

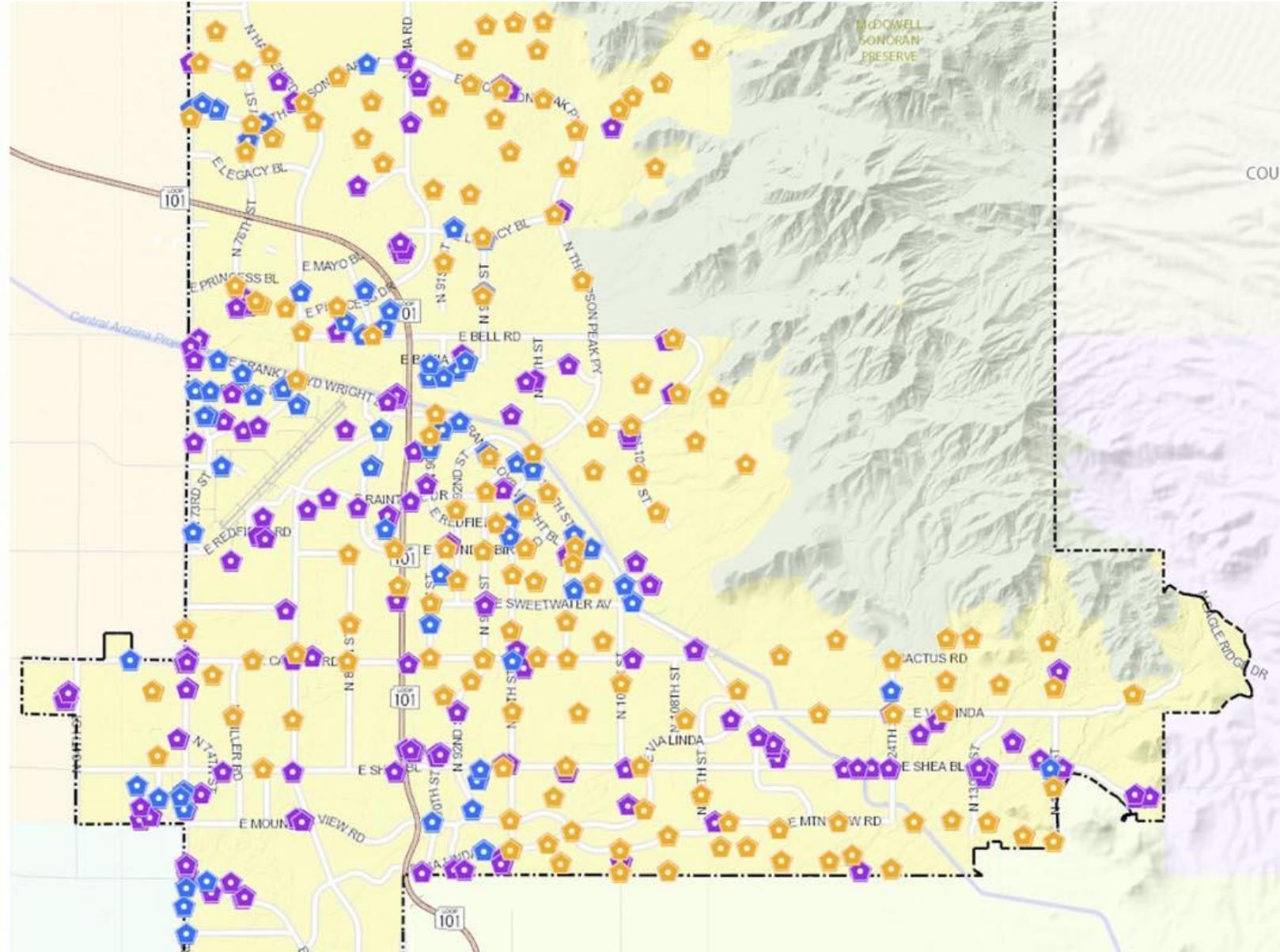


# Glen Ellyn's Plan for Densified 4G/5G so-called "small" Wireless Telecommunications Facilities

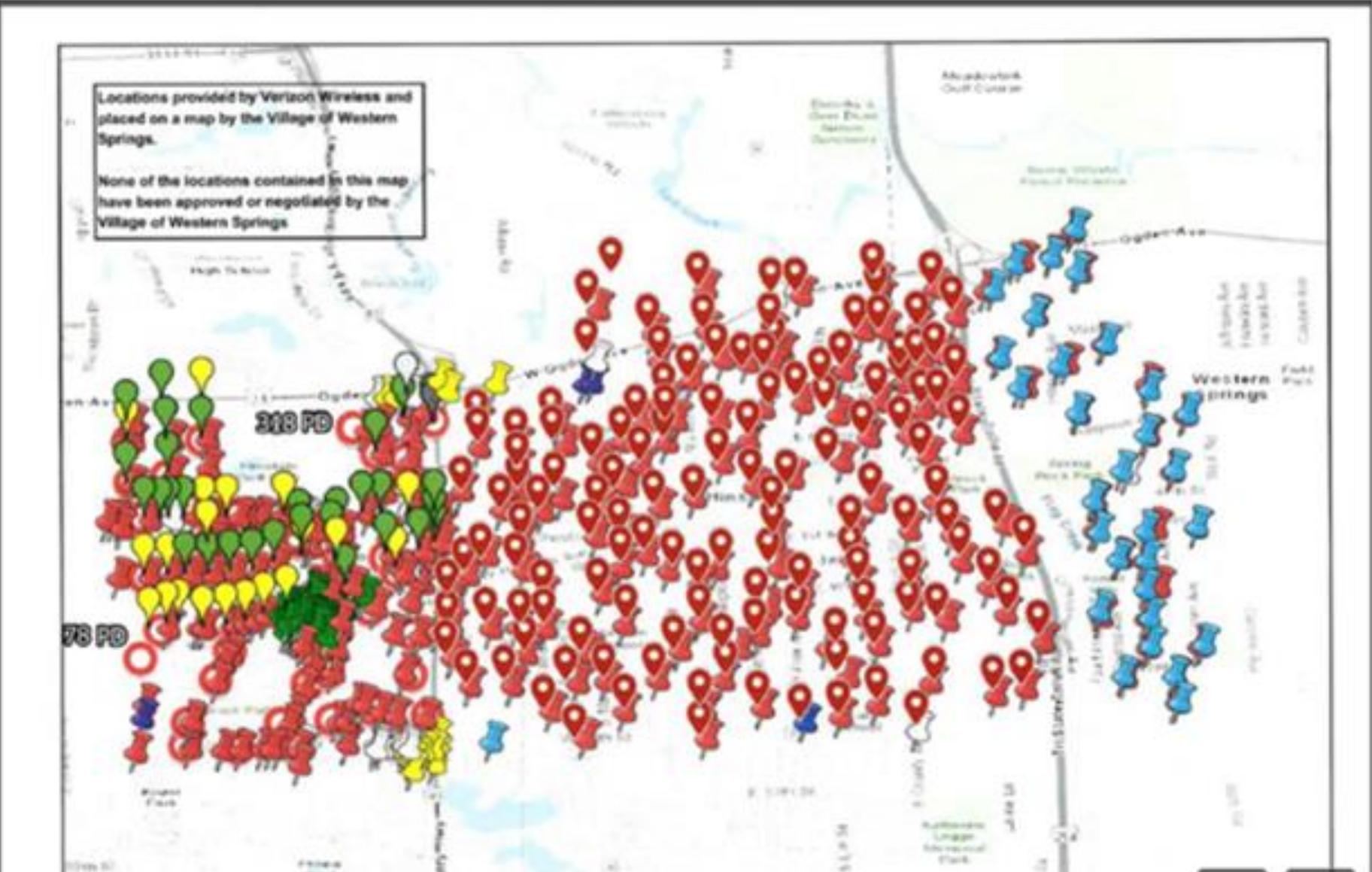
By [Glen Ellyn V•H•P](#)

May 20, 2020

# Let's **NOT** End Up Like Scottsdale, AZ



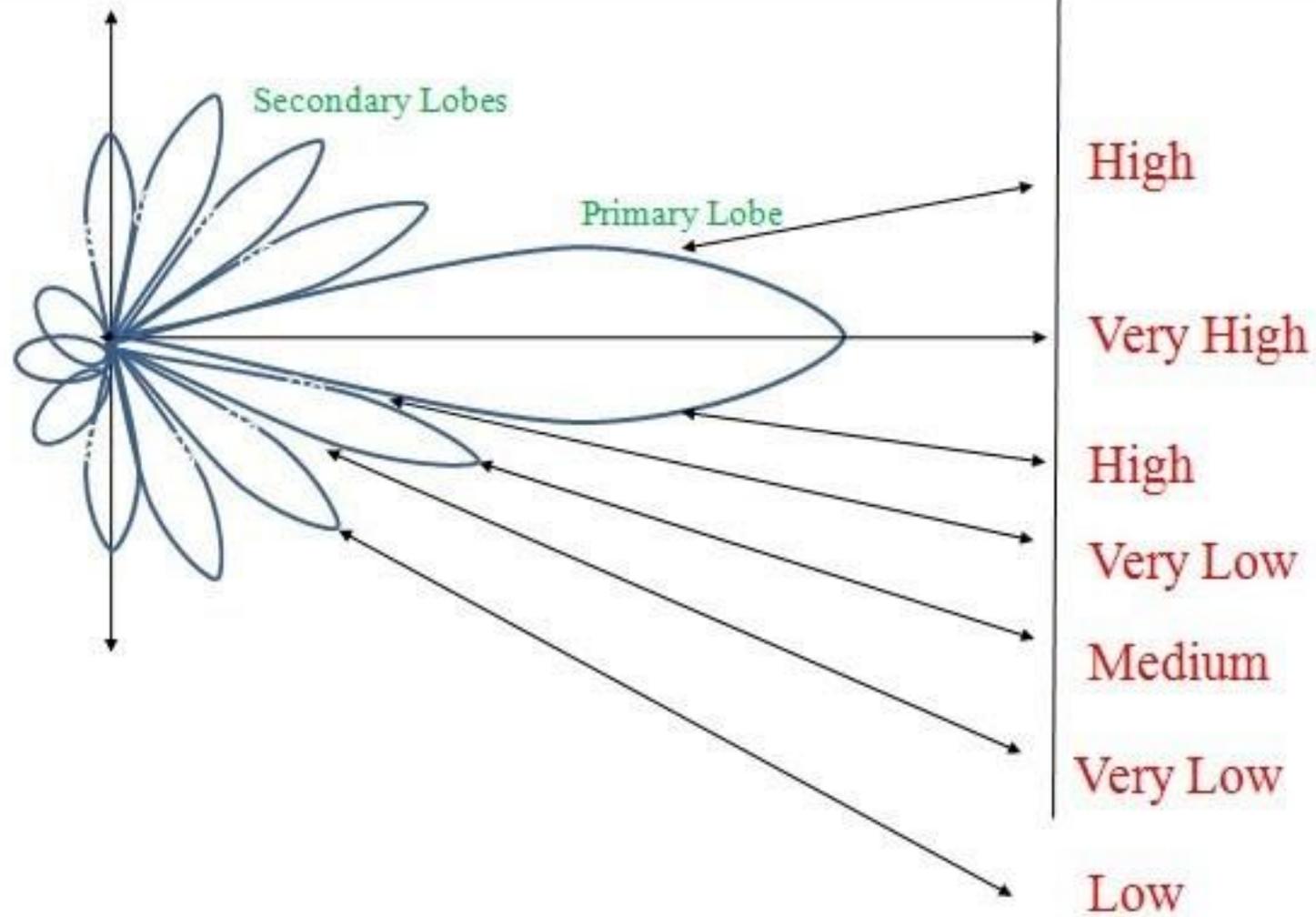
# What is Going On Around Us?



# Targeted Utility Poles in Glen Ellyn



# Radiation Pattern of a Cell Tower Antenna



# Pulse-Modulated Microwave Radiation in the US:

## *How Many Overlapping Waves Are Too Many?*

“MHz” = Megahertz    “dm” = decimeter    “cm” = centimeter    “mm” = millimeter

**Note: This first 5G wavelength is the height of a baby up to 1 month old.**

- **5G:** 600 MHz = dm microwaves of 5 dm ≈ 20”
- 4G: 700 MHz = dm microwaves of ~4.3 dm ≈ 17”
- 3G/4G: 800 MHz = cm microwaves of 37.5 cm ≈ 15”
- 3G/4G: 900 MHz = cm microwaves of ~33.3 cm ≈ 13”
- 3G/4G: 1800 MHz = cm microwaves of ~16.7 cm ≈ 6.6”
- 3G/4G: 2100 MHz = cm microwaves of ~14.3 cm ≈ 5.6”
- Wi-Fi: 2450 MHz = cm microwaves of ~12 cm ≈ 5”
- **5G:** 3100 MHz to 3550 MHz = ~9.7 to ~8.5 cm ≈ 3.8 to 3.3”
- **5G:** 3550 MHz to 3700 MHz = ~8.5 to ~8.1 cm ≈ 3.3 to 3.2”
- **5G:** 3700 MHz to 4200 MHz = ~8.1 to ~7 cm ≈ 3.2 to 2.8”
- **5G:** 4200 to 4900 MHz = ~7 to ~6 cm ≈ 2.8 to 2.4”
- Wi-Fi: 5800 MHz = ~5 cm microwaves of ~2”
- **5G:** 24,250 to 24,450 MHz = cm microwaves of ~12mm ≈ **0.5”**
- **5G:** 25,050 to 25,250 MHz = cm microwaves of ~12mm ≈ **0.5”**
- **5G:** 25,250 to 27,500 MHz = cm microwaves of ~11mm ≈ **0.4”**
- **5G:** 27,500 to 29,500 MHz = **mm** microwaves of ~10mm ≈ **0.4”**
- **5G:** 31,800 to 33,400 MHz = **mm** microwaves of ~9mm ≈ **0.4”**
- **5G:** 37,000 to 40,000 MHz = **mm** microwaves of ~8mm ≈ **0.3”**
- **5G:** 42,000 to 42,500 MHz = **mm** microwaves of ~7mm ≈ **0.3”**
- **5G:** 64,000 to 71,000 MHz = **mm** microwaves of ~5mm ≈ **0.2”**
- **5G:** 71,000 to 76,000 MHz = **mm** microwaves of ~4mm ≈ **0.2”**
- **5G:** 81,000 to 86,000 MHz = **mm** microwaves of ~3.6mm ≈ **0.1”**

# “Small” Cell? Dimensions, not Power.

- FCC Order 18-30 definition of so-called “Small” Wireless Facility:  
*Height ≤ 50 ft.; Antenna ≤ 3 cu. ft.; Ancillary eqpt. ≤ 28 cu. ft. (dims., not power)*

*... was vacated from 47 CFR [§1.1312\(e\)](#), but put back??? in 47 CFR [§1.6002\(l\)](#)*

- Sept 12, 2019:** Wireless Industry admits that sWTFs are Macro Towers in disguise ...

[Lee Afflerbach](#): “The [antennas and] radios of [these small cells] are the exact **same as on macro towers**. It’s not a different technology ... **the same as on macro towers. I see them all the time.**”

- sWTF Max Power Output:** Inappropriate power output for antennas ([specs](#)) installed as close as **6 to 12 feet from homes**.

Verizon's Amphenol CUUT360X12 (48" tall x 15" diam.)

Frequencies	ERP* x Antenna Gain	Max Total ERP*
696-806 MHz	500 Watts x 8.6 dBi	4,300 Watts ERP
806-960 MHz	500 Watts x 9.1 dBi	4,550 Watts ERP
1695-1880 MHz	300 Watts x 12.0 dBi	3,600 Watts ERP
1850-1990 MHz	300 Watts x 12.0 dBi	3,510 Watts ERP
1920-2200 MHz	300 Watts x 10.9 dBi	3,270 Watts ERP
2300-2700 MHz	300 Watts x 10.1 dBi	3,030 Watts ERP
<b>TOTAL</b>	n/a	<b>22,260 Watts ERP</b>

\*ERP = Effective Radiated Power

# Current AT&T Antenna Spec Sheet

A 4G Kathrein 840-10511 Dual Omni Antenna Band 698-894 MHz | 1710-2180 MHz

<https://www.kathreinusa.com/wp-content/uploads/2015/06/84010515.pdf>

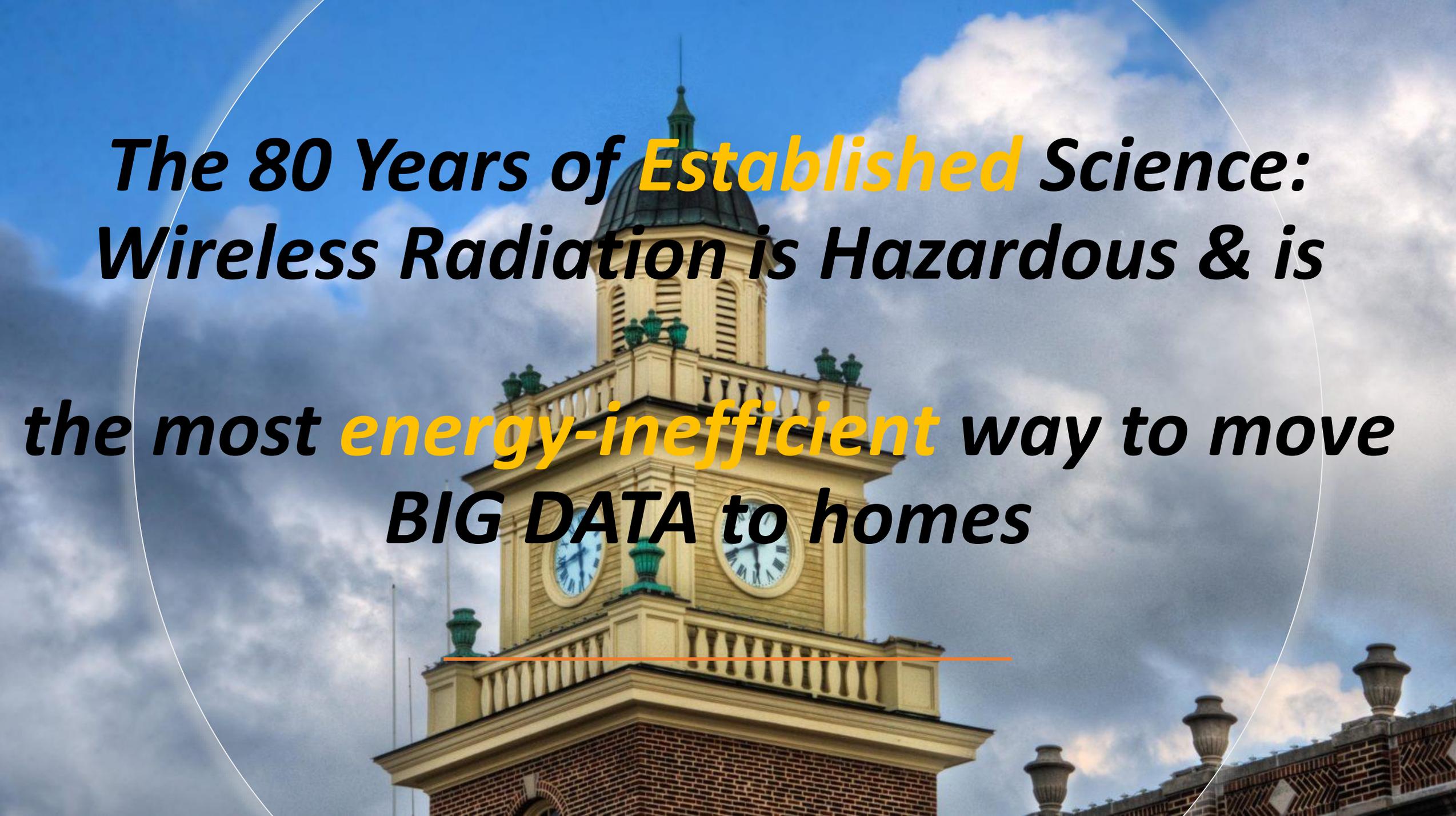
Frequencies	Max. input power (at 122 °F)	Antennna Gain (dbi)	Equation	Total Watts ERP
698–806 MHz	250 Watts	10.4 dBi	$250 \times 10.4 =$	2,132 Watts ERP
806–894 MHz	250 Watts	11.6 dBi	$250 \times 11.6 =$	2,900 Watts ERP
1710–1880 MHz	200 Watts	13.5 dBi	$200 \times 13.5 =$	2,700 Watts ERP
1850–1990 MHz	200 Watts	13.5 dBi	$200 \times 13.5 =$	2,700 Watts ERP
1920–2180 MHz	200 Watts	13.2 dBi	$200 \times 13.2 =$	2,640 Watts ERP
<b>Total ERP</b>	—	—	—	<b><u>13,032 Watts ERP</u></b>

# How Much Power is Actually Needed for Telecommunications Service?

- **0.1 Watt ERP** from the sWTF antenna is all that is needed for . . .  
“5 bars” on a cell phone ([-85 dBm](#)) at ½-mile radius for Telecom Service
- 22,260 Watts is **200,000+ times higher** than 0.1 Watt.  
*Why is this allowed in Glen Ellyn? This ruins [Quiet Enjoyment of Streets](#).*
- Cities that regulate all three -- **Vertical • Horizontal • Power ([V•H•P](#))**  
***properly balance*** the needs of residents and Wireless Cos.
- **BIG DATA** via fiber to the premises (FTTP), *small data* through the air

# What is Really Going On . . .

- **Densified 4G/5G sWTFs** are for 24/7, crowd control and unjust/unreasonable taking from public -- see NY Times Best-Seller [Surveillance Capitalism](#)
- The FCC and FDA *are dominated by the industries they presumably regulate*. See [Captured Agency](#)
- Wireless Industry **spends \$2.4 Billion annually** on Ads/Lobbying
- **60% of U.S. Population** has one or more Chronic Illnesses



***The 80 Years of **Established** Science:  
Wireless Radiation is Hazardous & is  
the most **energy-inefficient** way to move  
**BIG DATA** to homes***

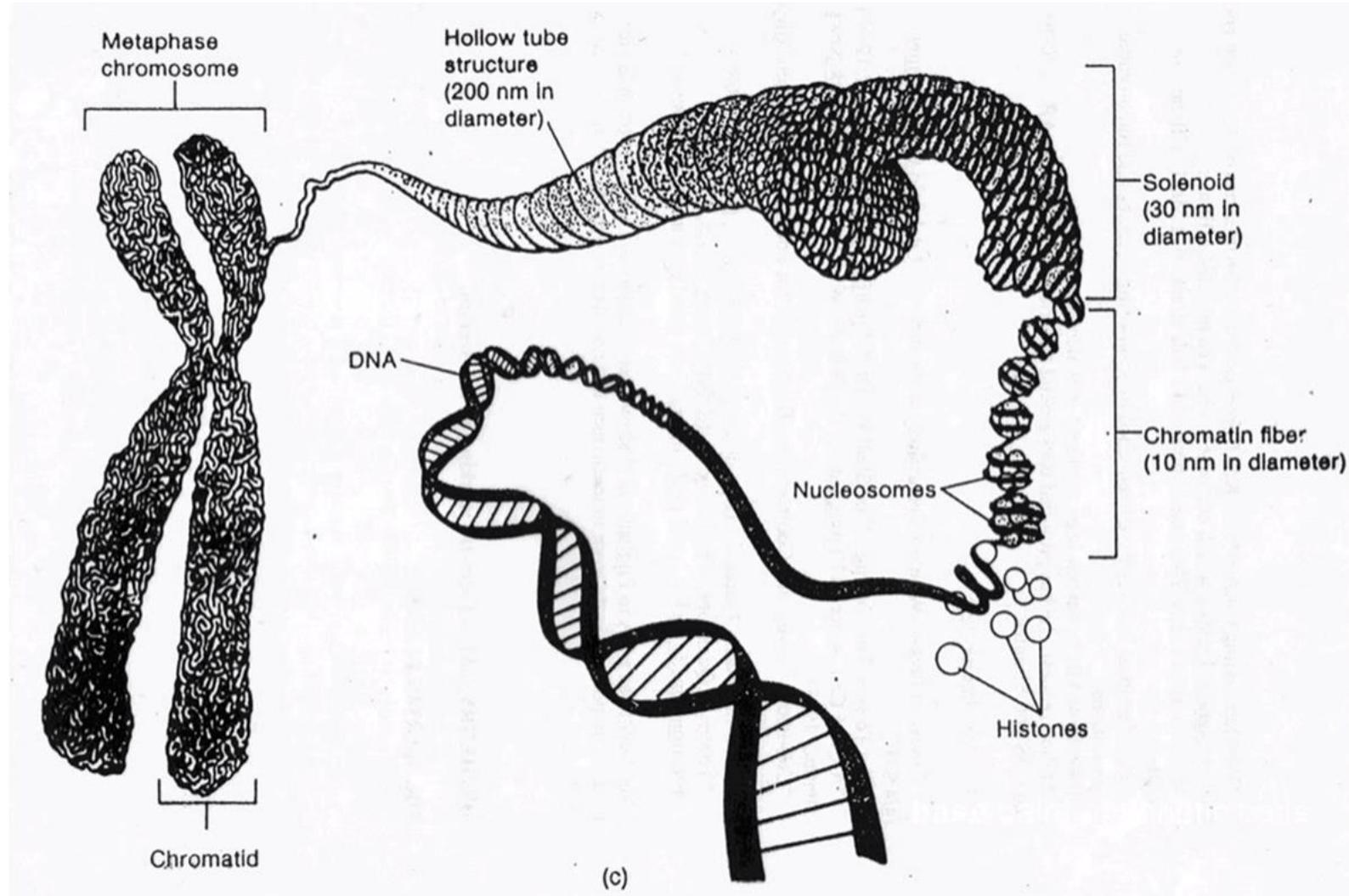
# Negative Health Consequences From RF-EMR Exposures

- **Direct** Neurological, Cardiovascular, Reproductive and Blood Harms
- **Leading Scientists:** pushing IARC to re-classify RF-EMR exposures from Group 2b (possible) to **Group 1 (definite) Human Carcinogen**
- RF-EMR exposures **Suppresses melatonin** and immune systems
- **Involuntary** 24/7/365 RF-EMR exposures is the problem

# Negative Health Consequences From RF-EMR Exposures

Power Output Scale	Consequences on Human Health (based on thousands of published studies)	$\mu\text{W}/\text{m}^2$
0.0005x	EEG altered in humans; alters brain waves	0.000001
1	<b>FIVE BARS ON CELL PHONE</b>	0.002
15,000x	Sleep disorders, weakness, fatigue, pain	30
50,000x	Human sensation	100
500,000x	Decreased cell growth, humans	1,000
600,000x	Childhood leukemia	1,200
1,250,000x	Impaired motor function, reaction time, memory, attention	2,500
3,750,000x	Altered white blood cells, humans	7,500
5,000,000x	Headache, dizziness, fatigue, weakness, insomnia, humans	10,000
15,000,000x	Microwave hearing	30,000
25,000,000x	Leukemia, skin, melanoma, bladder cancer	50,000
50,000,000x	Impaired memory, visual reaction time, humans	100,000
5,000,000,000x	FCC Maximum Permissible RF-EMR Exposure Guidelines, General Pop.	10,000,000

# DNA Strand Breaks Established



1



**OVARIES**  
- 400,000 FOLLICLES  
- 400 TO MATURE  
- 14 EACH CYCLE TO PRODUCE EGG(S) WHICH CAN BE FERTILIZED

**CHILD 'A' 5-16 YEARS EXPOSED TO WI-FI IN SCHOOL**  
Possible damage to first and subsequent generations.

Microwave irradiation can cause oxidative and nitrosative stress to mitochondria - this DNA is 10x more susceptible to low level chronic microwave radiation than other DNA.

Low histone protein content i.e. mitochondriopathy  $N_2 O_2$  is essential for brain / immune system, any DNA damage is irreparable and can pass to every female hence forth.

57.7%

2



\* PHOTOSENSITIVE GANGLIONS ABSORB RAD: EFFECT BODY FUNCTIONS

**CHILD 'B' FOETUS FROM CHILD 'A' NOW AS A PREGNANT STUDENT/ADULT**  
With possible DNA damage

- 100 days for follicles to form: no definite structure thence 150+120 d. to mature
- No protein 53 (x4) to fight radiation
- No nuclear core complex (x30) proteins for defence
- No factor 1 protein\* (apoptosis)
- Of 100,000 protein structures only 600 are known

7d = 100 Cells

28d = Heart

\*40d = Eye

47d = fingers / toes

Body is initially inside out, i.e.

major organs are the most irradiated

Woman may not know she is pregnant at this stage: Hence no precautions taken

3



**CHILD 'B' IS NOW PREGNANT CHILD 'C'**  
Adult Child C may already have been irradiated

- Every aspect of Child 'C's life has been at maximum risk from stages 1,2 & 3.
- The greatest risk is yet to come. Biggest danger from school wi-fi irradiation on students and teachers

1st 56 days is when all embryos are most vulnerable. During the first 4-6 weeks, the mother may not know she is pregnant, therefore will not shield the embryo from radiation

25+ years



**V·H·P: Vertical·Horizontal·Power**

**... if your Town has not regulated  
ALL 3, it has achieved nothing**

# For Locally Unregulated ERP, WTFs must be at least 1640 feet from homes

M. Pearce, [Limiting liability with positioning to minimize negative health effects of cellular phone towers](#), *Environmental Research* (2019).

“Given the current research, cell towers should be placed 500 meters (1640 feet), or about a third of a mile, away from schools, hospitals and lots of sleeping people in dense neighborhoods or high rises.”

# 2017-2020: Strong Resistance to Dense 4G/5G WTFs in CA

Sacramento, CA: *40 feet* from home | San Francisco, CA: *10 feet* from home | Santa Rosa, CA: *20 feet* from home



After one month, children in Sacramento **sickened**; and family spent \$10,000+ to shield home; after three months, woman in San Francisco was diagnosed with **brain tumor** (removed Mar 2, 2020); after two months, woman in Santa Rosa **moved and sold her home at 23% below market comps.**

# Glen Ellyn Can Adopt Workable V·H·P Recipes

## 1996 Telecommunications Act (TCA) Conference Report:

*“[T]he conferees **do not intend** that if a State or local government grants a permit in a commercial district, it must also grant a permit for a competitor’s **50-foot tower in a residential district.**” ([link](#))*

# Workable V•H•P Recipe, for years

- **Vertical:** antenna is about 200 feet from ground
- **Horizontal:** antenna is 1,500+ feet from homes/schools
- **Power:** locally unregulated maximum Effective Radiated Power

# Disastrous V•H•P Recipe for sWTFs

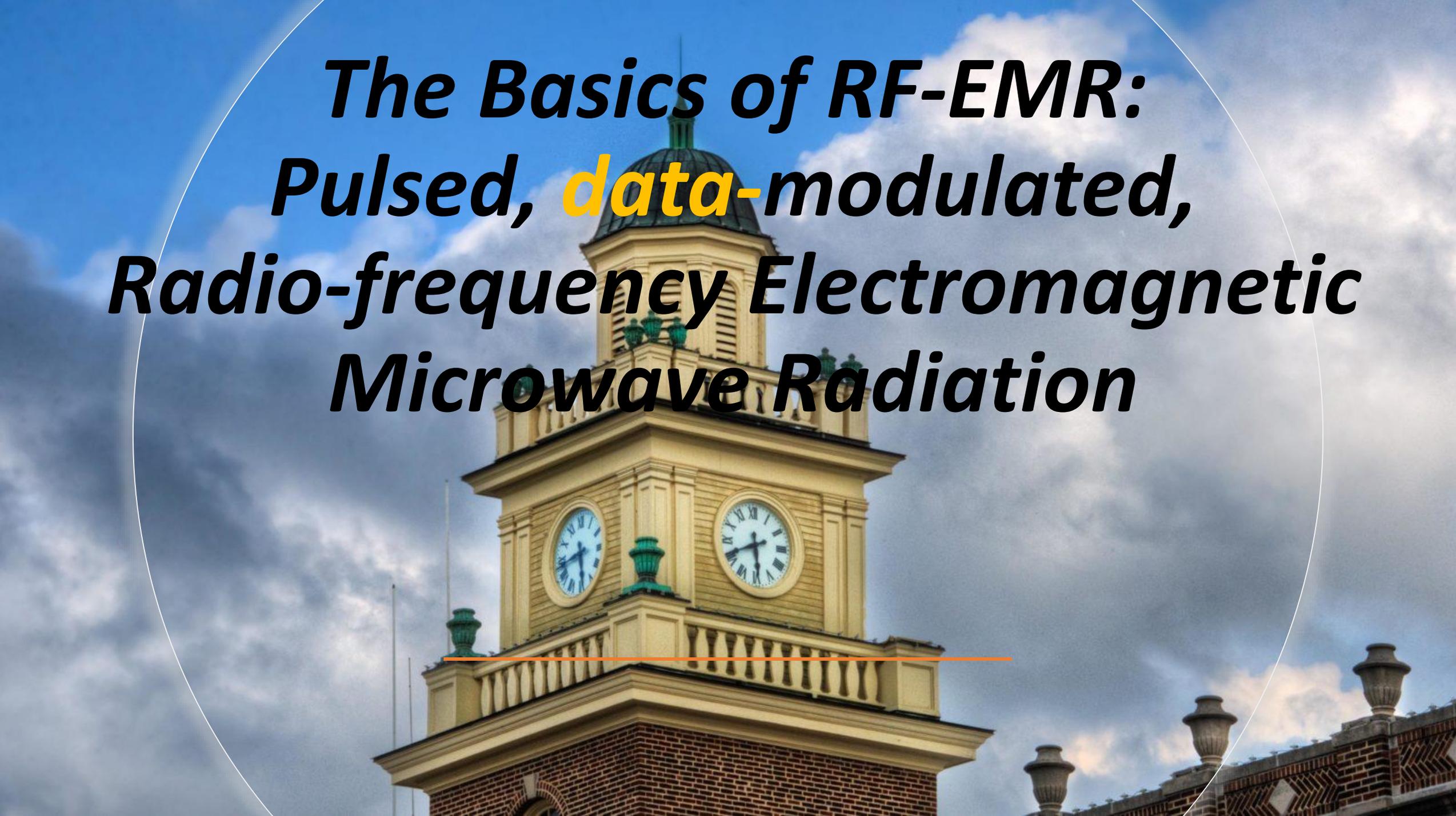
- **Vertical:** antenna is 25-50 feet from ground
- **Horizontal:** antenna is 10-50 feet from homes/schools
- **Power:** Thousands of Watts of Effective Radiated Power
- **Why is this Disastrous ? . . . Signal goes 2-5 miles** before it degrades to -105 dBm, but through brains and bodies on the way

# Workable V•H•P Recipe for sWTFs

- **Vertical:** antenna is 25-50 feet from ground
- **Horizontal:** antenna is 50+ feet from homes/schools
- **Power:** 0.1 Watt of Effective Radiated Power
- **Cities can also earn** revenue from fuses and Policing fees

# Beauty of 0.1 Watt sWTF ERP Limit

- **Much smaller antenna & power supply**  
(think size of Wi-Fi Router) <https://scientists4wiredtech.com/vhp>
- **Signal goes** — down the street  $\frac{1}{2}$  a mile
- **Provides 5 Bars** on a cell phone
- **Everyone** (over 3,000 people at same time) can make a call
- . . . and is **compliant** with FCC RF-EMR Exposure guidelines

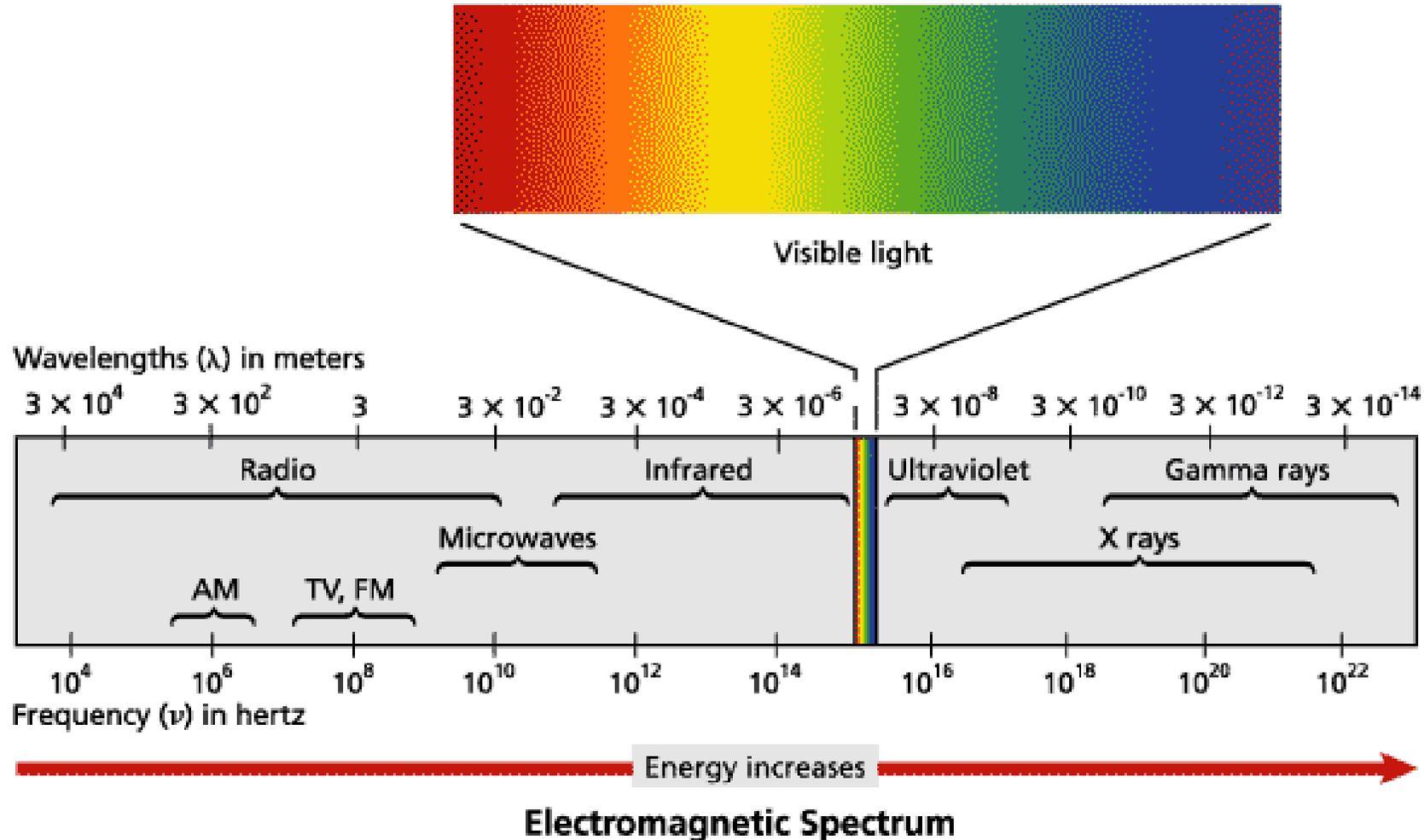


***The Basics of RF-EMR:  
Pulsed, **data**-modulated,  
Radio-frequency Electromagnetic  
Microwave Radiation***

# RF-EMR, The Basics

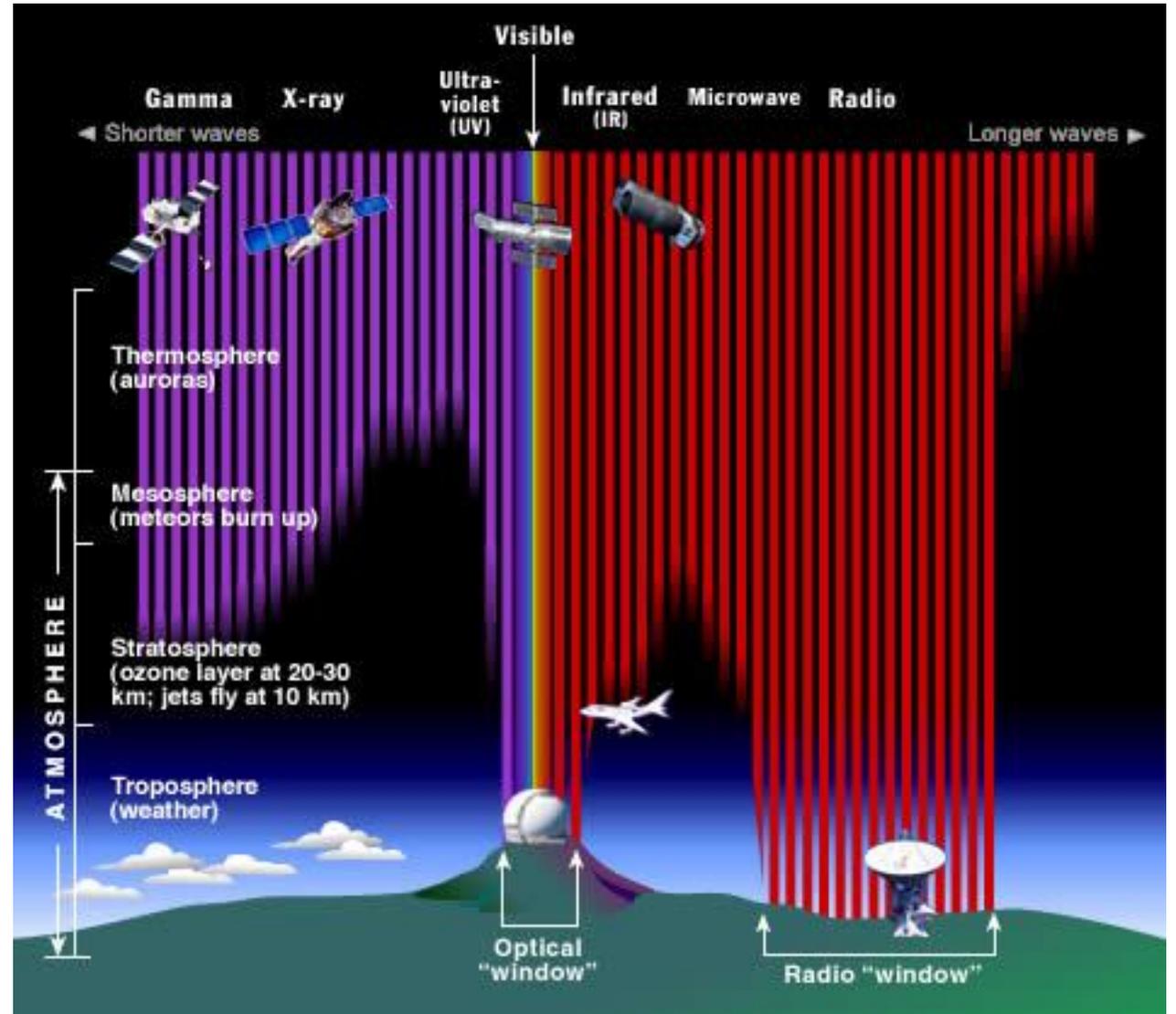
- **$c = f \lambda$** , equation that defines all electromagnetic fields
- $c = 300,000,000$  meters/sec = **671,000,000 miles/hr.**
- **f = Frequency**: repetitions per second (Hz)
- **$\lambda$  = Wavelength**: distance between peaks of a wave
- **Modulation**: pulses of data (10-20,000 per sec.) on carrier wave

# RF-EMR, The Basics



# Natural EMF

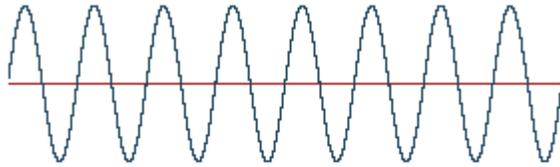
- Over millions of years, all life adapted to regular, **smooth waves**
- **Gamma & Radio** Waves from space: filtered out by atmosphere
- **Earth's Schumann Waves:** constant magnetic waves @ 7.83 Hz
- Sun's Natural Light: IR/Visible/UV at **300 GHz to 30,000,000 GHz**



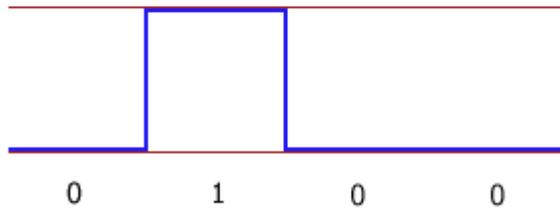
# Unnatural EMF & RF-EMR

From Computer Desktop Encyclopedia  
© 2007 The Computer Language Co. Inc.

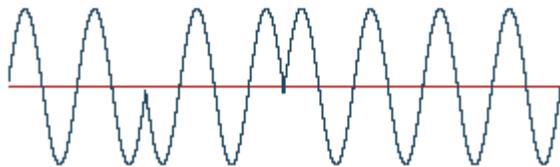
Carrier



Modulating Wave (digital)



Modulated Result



- Over the last 125 years, man has introduced unnatural, **irregular, choppy, pulsed waves** at ever-increasing levels
- **Early Radio/Television:** analog signals through the air
- **Early Telecom:** digital, pulsed signals through wires
- **Modern Telecom:** digital, pulsed signals through the air

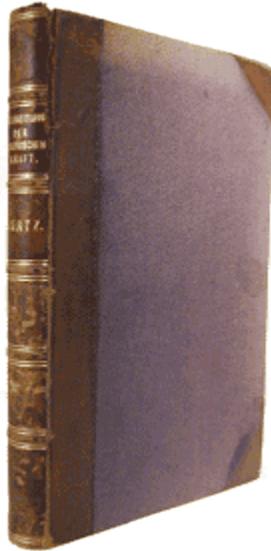
# Unnatural EMF & RF-EMR

- Our cells understand smooth, analog waves in naturally-occurring frequencies: the earth's magnetic field and the sun's IR/Visible/UV light
- Our cells don't understand digital, choppy, pulsed, data-carrying waves in unnaturally-occurring frequencies: i.e. always-on 3G/4G/5G & Wi-Fi
- **Duration of exposure**, not intensity, is the **more important factor**
- FCC RF-EMR exposure guideline **DOES NOT CONSIDER** duration of exposure
- Continuous exposure maximizes adverse biological effects
- **Total Exposure Over Time Is What Really Matters (Rate x Time):**  
*Suntan vs Sunburn; Pay PG&E Electric Bill; RF-EMR Exposures*

***The FCC RF-EMR Exposure Guideline  
this was a **SCAM** from day one:  
No Scientific Basis, at all***



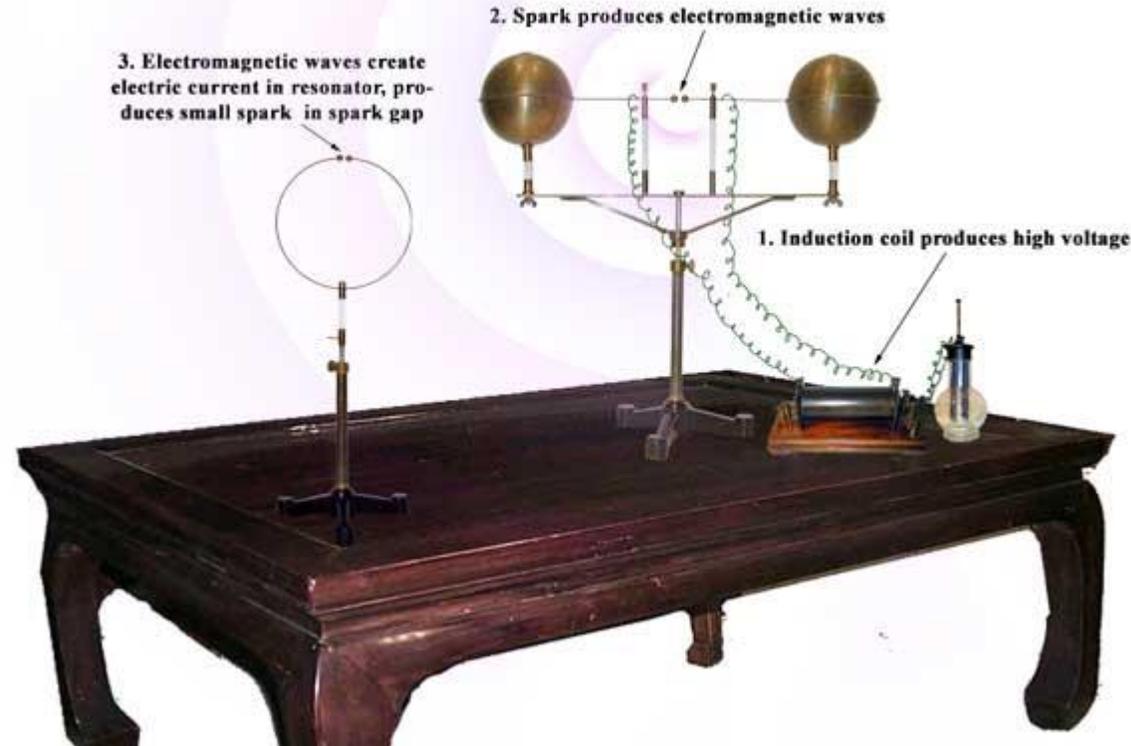
# History of Radiation: Premature Deaths



[Link to Heinrich Hertz \(1857-1894\)](#)

Died at **36** from exposures to **Microwave Radiation** from studies in his lab from 1886 to 1894 (**8 years**)

He died of granulomatosis with polyangiitis (**microwave radiation sickness**) believed to have been contracted from his long-term exposure to **non-ionizing radiation**.



Hertz: "It's of no use whatsoever . . . this is just an experiment that proves Maestro Maxwell was right—we just have these mysterious electromagnetic waves that we cannot see with the naked eye. But they are there."

Asked about the applications of his discoveries, Hertz replied, "Nothing, I guess."

Hertz's proof of the existence of airborne electromagnetic waves led to an explosion of experimentation with this new form of electromagnetic radiation, which was called "Hertzian waves" until around 1910 when the term "radio waves" became current.

The SI unit hertz (Hz) was established in 1930 for **frequency**, an expression of the number of times that a **repeated event occurs per second**.



[Link to Marie Curie \(1867-1934\)](#)

Died at **66** from exposures to **Nuclear Radiation** from studies in her lab from 1897 to 1934 (**37 years**).

She died of **aplastic anemia** believed to have been contracted from her long-term exposure to **ionizing radiation**.

# RF-EMR Exposure Guideline History

- **1940's:** WWII radar injuries, **NO Guideline** for RF-EMR exposures
- **1953:** Herman P. Schwann & three others “**suggest**” to both Navy/Airforce a guideline of **100,000,000** microWatts/sq. meter ( $\mu\text{W}/\text{m}^2$ )
- **1965:** American National Standards Institute ([ANSI](#)) divided Schwann’s “**guesstimate**” by ten for guideline of **10,000,000**  $\mu\text{W}/\text{m}^2$
- **1986:** National Council on Radiation Protection ([NCRP](#)) rejects **Specific Absorption** (SA), but selects **SA Rate** or “SAR”. ([Rpt-86](#))
- **1996-2020:** FCC’s RF-EMR Exposure guideline combines . . .
  - ANSI, NCRP and Institute of Electrical and Electronics Engineers ([IEEE](#)) for
  - Title 47 CFR [§1.1310](#), with Amendment Effective [June 1, 2020](#)
  - Title 47 CFR [§2.1093](#) with Amendment Effective [June 1, 2020](#)

# Office of Naval Research held first RF-EMR Guideline meeting in 1953

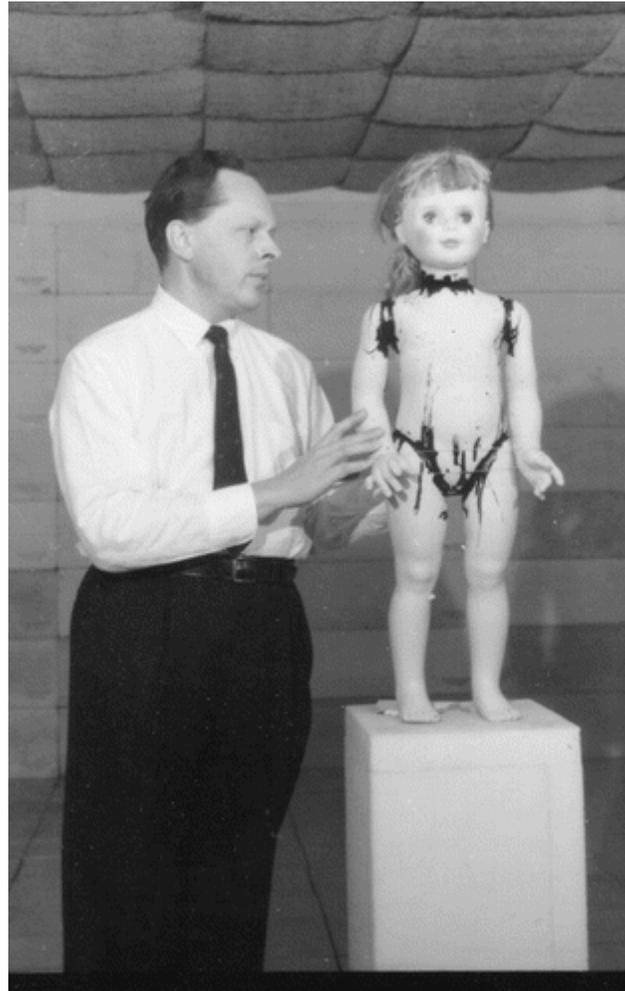
- **Hermann P. Schwan**, PhD former Nazi Engineer, biophysicist and biomedical engineer; Research Director at University of Pennsylvania, 1950-1983 -- funded by Navy.
- **Kenneth S. Cole**, PhD in Physics, Cornell who trained as a biophysicist; from 1949 to 1954 he was the technical director of the **U.S. Naval Medical Research Institute** in Bethesda, Maryland. He achieved advances that led to the "sodium theory" of nerve transmission that later won Nobel Prizes for Alan L. Hodgkin and Andrew F. Huxley.
- **David E. Goldman**, PhD in Physics, a Navy Lieutenant and then a member of the **U.S. Naval Medical Research Institute** who was Cole's student at Columbia (PhD in 1943 in Physics); famous for Goldman voltage equation, used in cell membrane physiology to determine the reversal potential across a cell's membrane
- **James D. Hardy**, MD, MA served in the **U.S. Army Medical Corps** in early 1944 during the Second World War. Hardy was awarded the Master of Medical Science in physiological chemistry by the University of Pennsylvania in 1951

# Hermann P. Schwann, 1915-2005

He proposed the Schwan RF-EMR exposure “guesstimate” in 1953



Schwan was a [Nazi engineer](#), who was recruited to work for the US Navy via **Operation Paperclip** in 1947; the Navy continued to fund his research at Penn through the 1980's.



1963: Schwann with model of human body used for RF-EMR dosimetric studies. The model is filled with **tissue-equivalent liquids** and exposed to RF energy in a microwave anechoic chamber that Schwann had constructed in his laboratory.



Schwan retired from Penn in 1983, but published another 60 papers from 1983 to 2005.

# Specific Absorption Rate **Rate** (“SAR”)

[Andrew Marino](#), PhD, JD: “I was there when SAR was invented. Richard Phillips, Don Justesen, Saul Michaelson, **Herman Schwann**, these were men who created SAR . . . they were interested in developing microwave ovens and in understanding how to cook meat . . . **SAR works for dead muscle. It has just no applicability in my opinion for live brain.** SAR can produce a lot of data. The **calculations of SAR can produce beautiful pictures** but the pictures are **arbitrary** and the measurements are **meaningless.**”



# Barrie Trower

*“You really **have no protection against the electric and magnetic vectors**”*

- **"Between 1949 and 1962, everything we needed to know about microwaves was known and published . . . the brain at that time had been studied for brainwaves and microwaves could be used to penetrate the brain and cause behavioral changes."**
- "A statement was made in 1962 by the governments that birth defects, organs, whole organisms, cells, brain function, emotions, moods could be altered, changed and destroyed [by microwave exposures]."
- **"Microwaves then, as now, were used as stealth weapons**, before they became cell phones [and Wi-Fi]."
- "By 1965, the military used cell phones, I had one. In 1965, they adopted an old 1953 thermal-effects based level by an engineer by the name of Schwan — **a non-scientific "deemed safe" rule . . .**"
- "They totally ignored the electromagnetic vectors of the microwaves and the harms that the electromagnetic vectors which interfere with the electrical conductivity of the cells, the neurons, the brain. They interfere with everything. **This non-scientific RF-EMR exposure guideline is in force today for 40% of the planet.**"

# Basis for SAR & RF-EMR Exposure Guidelines

## Comparison of Power Density and SAR Thresholds for Behavioral Disruption

This, unbelievably, is the basis for our National RF-EMR Exposure Guidelines

Species & Conditions	CW 225 MHz	Pulsed 1,300 MHz	CW 2,450 MHz	Pulsed 5,800 MHz
NR – PFD	n/a	100,000,000 $\mu\text{W}/\text{m}^2$	280,000,000 $\mu\text{W}/\text{m}^2$	200,000,000 $\mu\text{W}/\text{m}^2$
NR – SAR	n/a	2.5 W/kg	5.0 W/kg	4.9 W/kg
SM – PFD	n/a	n/a	450,000,000 $\mu\text{W}/\text{m}^2$	400,000,000 $\mu\text{W}/\text{m}^2$
SM – SAR	n/a	n/a	4.5 W/kg	7.2 W/kg
RM – PFD	80,000,000 $\mu\text{W}/\text{m}^2$	570,000,000 $\mu\text{W}/\text{m}^2$	670,000,000 $\mu\text{W}/\text{m}^2$	1,400,000,000 $\mu\text{W}/\text{m}^2$
RM SAR	3.2 W/kg	4.5 W/kg	4.7 W/kg	8.4 W/kg

*Legend:* CW = Continuous Wave | PFD = Power Flux Density | SAR = Specific Absorption Rate

NR = Norwegian Rat | **SM** = Squirrel Monkey | **RM** = Rhesus Monkey

# Public Health Service Act 90-602

By 1968, RF Emissions were established as a hazard

**Public Law 90-602, October 18, 1968**

**AN ACT to amend the Public Health Service Act to provide for the protection of the public health from radiation emissions from electronic products.**

**“Subpart 3 -- Electronic Product Radiation Control**

## **“DECLARATION OF PURPOSE**

**“Sec. 354. The Congress hereby declares that the public health and safety must be protected from the dangers of electronic product radiation.”**

# The U.S. Govt. Agencies Knew All Along . . .

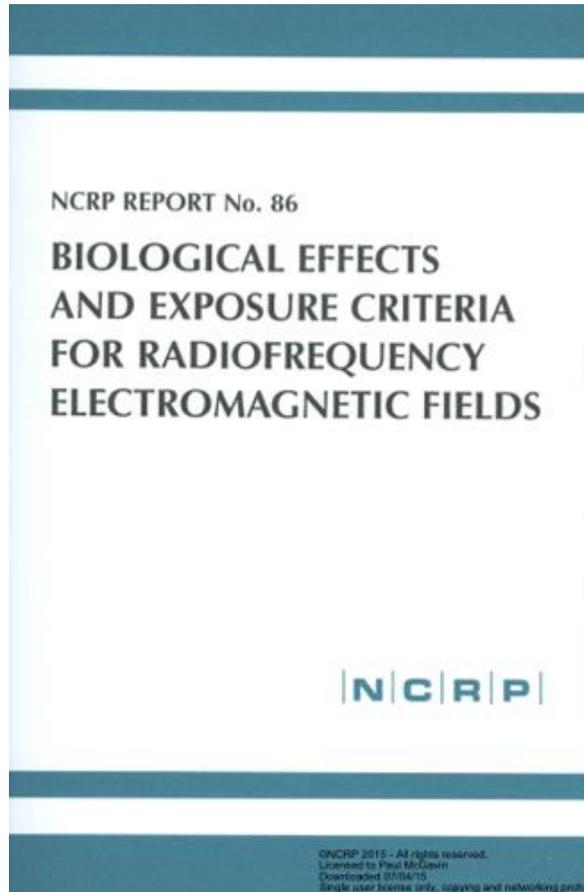
*Environmental Protection Agency Knew There Were RF Radiation Hazards*

- Quote from **Norbert Hankin, PhD, Environmental Scientist, EPA, 1994:**

"This . . . should not be overlooked . . . **impact by wireless communications technology on a child's educational process, i.e. by affecting learning ability.** [It] stems from recent studies involving short-term exposures that demonstrated subtle **effects on brain functions, produced by low-intensity, pulse-modulated radiofrequency radiation** . . . even a slight degree of impairment of learning ability over years of exposure . . . may negatively affect the quality of life that could be achieved by these individuals when adults."

- Quote from FCC Docket ET 93-62, November 9, 1993: "The FCC's exposure standards are seriously flawed. **FCC rules do not address the issues of long-term, chronic exposure to radiofrequency radiation.**"

# NCRP Report No. 86, Chap 17



NCRP REPORT No. 86

## **Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields**

**Recommendations of the  
NATIONAL COUNCIL ON RADIATION  
PROTECTION AND MEASUREMENTS**

*Issued April 2, 1986  
Second Reprinting February 15, 1995*

**National Council on Radiation Protection and Measurements  
7910 WOODMONT AVENUE / BETHESDA, MD. 20814**

# FCC RF-EMR Exposure Guidelines

(Based on Average, **NOT** Peak RF-EMR exposures, which are **100x to 1,000 x higher**)

**Table 1—Limits for RF-EMR Maximum Permissible Exposure (MPE)**

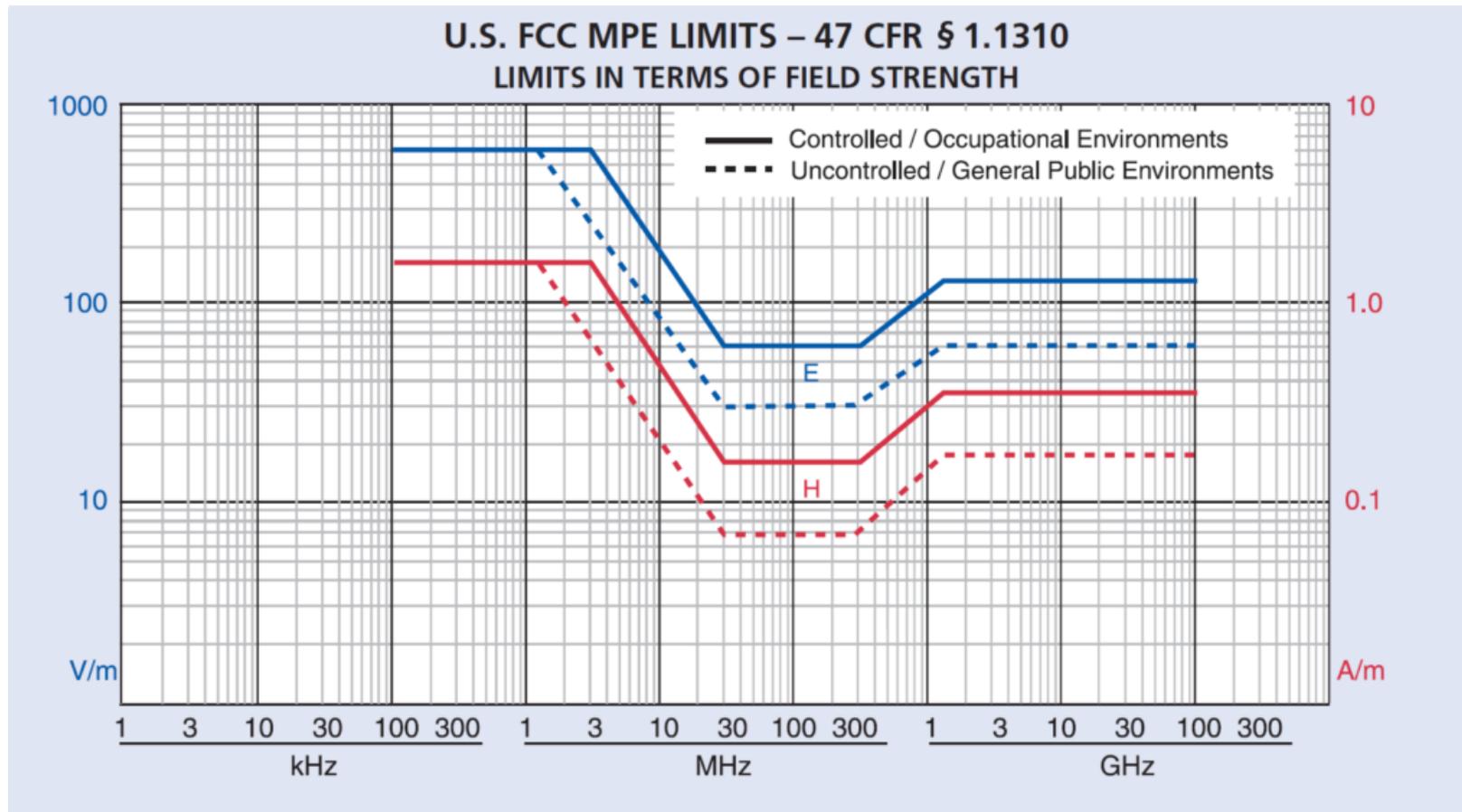
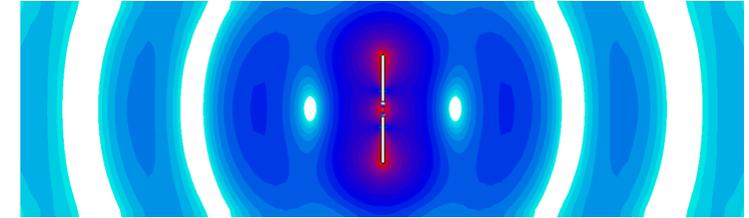
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density ( $\mu\text{W}/\text{m}^2$ )	Averaging time (minutes)
<b>Limits for General Population Exposure</b>				
0.3-1.34	614	1.63	1,000,000,000	<30
1.34-30	824/f	2.19/f	$(180/f^2) \times 10,000,000^*$	<30
30-300	27.5	0.073	2,000,000	<30
300-1,500			$(f/1500) \times 10,000,000^*$	<30
1,500-100,000			10,000,000	<30

f = frequency in MHz \* = Plane-wave equivalent power density; <30 minutes was added in June 1, 2020 amendment

# FCC RF-EMR Exposure Guidelines

(Based on Average, NOT Peak RF-EMR exposures, which are 100x to 1,000 x higher)

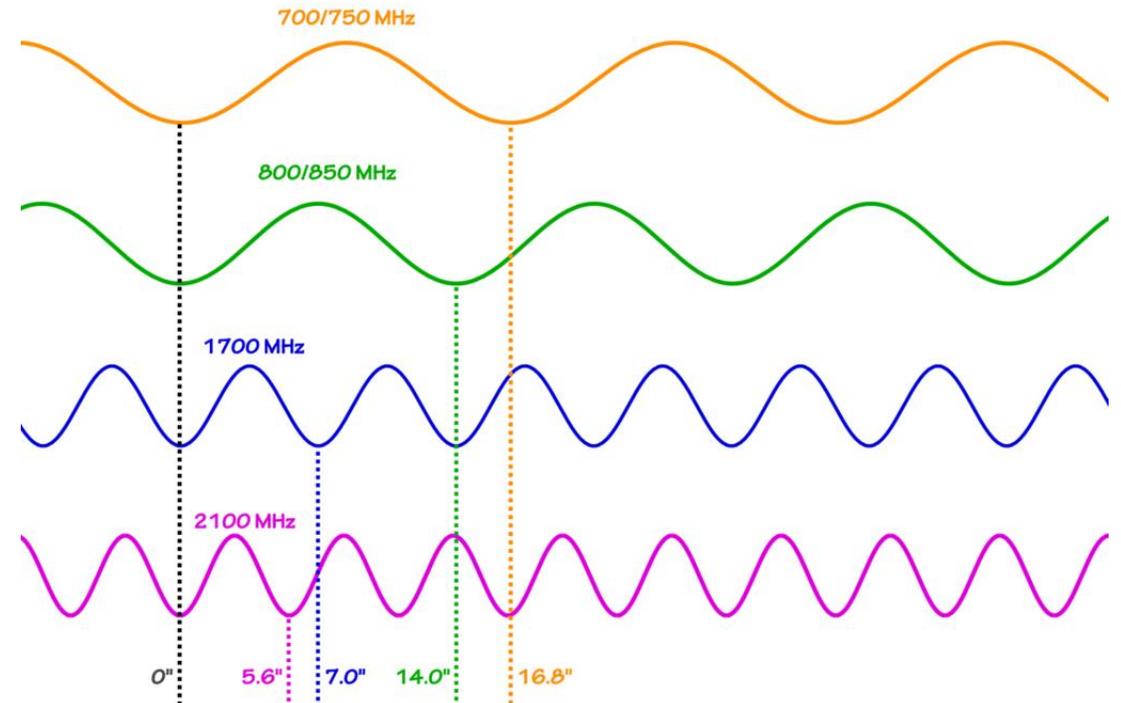
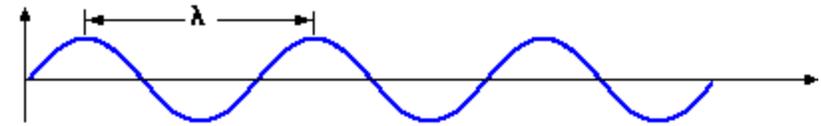
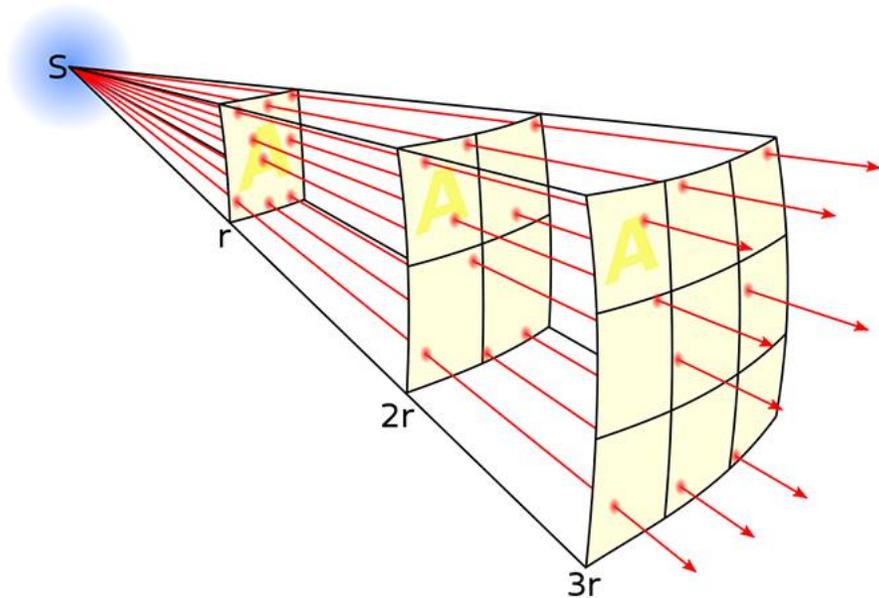
30 MHz, wavelengths are 10 m. (33 ft.) ... 30 V/m = 238,725  $\mu\text{W}/\text{m}^2$   
300 MHz, wavelengths are 1.0 m. (3.3 ft.) ... 30 V/m = 238,725  $\mu\text{W}/\text{m}^2$   
600 MHz, wavelengths are 0.5 m. (1.6 ft.) ... 40 V/m = 4,244,030  $\mu\text{W}/\text{m}^2$   
(*Electric field animation at right is in . . . super . . . slow . . . motion . . .*)



# Wavelengths Approaching Body-Part Size

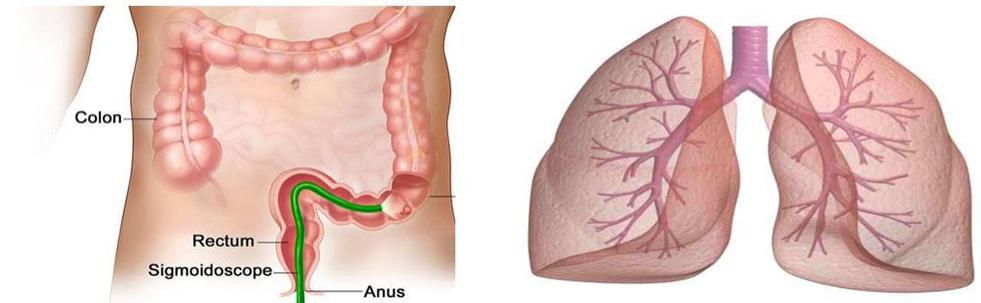
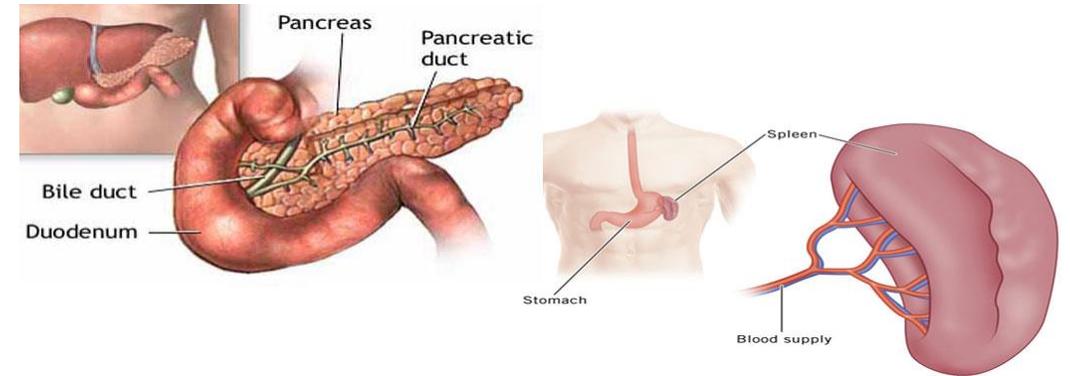
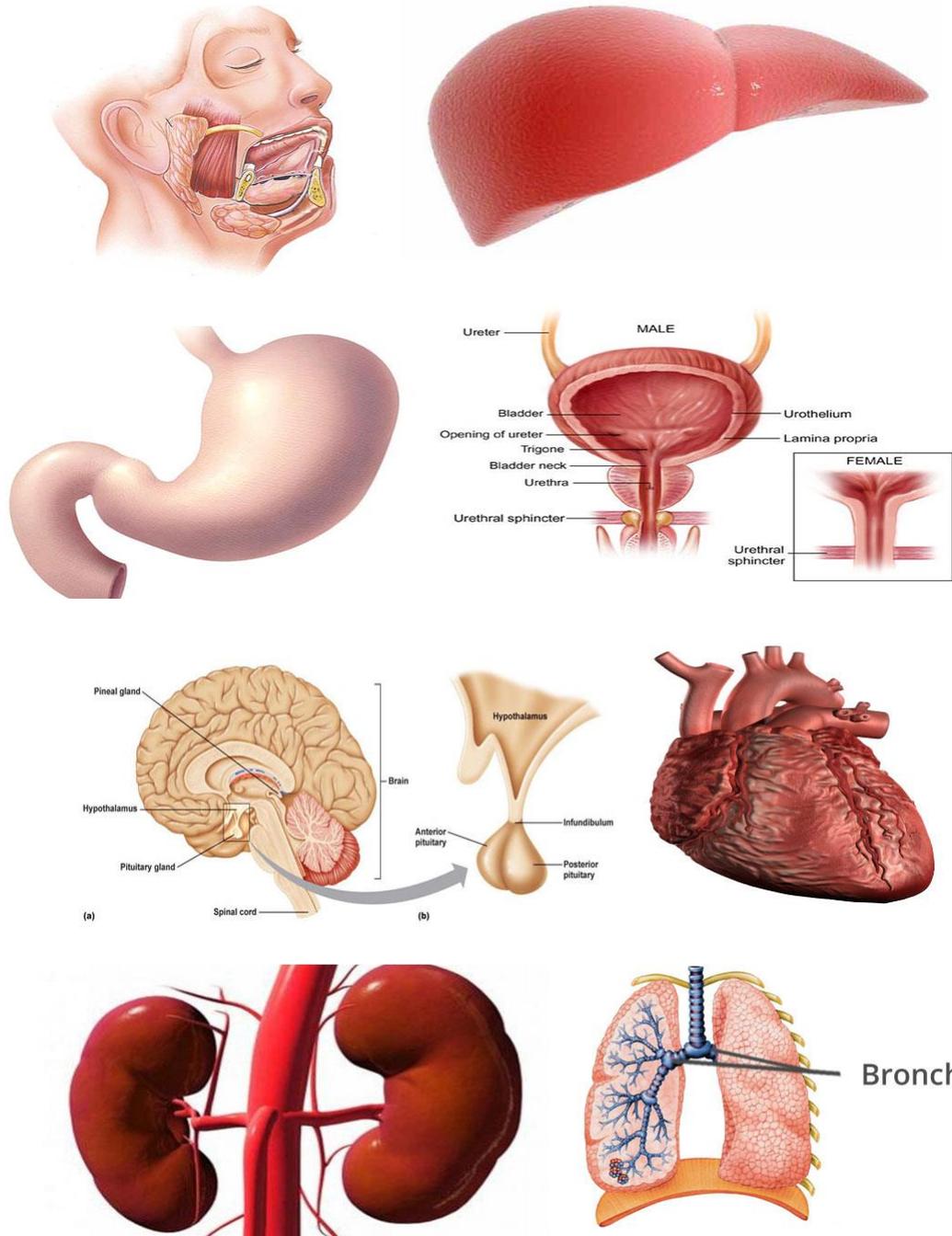
## Electromagnetic Resonance:

Small periodic forces near a resonant frequency that **produce large amplitude oscillations** in the system due to the storage of vibrational energy.



# RF-EMR Resonance

As a **wavelengths approaches body-part size**, the absorption in that body part **increases exponentially**. A wavelength approximating body-part size, especially at  $\frac{1}{2}x$  to  $2x$  of organ-size, **produces maximum absorption, approaching resonance**. **At this point, the body part functions as an antenna**. This an **exponential phenomenon**, meaning that even minimal intensities will produce disproportionate bioeffects. Living tissues' water content makes biological organisms function as sponges for **2-12 in. wavelengths**, which can be **easily demonstrated** with a Wireless RF-EMR source, an RF-meter and a human body.





**Debunking 24 Years of  
Wireless Industry Propaganda,  
Glen Ellyn can do MUCH BETTER  
. . . for all of us**

# The regulation of the **operations** of WTFs was **never preempted** from [local zoning authority](#)

## Penultimate Version of the TCA (HR 1555 from Fall 1995)

## Ultimate Version of the TCA (S.652 passed in Feb 1996)

In the penultimate version of the TCA, in Section 107, the words **operate** and **operation** appear throughout.

In the ultimate version of the TCA, in Section 704, the words **operate** and **operations** were removed, expressing Congressional intent.

### 1995 — SEC. 107. FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS.

**(a) National Wireless Telecommunications Siting Policy.** — Section 332(c) of the Act (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

#### **(7) Facilities siting policies.** —

(A) Within 180 days after enactment of this paragraph, the Commission shall prescribe and make effective a policy regarding State and local regulation of the **placement, construction, modification, or operation** of facilities for the provision of commercial mobile services.

(B) Pursuant to subchapter III of chapter 5, title 5, United States Code, the Commission shall establish a negotiated rulemaking committee to negotiate and develop a proposed policy to comply with the requirements of this paragraph. Such committee shall include representatives from State and local governments, affected industries, and public safety agencies. In negotiating and developing such a policy, the committee shall take into account —

### 1996 — SEC. 704. FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS.

**(a) National Wireless Telecommunications Siting Policy.** — Section 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

#### **(7) Preservation of local zoning authority.** —

**(A) General authority.** — Except as provided in this paragraph, **nothing in this Act shall limit or affect the authority of a State or local government** or instrumentality thereof over decisions regarding the **placement, construction, and modification** of personal wireless service facilities.

#### **(B) Limitations.** —

(i) The **regulation of the placement, construction, and modification** of personal wireless service facilities by any State or local government or instrumentality thereof —

# FCC “Small” Cell Foundation is Crumbling

- **Aug 9, 2019:** DC Circuit Ruling in [Case No. 18-1129](#)  
*Keetowah et al. v FCC re: Attempted sWTF NEPA Exemption*
- *“We rule that the Order’s deregulation of small cells is arbitrary and capricious because its public-interest analysis did not meet the standard of reasoned decision-making.”*
- **Oct 1, 2019:** DC Circuit Ruling in [Case No. 18-1051](#)  
*Mozilla et al. v FCC re: Rescinded Net Neutrality & State Preemption*

# NEPA = National Environmental Policy Act

- Act that empowers local communities to protect themselves and their environment from dangerous, rushed or poorly planned federal projects.
- NEPA requires government agencies to engage in a review process intended to discover any significant environmental and public health impacts before a decision is made and construction is begun.
- Erika Rosenberg, FCC NEPA-Specialist Attorney:  
**“Every single [WTF] requires NEPA review.”**
- National Historic Preservation Act (NHPA) requirements also remain.
- Towns can delay WTF Installations with [NEPA Strategies](#)

# Key Federal Judiciary Rulings

**Aug 9, 2019:** According to the three top NEPA-specializing attorneys at FCC: **“Every new [wireless telecommunications facility (“WTF”)] must undergo NEPA review”**, and WTF applications cannot be batched for such purpose.

**Oct 1, 2019:** FCC willingly gave up its Title II regulation over Broadband Internet transmissions, changing Internet/Video/Gaming from Title II (regulated, and subject to TCA preemption) to Title I (unregulated). Internet transmissions are best by **energy-efficient Fiber Optic to the Premises (FTTP)**.

**Mar 13, 2020:** FCC applied fraudulent accounting methods for 20 years, allowing **\$Billions of Illicit Cross-Subsidies** from State Wireline Utilities to Private Wireless Cos. ***States can now correct this.***

# Ruling in Case No. 19-1985 IRREGULATORS v FCC

- Since the early 1990s, a \$5-7 monthly fee was added to phone bills to fund the build out of fiber-optic-to-the-premises (“FTTP”).
- Telecoms used these funds to build out **private Wireless Networks**, **instead of** building out **public FTTP to homes**, as promised.
- For 20 years, the Telecoms/State Utilities misapplied the FCC’s accounting rules to charge corporate holding co. expenses to the **State Public Telecom Utilities (“SPTUs”)**, creating artificial losses, allowing Telecoms to **avoid paying State taxes**.
- Also, Wireless Networks did not pay market prices to use the shared copper and fiber Wireline facilities. ***The States can now correct the illicit cross-subsidy (from SPTU to Wireless Cos.) and use the recovered funds to complete FTTP to homes.***

# Title I vs. Title II: 47 U.S. Code § 153

- **Title I:** “(24) Information service — The term ‘information service’ means the offering of a capability for **generating, acquiring, storing, transforming, processing, retrieving**, utilizing, or making available information **via telecommunications.**”
- **Title II:** “(50) Telecommunications — The term ‘telecommunications’ means the transmission, between or among points specified by the user, of information of the user’s choosing, **without change** in the form or content of the information as sent and received.”
- **Title II:** “(53) Telecommunications service — The term ‘telecommunications service’ means the **offering of telecommunications for a fee** directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used. [i.e. **only Wireless phone calls**, per Oct 1, 2019 DC Circuit Ruling in [Case 18-1051](#)]”

**Title I = unregulated** (Internet/Video/Gaming); **Title II = regulated** (Phone calls)

## Our Best Plan?

**FTTP for Information Service (Title I) – Internet –  
with ONLY ENOUGH Wireless for  
Telecommunications Service (Title II) – Voice**



# Suggested Reading List

