1. Distance is your friend
2. Use airplane mode when not in use
3. Smaller bodies absorb more microwave radiation
4. Air tube headsets are best (no bluetooth devices near head)
5. Limit operating devices inside metal-enclosures (e.g., car)
6. Opt-out of smart meters
7. Shutdown WIFI/wireless devices at night when sleeping
8. Use hardwired connections
9. Use landline home phone (get rid of cordless DECT phones)
10. Read fine print for laptops, printers, routers etc. (stay >20 cm away)

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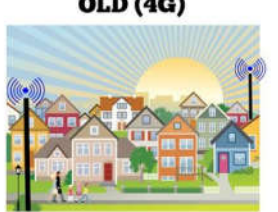
## Loss in Property Value

### NEW (5G)



- "Studies uniformly indicate there is significant impact on residential property values from installation of cell towers and antennas."
- Real Estate studies estimate homes to decline at least \$150,000 per house near a tower.
- High density placement is required for small cell towers to work - an estimated 300,000 total towers are coming to Colorado with max distance of 250 feet apart, that means cell towers every 3 to 10 homes. \*\*Additional equipment cabinets up to 28 cubic feet may be attached to poles.
- Even more large cell towers still required to support 5G infrastructure.
- Estimated 20,000 5G satellites will be launched by 2021. That is 10 times our existing coverage.
- Cell towers located **inside** neighborhoods.
- **NO protective boundaries** on small cell towers.
- The new FCC ruling allows small cell towers to be placed within any public right of way **without** city or public approval.
- 5G utilizes millimeter wave technology, never before used on large scale and close proximity to living things.
- **NEW untested** frequency bandwidth: 30-300 GHz.
- **No FCC tests have been completed at this time to confirm health/environmental impact of 5G technology deployment of this scale.**

### OLD (4G)



- Based on 3G/4G infrastructure alone, **Realtor Magazine sited a 20% price decrease for properties near cell towers.** Furthermore, a survey by the National Institute for Science, Law & Public Policy (NISLAPP) found that 94% of homeowners are "less interested and would pay less" for a property located near a cell tower or antenna.
- Broad range spacing for 4G - towers are larger, spaced out and include zoning regulation rights.
- Less than 2,000 3G/4G Satellites presently launched to date.
- Cell towers located **outside** neighborhoods.
- Current frequency bandwidth: 2-6 GHz range.
- **Independent studies have raised health and environmental concerns for this technology.**

**How can Colorado residents take action to help our state/city officials regain control over where 5G small cell towers can be placed?**

- Print/Post/Share this information with your family, friends, neighbors, schools, gyms, local businesses and community organizations.
- Research 5G small cell towers plans near you.
- Voice your concerns to your local Representatives, Commissioners, Real estate associations and HOAs.
- Contact: 5GColoradoAction@gmail.com

We need SUPPORT → [www.facebook.com/groups/5GColoradoAction/](http://www.facebook.com/groups/5GColoradoAction/) ← Please JOIN now

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