

IL SB.1451

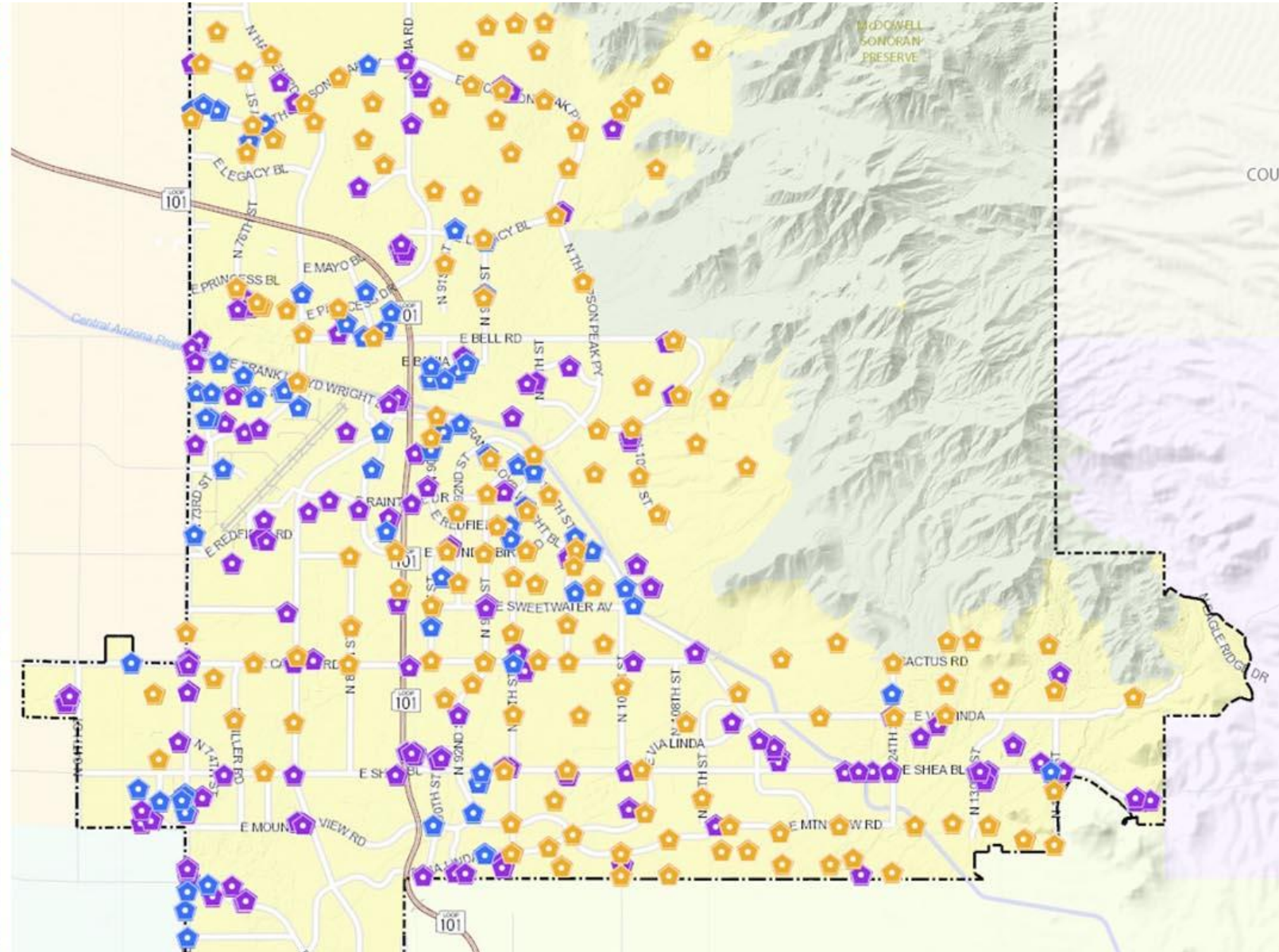
*Small Wireless Facilities
Deployment Act
Scheduled for Repeal
on June 1, 2021*

**2020-2021 Illinois
Neighborhood
Survival Guide**

By [Glen Ellyn V•H•P](#)

June 22, 2020

Scottsdale, AZ



To prevent fires hazards, should be **NO Wireless Antennas** above ~ 12,000-Volt High-Voltage Lines . . .

<https://youtu.be/xDLKLnVdIWE?t=74> | <https://youtu.be/38Z8eYdVY48> | <https://youtu.be/tIMrAqwpNk?t=5600>



We agree with CA: there should be **NO Wireless Antennas
above ~ 12,000-Volt High-Voltage Lines . . .**

<https://www.dir.ca.gov/Title8/2946.html>

Cal/OSHA §2946. *Preventing Accidents Due to Proximity to Overhead Lines.*

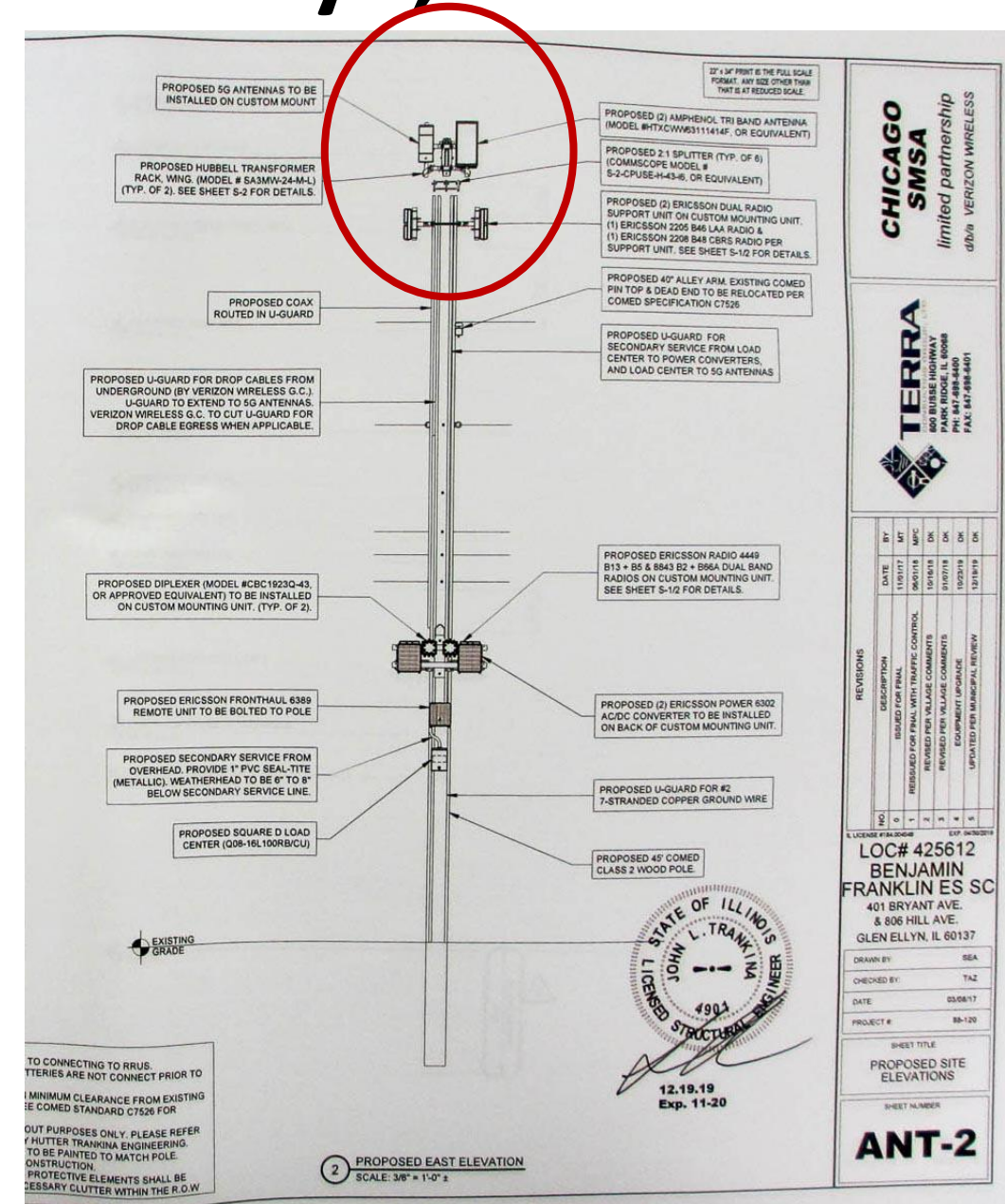
“(b) Clearances or Safeguards Required. *Except where overhead electrical distribution and transmission lines have been de-energized and visibly grounded, the following provisions shall be met:*

(1) Over Lines. *The operation, erection, or handling of tools, machinery, apparatus, supplies, or materials, or any part thereof, over energized overhead high-voltage lines **shall be prohibited.***”

What is the plan for Glen Ellyn, IL?



*Based on
June 17
inspection of
actual plans for
utility poles in
Glen Ellyn, IL*



Folks, This is a Macro Tower:

Eight (8) 4G + 5G Antennas & Eight (8) Radios (amplifiers)

Added Antennas														
700 LTE	850 CDM A	850 LTE	1900 CDM A	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY
YES		YES		YES	YES	AMPHENOL	HTXCWW63111414F000	37.5	38.5	0(D1),180(D2),	false	false	PHYSICAL	2
						ERICSSON	KRE_101_2251	33.8	34.1	180(D2),0(D1)	false	false	PHYSICAL	2
						ERICSSON	KRE_105_259	33.8	34.1	180(D2),0(D1)	false	false	PHYSICAL	2
						ERICSSON	VZ-AIR6701_TB	37.5	38.4	180(0002),0(0001)	false	false	PHYSICAL	2

Added Non Antennas														
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity	
RRU							Tower	Ericsson	2205			PHYSICAL	2	
RRU							Tower	Ericsson	2208			PHYSICAL	2	
RRU	YES		YES				Tower	Ericsson	4449			PHYSICAL	1	
RRU					YES	YES	Tower	Ericsson	8843			PHYSICAL	1	
RRU							Tower	Ericsson	AIR 6701			PHYSICAL	2	
Splitter							Tower	Commscope	(S-2-CPUSE-H-43-i6			PHYSICAL	6	
Diplexer							Tower	Commscope	CBC1923Q-43			PHYSICAL	1	

Two(2) Amphenol 4G Antennas

6-Port Panel Antenna

(1x) 696-960 | (2x) 1710-2170 MHz

65°

23.2 in

FIXED TILT



ELECTRICAL SPECIFICATIONS Low Band

■ R1

Frequency Range		MHz	(1x) 696-960	
Frequency Sub-Range		MHz	696-806	806-960
Polarization		---	±45°	
Gain	MAX	dBi	10.5	11.0
Azimuth Beamwidth (3 dB)		degrees	75°	70°
Elevation Beamwidth (3 dB)		degrees	42°	40°
Electrical Downtilt		degrees	(x) 0°, 2°, 5°	
Impedance		Ohms	50Ω	
VSWR		---	≤ 1.5:1	
Front-to-Back Ratio		dB	> 20	
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	< -153	
Maximum Power Per Port		Watts	(2x) 500 W	
Isolation Between Ports		dB	> 25	

Two(2) Amphenol 4G Antennas

6-Port Panel Antenna

(1x) 696-960 | (2x) 1710-2170 MHz

65°

23.2 in

FIXED TILT



6-Port Panel Antenna

(1x) 696-960 | (2x) 1710-2170 MHz

65°

23.2 in

FIXED TILT

HTXCWW63111414Fxy0



ELECTRICAL SPECIFICATIONS Mid Band

■ B1 ■ B2

Frequency Range		MHz	(2x) 1710-2170		
Frequency Sub-Range		MHz	1710-1880	1850-1990	1900-2170
Polarization		----	(2x) ±45°		
Gain	MAX	dB	13.5	14.0	14.0
Azimuth Beamwidth (3 dB)		degrees	65°	70°	75°
Elevation Beamwidth (3 dB)		degrees	18°	16°	14°
Electrical Downtilt		degrees	(y) 0°, 2°, 4°, 6°		
Impedance		Ohms	50Ω		
VSWR		----	≤ 1.5:1		
Front-to-Back Ratio		dB	> 25		
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	< -153		
Maximum Power Per Port		Watts	(4x) 300 W		
Isolation Between Ports		dB	> 25	> 25	> 25

Two(2) Amphenol 4G Antennas

[Link to Amphenol HTXCWW63111414Fxy0 Antenna Specs](#)

6-Port Panel Antenna
(1x) 696-960 | (2x) 1710-2170 MHz
65° 23.2 in FIXED TILT



Maximum Effective Radiated Power (ERP) Output

Frequencies	Max. Power × Gain	ERP	x 2
696-806	500 W × 10.5 =	5,250 Watts	10,500 Watts
806-960	500 W × 11.0 =	5,500 Watts	11,000 Watts
1710-1880	300 W × 13.5 =	4,050 Watts	8,100 Watts
1850-1990	300 W × 14.0 =	4,200 Watts	8,400 Watts
1850-1990	300 W × 14.0 =	4,200 Watts	8,400 Watts
1900-2170	300 W × 14.0 =	4,200 Watts	8,400 Watts
Total ERP	N/A	27,400 Watts	54,800 Watts

Two (2) Ericcson 5G Street Macro 6701 Units

*Four(4) 5G High-Band Antennas:
28,000 MHz & 39,000 MHz*

*“Combines **high output power (800 Watts?)** levels of macro radios with the ease-of-site-build that micro products have.”*

NOTES REGARDING RFDS (RF DESIGN SHEET):
1. REFER TO RFDS TO DETERMINE THE QUANTITY OF 5G ANTENNAS TO BE INSTALLED AS PART OF INITIAL BUILD

ERICSSON STREETMACRO 6701

TECHNICAL DATA

DESCRIPTION	VALUE				
SPECTRUM:	28 GHz-B257 / 39 HGz-B260				
INTERNAL BANDWIDTH	FULL BAND				
OBW	UP TO 800 MHz				
EIRP	55 DBM				
ANTENNA ELEMENTS					
ANTENNA	H: +/-60°, V: +/-15°				
TOTAL ANTENNA BANDWIDTH:	UP TO 1600 MHz (800MHz 2x2)				
THROUGHPUT:	5 GBPS DL / 1 GBPS UL				
SIZE AND WEIGHT:					
SM 6701-28 OR 39 GHz	HEIGHT	WIDTH	DEPTH	WEIGHT	
WO PROTRUDING ITEMS	20.2"	7.9"	5"	31 LBS	
W/ PROTRUDING ITEMS	21.2"	8.1"	5.1"		
# RI PORTS	2				
TN / IDL PORTS:	2				
TN I/F:	F1 OR (e) S1				
POWER INPUT	28/39 GHz AC: 100-250V, 28 GHz DC: -48V				
OPERATIONAL CONDITIONS:	-40° TO +55° C, IP 65				
COOLING:	ACTIVE, SOUND PRESSURE: TBD				
POWER:	<400W MAX				
MISC:	EXTERNAL ALARMS, USB CONNECTOR, PoE, GPS (OPTIONAL), 1588 SYNCH				

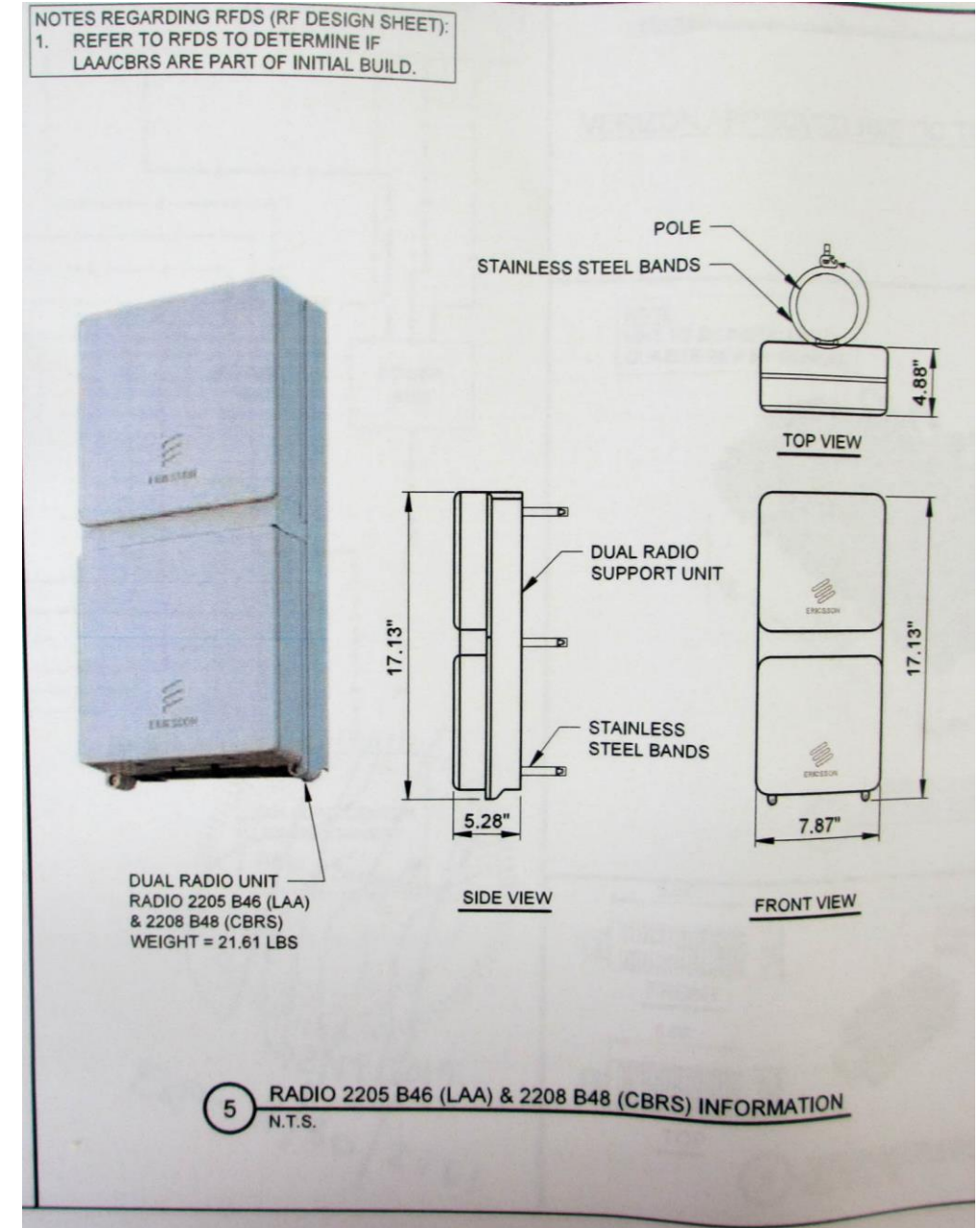
NOTE:
G.C. TO APPLY 3M FILM TO 5G ANTENNAS TO MATCH COLOR OF POLE.

Two (2) Ericcson 5G 2205/2208 Units

*Four(4) 5G Mid-Band
Radios/Antennas:*

3,550-3700 MHz & 5,000x MHz

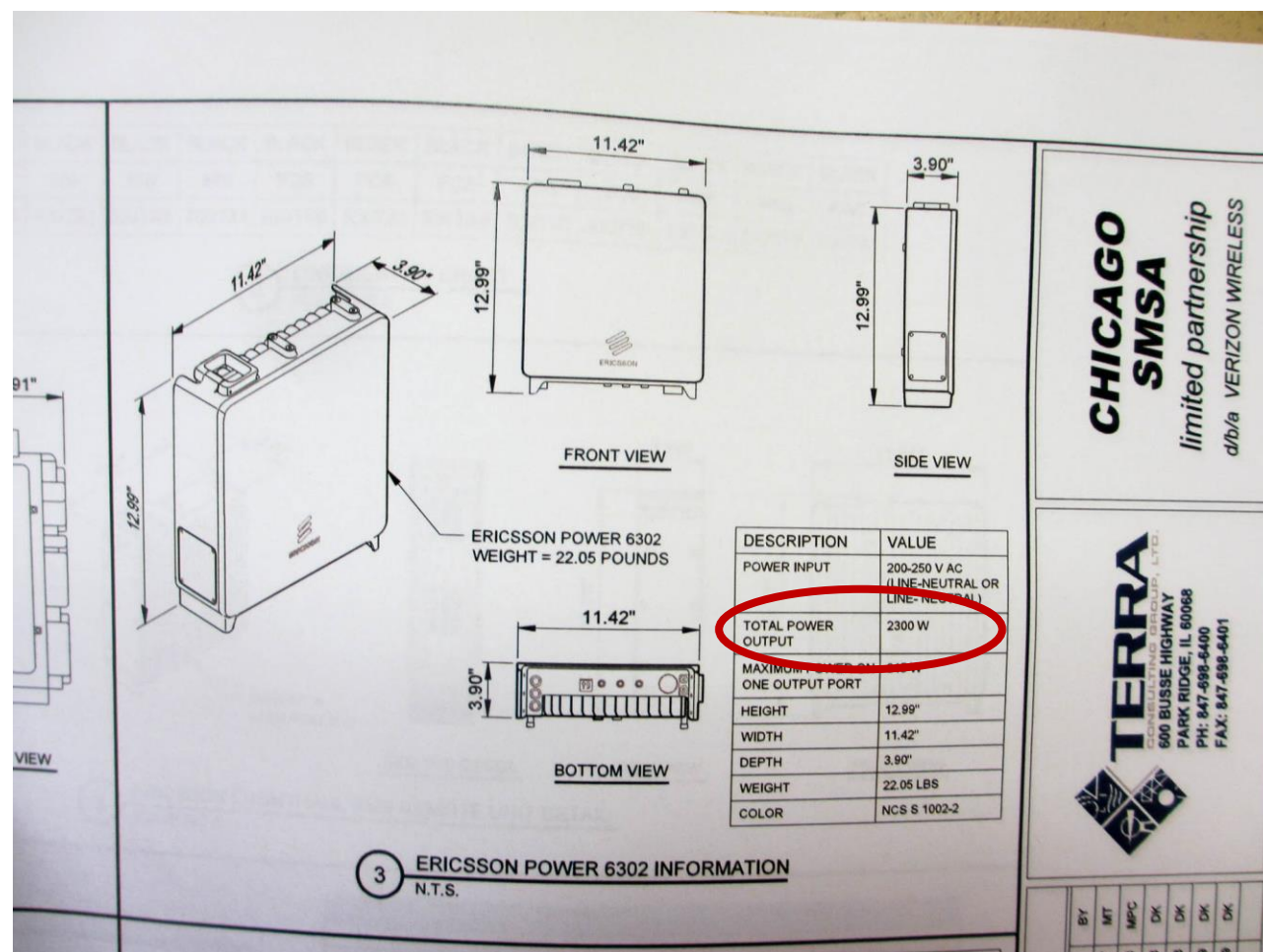
*“(4 x 10 W) + (4 x 500 W) = **2,040**
Watts? ERP before Antenna Gain”*



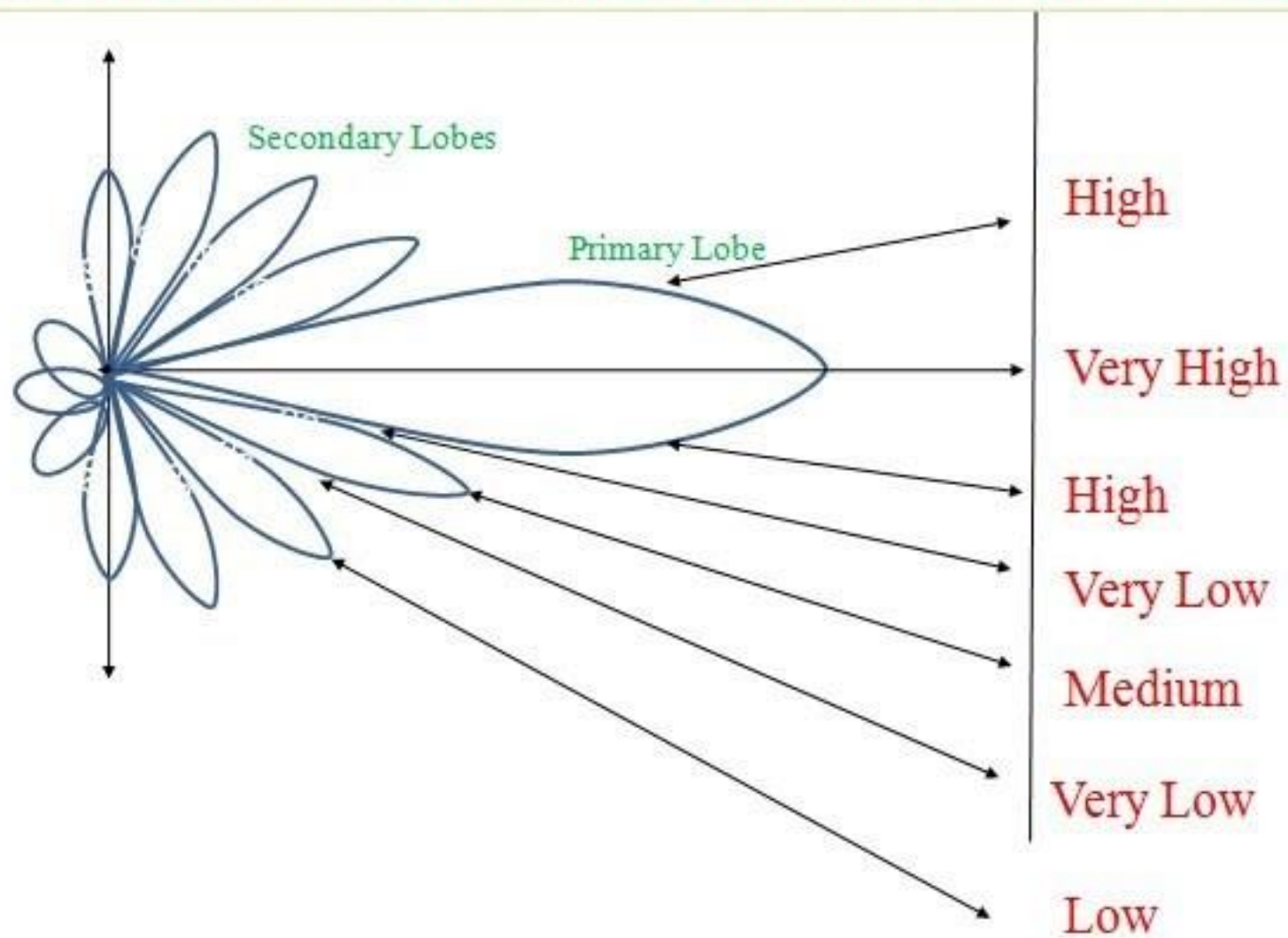
What about Ericcson Units 4409, 8843, KRE-101-2251, KRE-105-229 & VZ-AIR6701-TB???

*We are still trying to figure these out . . . Looks like this “small” WTF is capable of North of **60,000 Watts** ERP!*

[View](#) the Catalog.



Radiation Pattern of a Cell Tower Antenna



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.

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 \approx 20”
- 4G: 700 MHz = dm microwaves of \sim 4.3 dm \approx 17”
- 3G/4G: 800 MHz = cm microwaves of 37.5 cm \approx 15”
- 3G/4G: 900 MHz = cm microwaves of \sim 33.3 cm \approx 13”
- 3G/4G: 1800 MHz = cm microwaves of \sim 16.7 cm \approx 6.6”
- 3G/4G: 2100 MHz = cm microwaves of \sim 14.3 cm \approx 5.6”
- Wi-Fi: 2450 MHz = cm microwaves of \sim 12 cm \approx 5”
- **5G:** 3100 MHz to 3550 MHz = \sim 9.7 to \sim 8.5 cm \approx 3.8 to 3.3”
- **5G:** 3550 MHz to 3700 MHz = \sim 8.5 to \sim 8.1 cm \approx 3.3 to 3.2”
- **5G:** 3700 MHz to 4200 MHz = \sim 8.1 to \sim 7 cm \approx 3.2 to 2.8”
- **5G:** 4200 to 4900 MHz = \sim 7 to \sim 6 cm \approx 2.8 to 2.4”
- Wi-Fi: 5800 MHz = \sim 5 cm microwaves of \sim 2”
- **5G:** 24,250 to 24,450 MHz = cm microwaves of \sim 12mm \approx **0.5”**
- **5G:** 25,050 to 25,250 MHz = cm microwaves of \sim 12mm \approx **0.5”**
- **5G:** 25,250 to 27,500 MHz = cm microwaves of \sim 11mm \approx **0.4”**
- **5G:** 27,500 to 29,500 MHz = **mm** microwaves of \sim 10mm \approx **0.4”**
- **5G:** 31,800 to 33,400 MHz = **mm** microwaves of \sim 9mm \approx **0.4”**
- **5G:** 37,000 to 40,000 MHz = **mm** microwaves of \sim 8mm \approx **0.3”**
- **5G:** 42,000 to 42,500 MHz = **mm** microwaves of \sim 7mm \approx **0.3”**
- **5G:** 64,000 to 71,000 MHz = **mm** microwaves of \sim 5mm \approx **0.2”**
- **5G:** 71,000 to 76,000 MHz = **mm** microwaves of \sim 4mm \approx **0.2”**
- **5G:** 81,000 to 86,000 MHz = **mm** microwaves of \sim 3.6mm \approx **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
TOTAL	n/a	22,260 Watts ERP

*ERP = Effective Radiated Power

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



Congressional Intent of 1996 *Telecom Act*

Powers of Fed. Govt. in US Constitution

- **Article VI:** “Constitution, and the Laws of the United States which shall be made in Pursuance thereof . . . shall be the supreme Law of the Land”
- **Article I, Section 8:** Federal Govt. can “regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes”
- **Tenth Amendment:** “Powers not delegated to the United States by the Constitution, nor prohibited to it by the States, are **reserved to the States respectively, or to the people.**”

Scope of Federal Authority

- **Commerce Clause:** grants Federal Govt. broad authority to regulate interstate commerce
- **Commerce Clause:** prohibits State Govts. from imposing an undue burden on interstate commerce
- **Supremacy Clause:** preempts State actions that impose burdens on interstate commerce

Scope of State Authority

- State Govts. retain their Police Powers
- **State Police Powers:** can regulate businesses for the **protection of the health, safety**, morals, and general welfare of its residents
- State Govt. regulation cannot result in taking of private property without just compensation

Regulation of Industries that are “clothed with a public interest”

- Regulation based on English common law concept of “property clothed with a public interest” (Sir Matthew Hale)
- Business owner, “grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the use that he has created” (*Munn v. Illinois*, 94 U.S. 113, 125 (1877))
- **Regulated Industries:** ferries, wharves, warehouses, electric power, natural gas water/sewer and "common carriers" such as railroad and **telecommunications companies**

1996 Telecommunications Act (1996-TCA)

- **1996-TCA** amended the **Communications Act of 1934**; the purpose of both Acts are consistent:
 - **1934:** "to make available . . . without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense and **promoting safety of life and property**"
 - **1934:** "**promote the safety of life and property** . . . reduce the regulatory burden upon spectrum users, based upon sound engineering principles . . . encourage competition and provide services to the largest feasible number of users; increase . . . sharing . . . between private mobile services and other services.

Congress Changed Regulatory Foundation of the 1996-TCA Before Voting

- Changes from . . . **HR.1555** (Oct 1995) to . . . **S.652** (Feb 1996)
- **HR.1555**: "The FCC 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."
- **S.652**: "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 . . . [defined as] commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services."

1996-TCA Set Up As Cooperative Federalism

- US Supreme Court Ruling in [Case No. 03-1601](#): CITY OF RANCHO PALOS VERDES et al. v. ABRAMS (2005)
- Justices Breyer, O'Connor, Souter and Ginsburg, concur:
 - **“Congress initially considered a single national solution**, namely a FCC wireless tower siting policy that would pre-empt state and local authority.; see H. R. Conf. Report No. 104-458, p. 207 (1996).”
 - **“But Congress ultimately rejected the national approach and substituted a system based on cooperative federalism.** Id., at 207-208.”
 - **“State and local authorities would remain free to make siting decisions** They would do so, however, subject to minimum federal standards — both substantive and procedural — as well as federal judicial review.”

1996 H. R. Conf. Report [No. 104-458](#)

*“The **conferees also intend** that the phrase “unreasonably discriminate among providers of functionally equivalent services” will provide localities with the flexibility to treat facilities that create different visual, aesthetic, or safety concerns differently to the extent permitted under **generally applicable zoning requirements** even if those facilities provide functionally equivalent services. For example, the **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.**”*

1996 H. R. Conf. Report [No. 104-458](#)

*“If a request for placement of a personal wireless service facility involves a zoning variance or a public hearing or comment process, the **time period for rendering a decision** will be the usual period under such circumstances. It is **not the intent** of this provision **to give preferential treatment to the personal wireless service industry** in the processing of requests, or to subject their requests to any but the **generally applicable time frames** for zoning decision.”*

1996 IL SB.1451 ([6/1/2018](#)) is Not in Accordance with Congressional Intent of 1996-TCA

Section 15 (d)(4). *“an authority may not limit the placement of small wireless facilities mounted on a utility pole or a wireless support structure by minimum horizontal separation distances.”*

Section 15 (d)(6)(G). *“the wireless provider [must] comply with the applicable codes and local code provisions or regulations that concern public safety“*

Section 20. Local authority. *“Nothing in this Act authorizes the State or any political subdivision, including an authority, to . . . regulate wireless services.”*

1996 IL SB.1451 ([6/1/2018](#)) is Not in Accordance with Congressional Intent of 1996-TCA

Section 34. Insurance. *“A wireless provider may self-insure all or a portion of the insurance coverage and limit requirements required by an authority. A wireless provider that self-insures is not required, to the extent of the self-insurance, to comply with the requirement for the naming of additional insureds under this Section.”*

Section 40. Home rule. *"A home rule unit may not regulate small wireless facilities in a manner inconsistent with this Act."*

Section 90. Repeal. *"This Act is repealed on June 1, 2021"*



**80 Years of
Established
Science:
Wireless RF
Microwave
Radiation is
Hazardous**

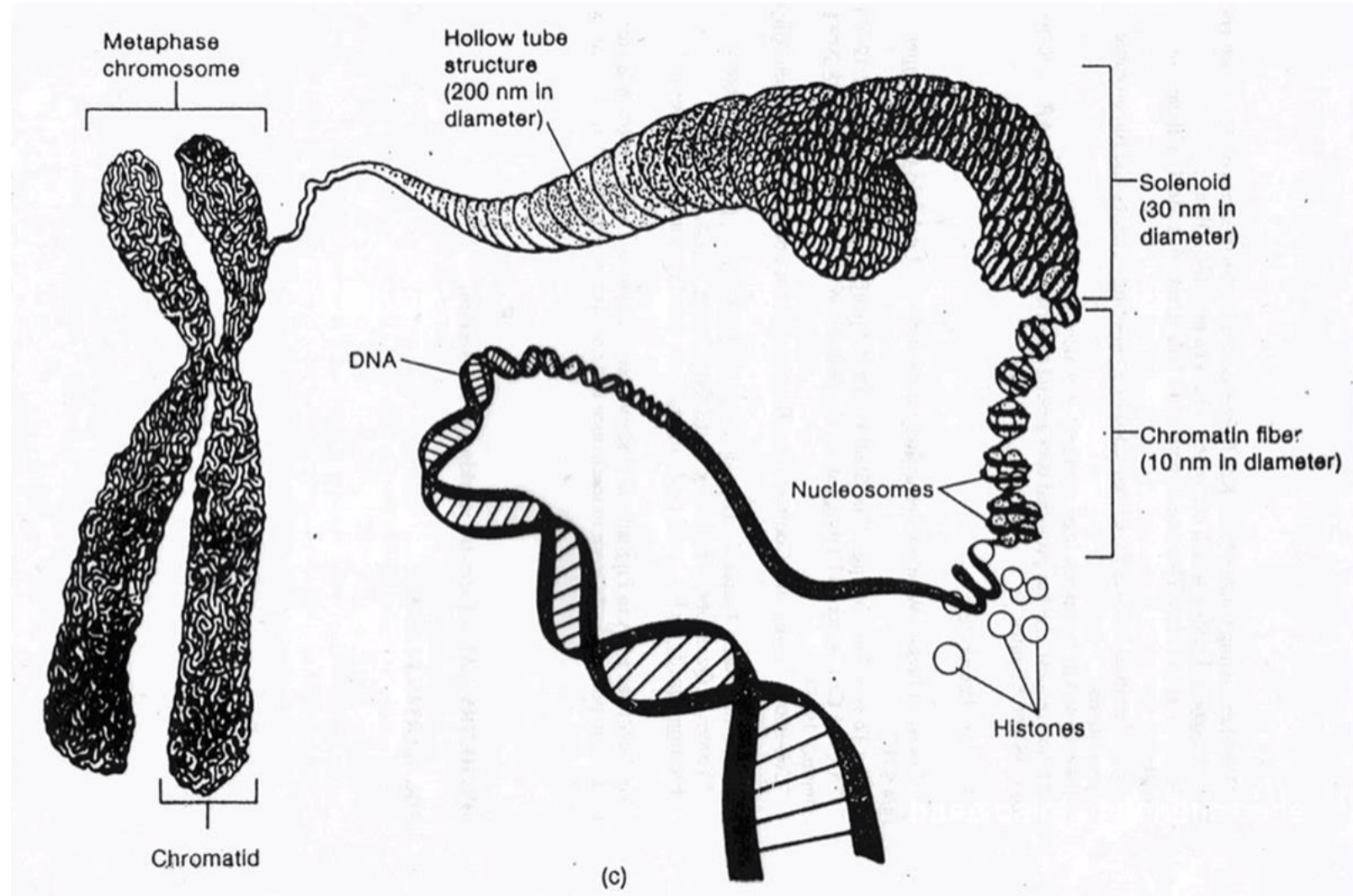
Negative Health Consequences From RF-EMR Exposures

- **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	FIVE BARS ON CELL PHONE	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





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%



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



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 Illinois has not
regulated **ALL 3**, it
has achieved nothing**

For Locally Unregulated ERP, Wireless Telecommunications Facilities (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.”

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

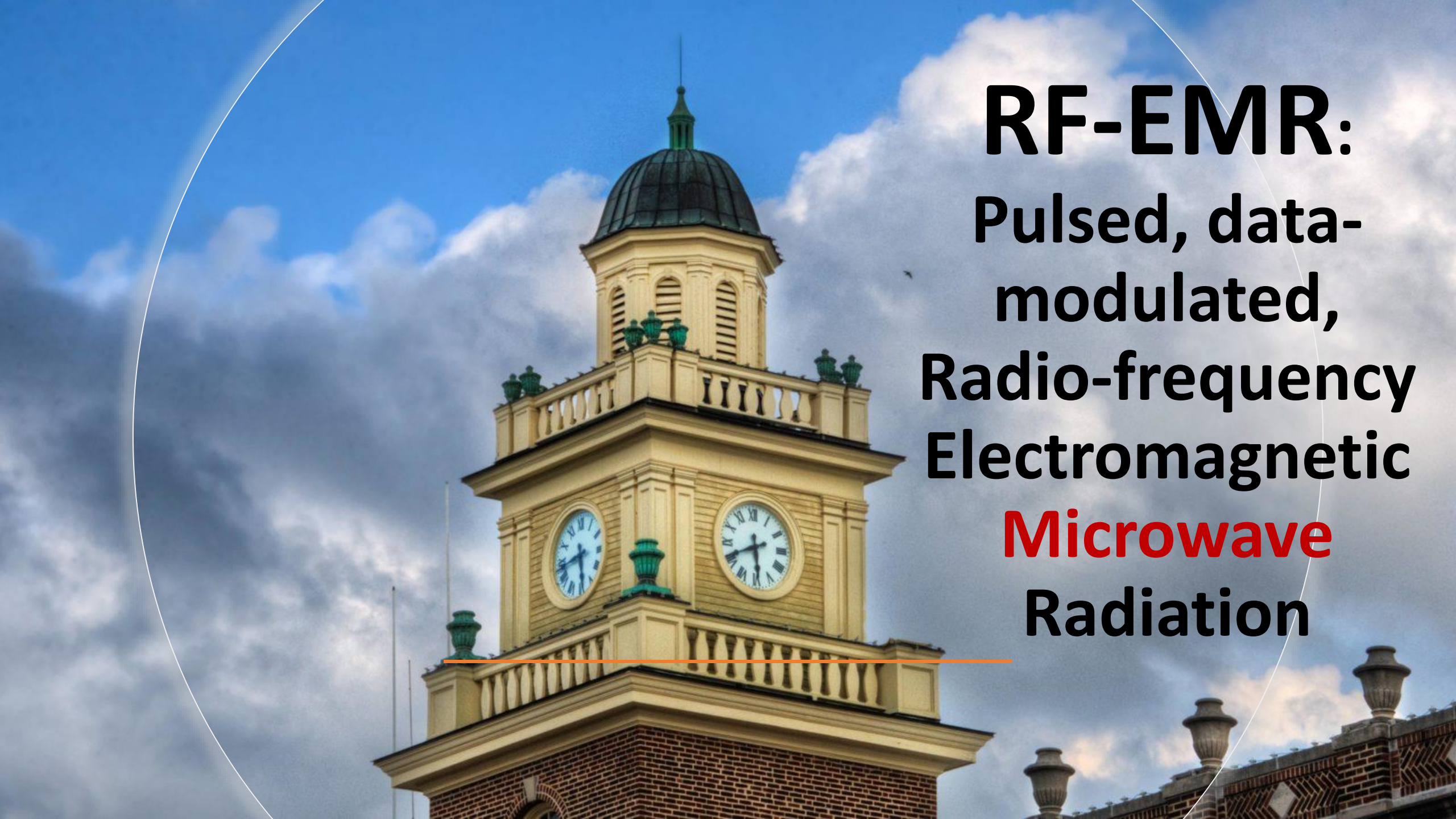
- **Vertical:** antenna is 25-50 feet from ground
- **Horizontal:** antenna is 10-50 feet from homes/schools
- **Power:** Thousands of Watts of Effective Radiated Power
- **Why is this Disastrous ? . . . Signal goes 2-5 miles** before it degrades to -105 dBm, but through brains and bodies on the way

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 ½ 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

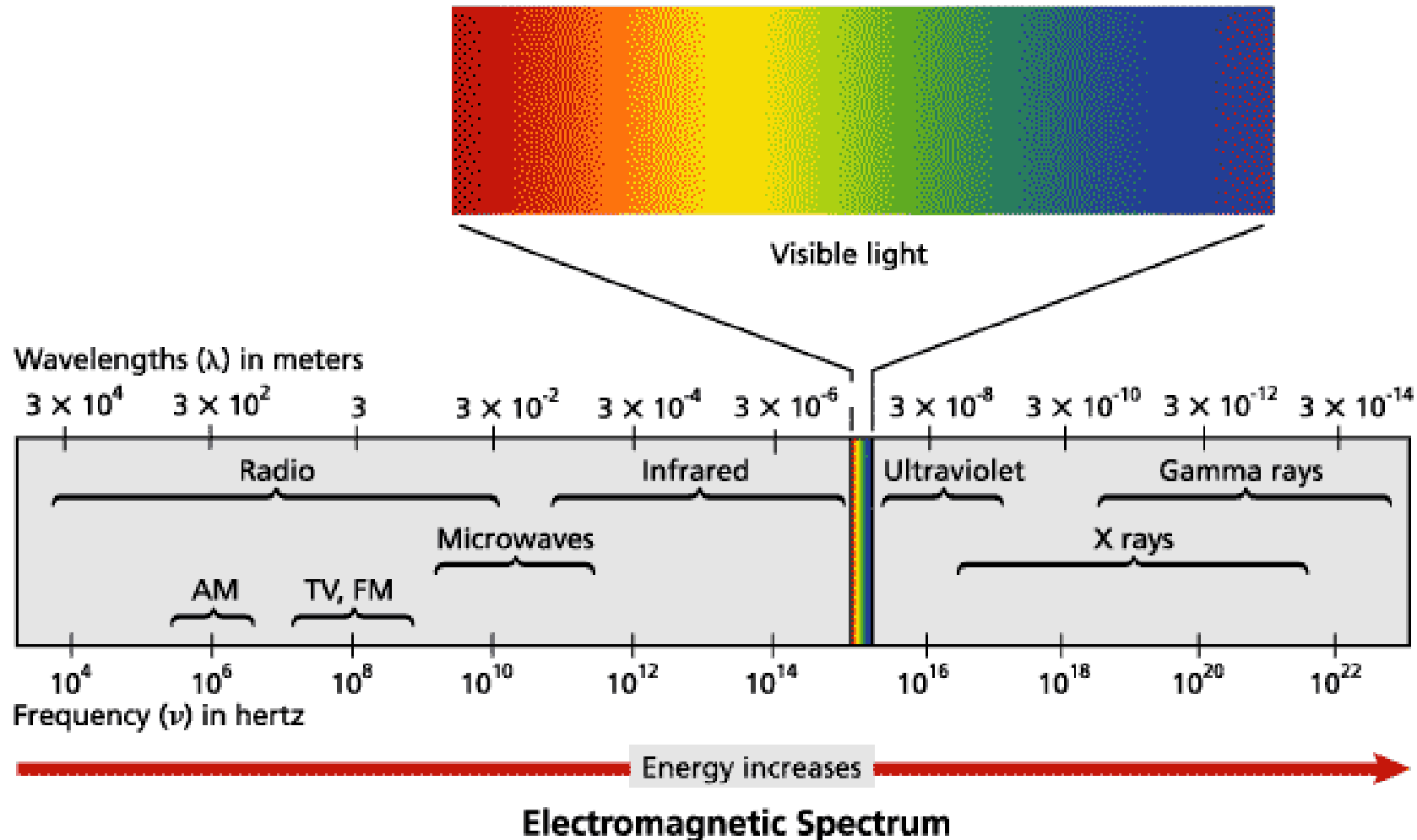


RF-EMR: Pulsed, data- modulated, Radio-frequency Electromagnetic **Microwave** Radiation

RF-EMR, The Basics

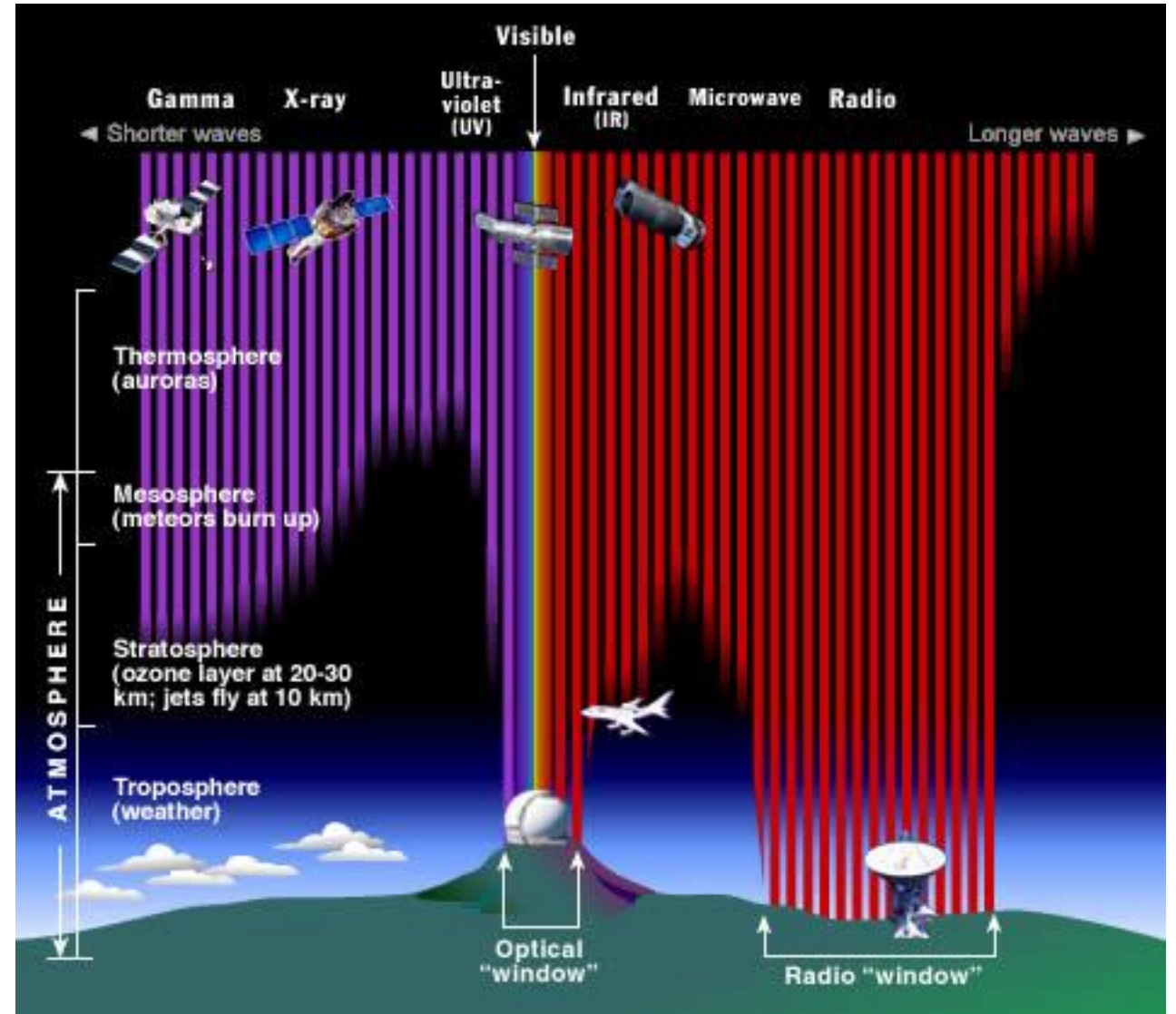
- **$c = f \lambda$** , equation that defines all electromagnetic fields
- $c = 300,000,000$ meters/sec = **671,000,000 miles/hr.**
- **f = Frequency**: repetitions per second (Hz)
- **λ = Wavelength**: distance between peaks of a wave
- **Modulation**: pulses of data (10-20,000 per sec.) on carrier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

RF-EMR, The Basics



Natural EMF

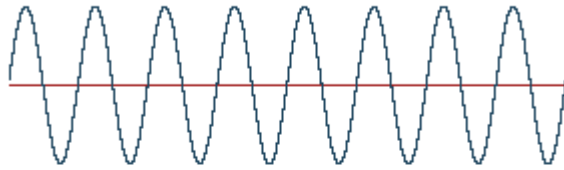
- Over millions of years, all life adapted to regular, **smooth waves**
- **Gamma & Radio** Waves from space: filtered out by atmosphere
- **Earth's Schumann Waves:** constant magnetic waves @ 7.83 Hz
- Sun's Natural Light: IR/Visible/UV at **300 GHz to 30,000,000 GHz**



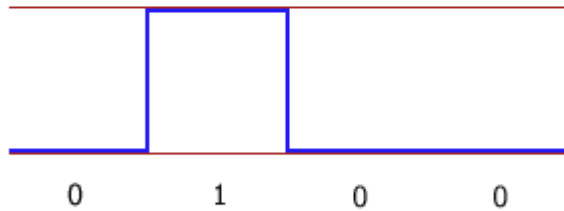
Unnatural EMF & RF-EMR

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

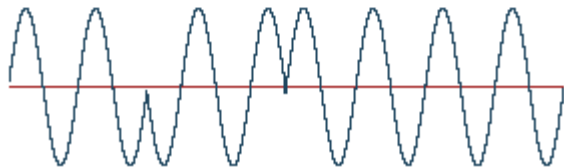
Carrier



Modulating Wave (digital)



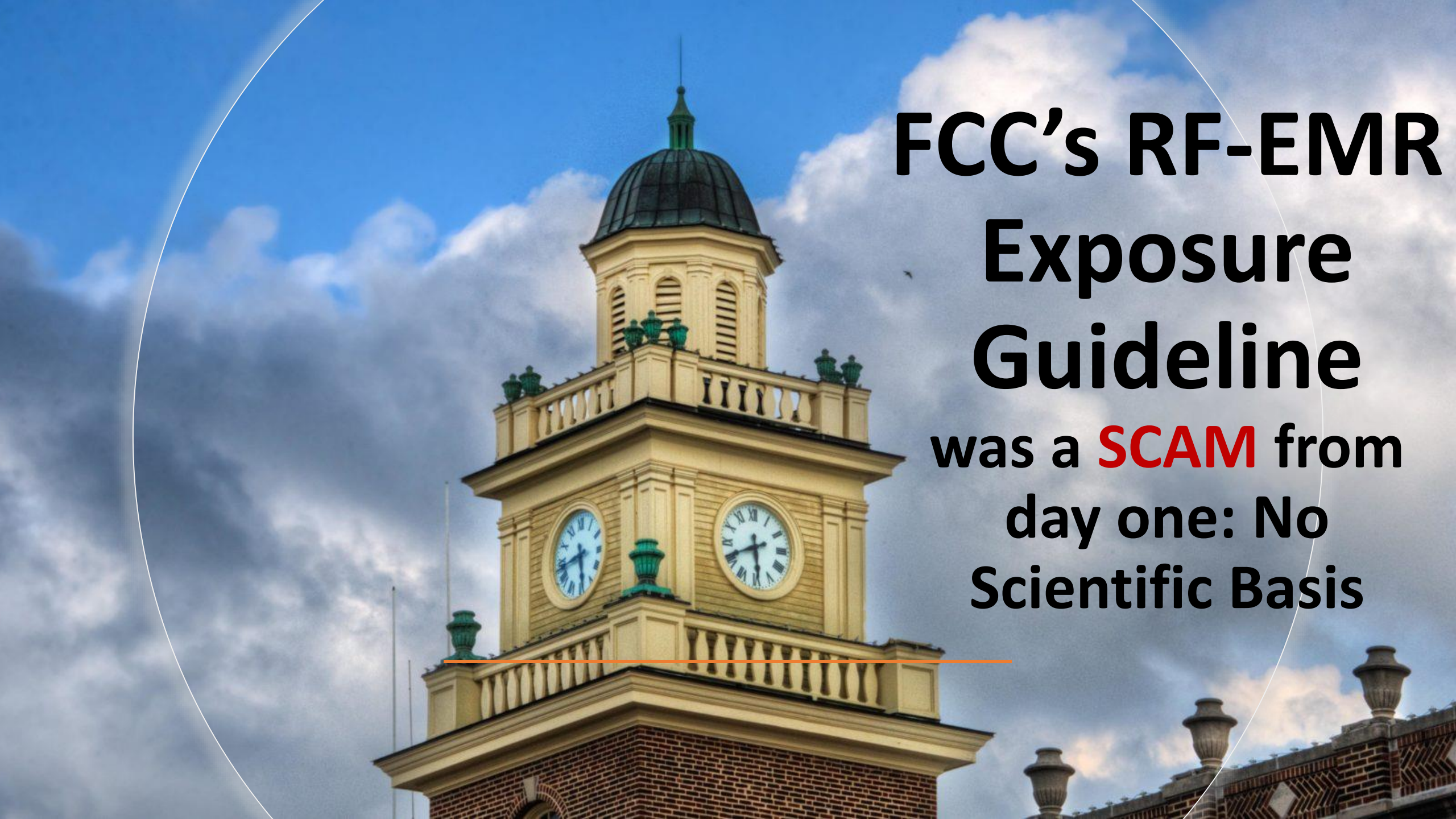
Modulated Result



- 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

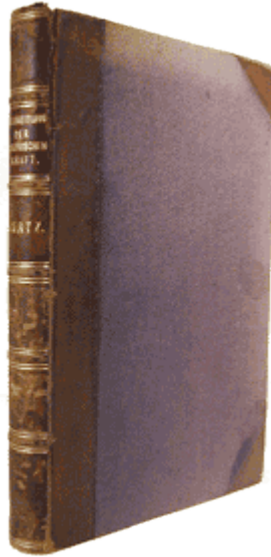
- Our cells understand smooth, analog waves in naturally-occurring frequencies: the earth's magnetic field and the sun's IR/Visible/UV light
- Our cells don't understand digital, choppy, pulsed, data-carrying waves in unnaturally-occurring frequencies: i.e. always-on 3G/4G/5G & Wi-Fi
- **Duration of 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



FCC's RF-EMR Exposure Guideline

was a **SCAM** from
day one: No
Scientific Basis

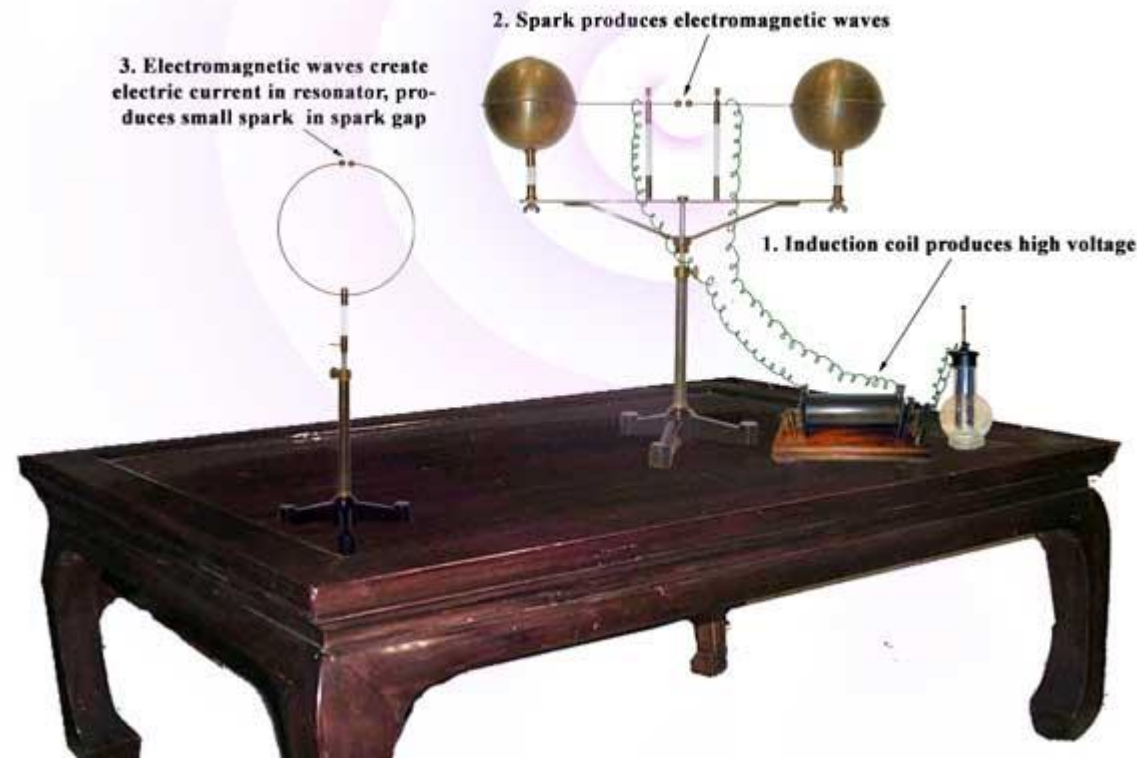
History of Radiation: Premature Deaths



[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**.

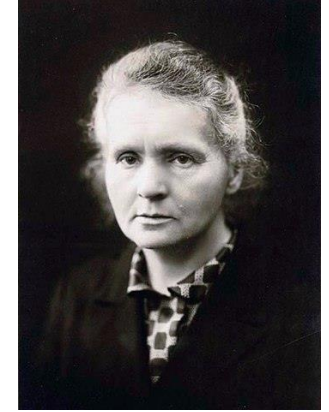


Hertz: "It's of no use whatsoever . . . this is just an experiment that proves Maestro Maxwell was right—we just have these mysterious electromagnetic waves that we cannot see with the naked eye. But they are there."

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. n & three others “**suggest**” to both Navy/Airforce a guideline of **100,000,000** microWatts/sq. meter ($\mu W/m^2$)
- **1965:** American National Standards Institute ([ANSI](#)) divided Schwann’s “**guesstimate**” by ten for guideline of **10,000,000** $\mu W/m^2$
- **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

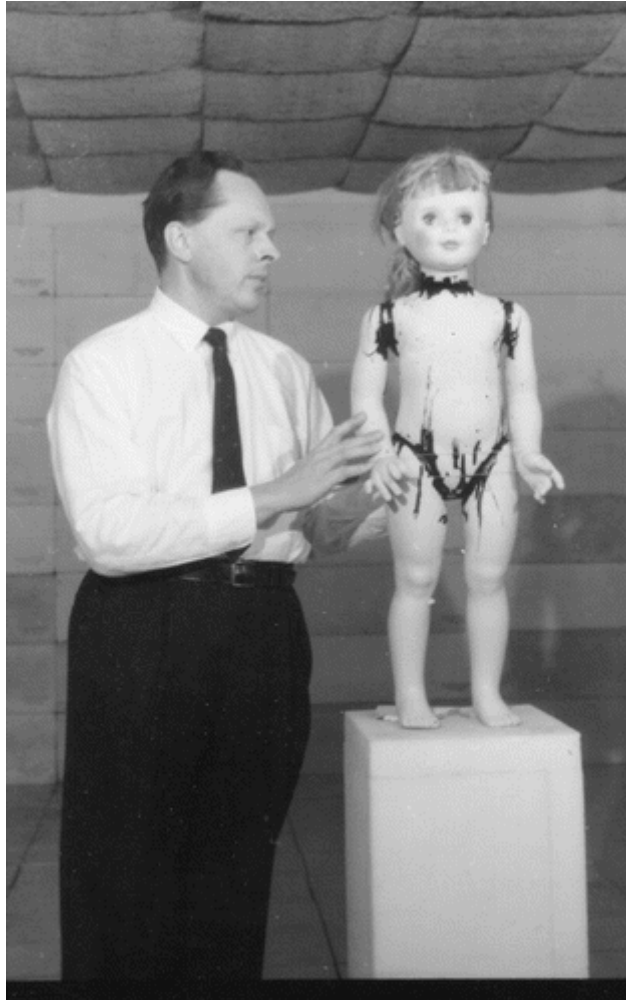
- **Hermann P. Schwan**, PhD former Nazi Engineer, biophysicist and biomedical engineer; Research Director at University of Pennsylvania, 1950-1983 -- funded by Navy.
- **Kenneth S. Cole**, PhD in Physics, Cornell who trained as a biophysicist; from 1949 to 1954 he was the technical director of the **U.S. 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.



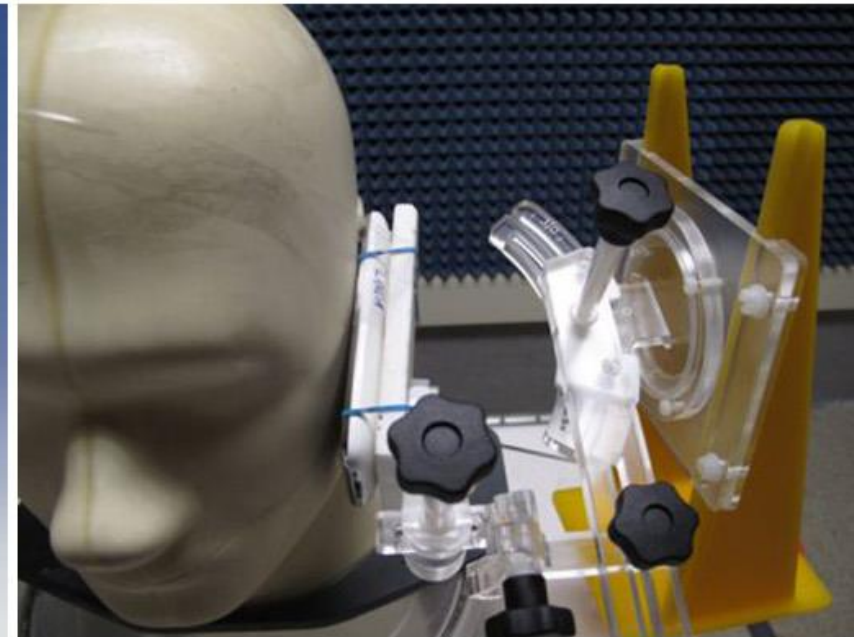
1963: Schwann with model of human body used for RF-EMR dosimetric studies. The model is filled with **tissue-equivalent liquids** and exposed to RF energy in a microwave anechoic chamber that Schwann had constructed in his laboratory.



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

Specific Absorption **Rate** (“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 . . .

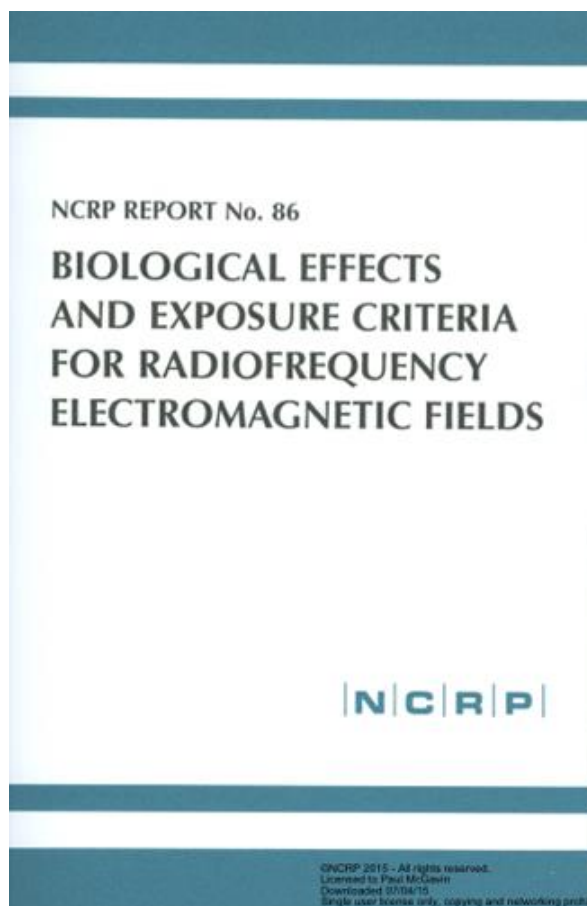
Environmental Protection Agency Knew There Were RF Radiation Hazards

- 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)
Limits for General Population Exposure				
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

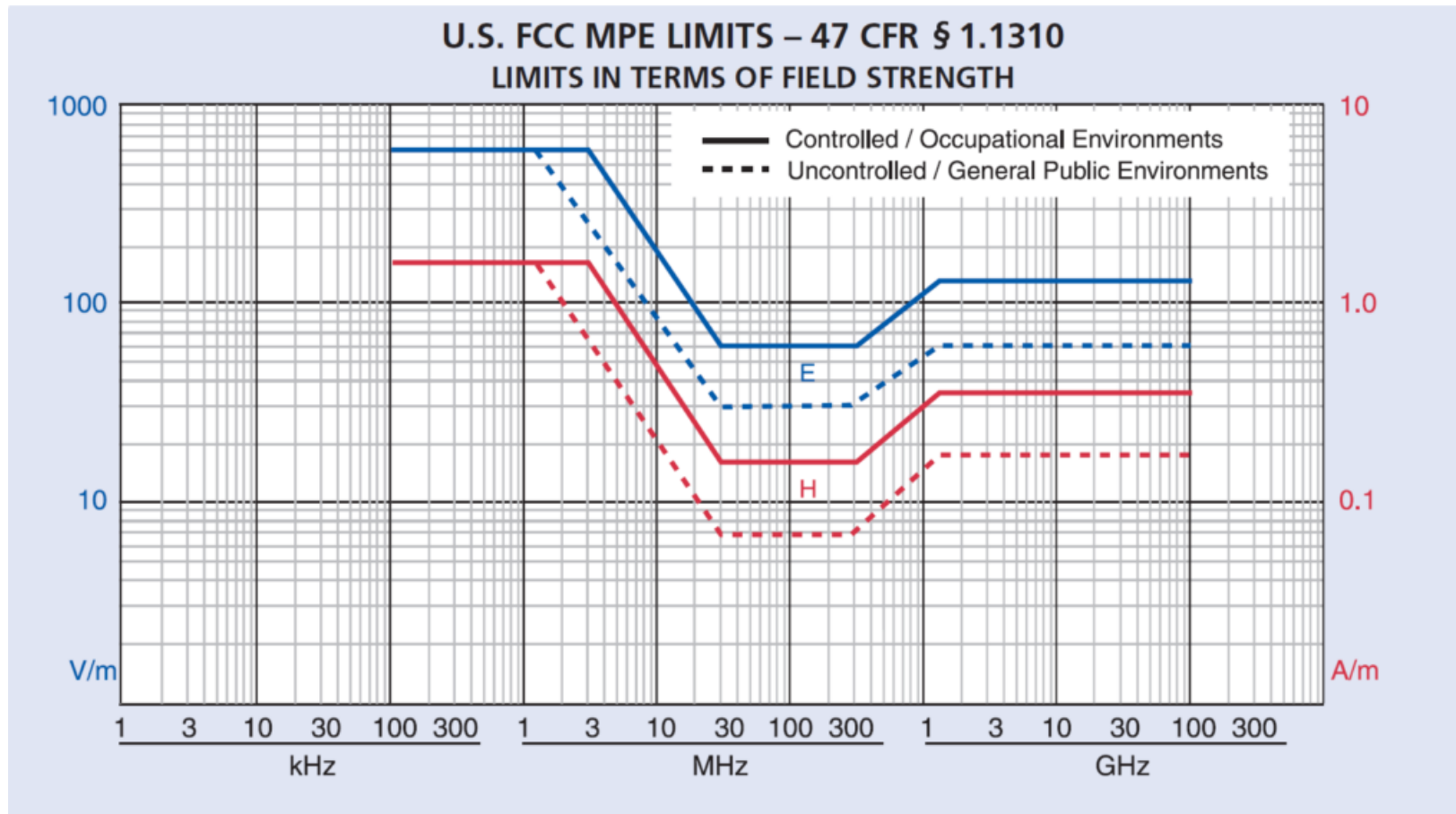
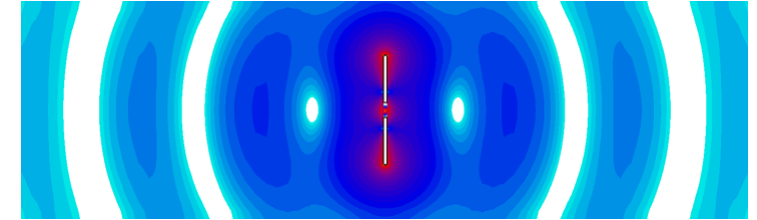
(Based on Average, NOT Peak RF-EMR exposures, which are 100x to 1,000 x higher)

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 $\mu\text{W}/\text{m}^2$

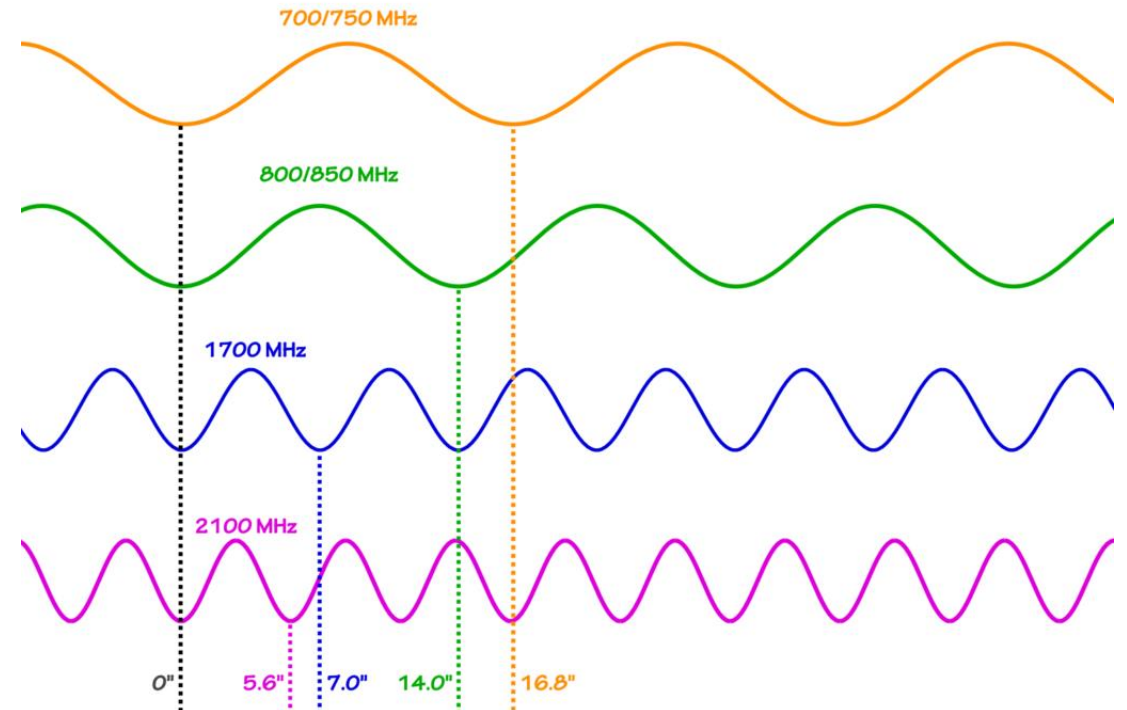
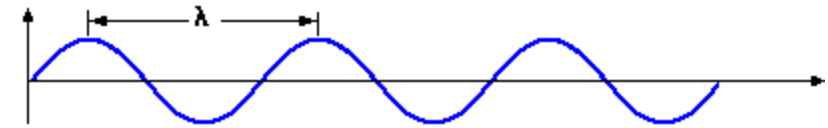
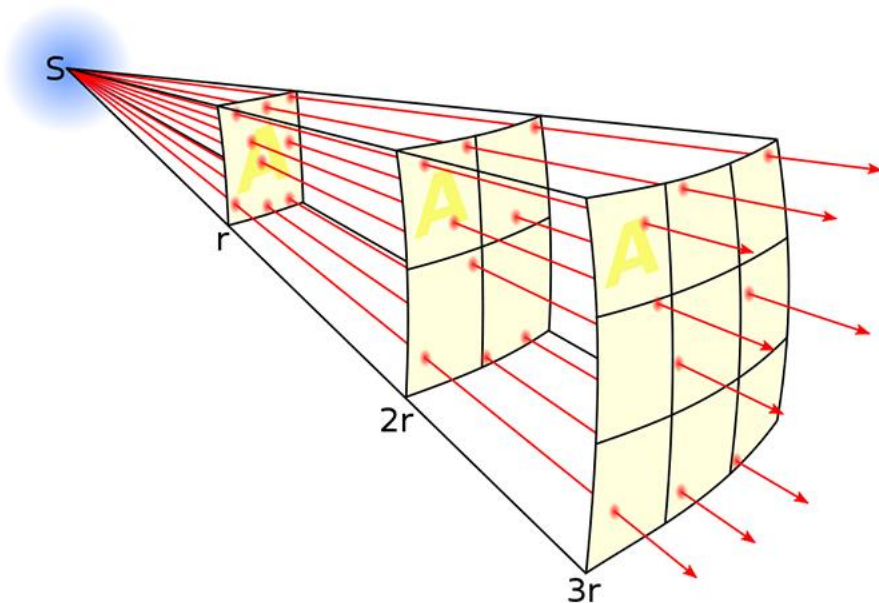
(*Electric field animation at right is in . . . super . . . slow . . . motion . . .*)



Wavelengths Approaching Body-Part Size

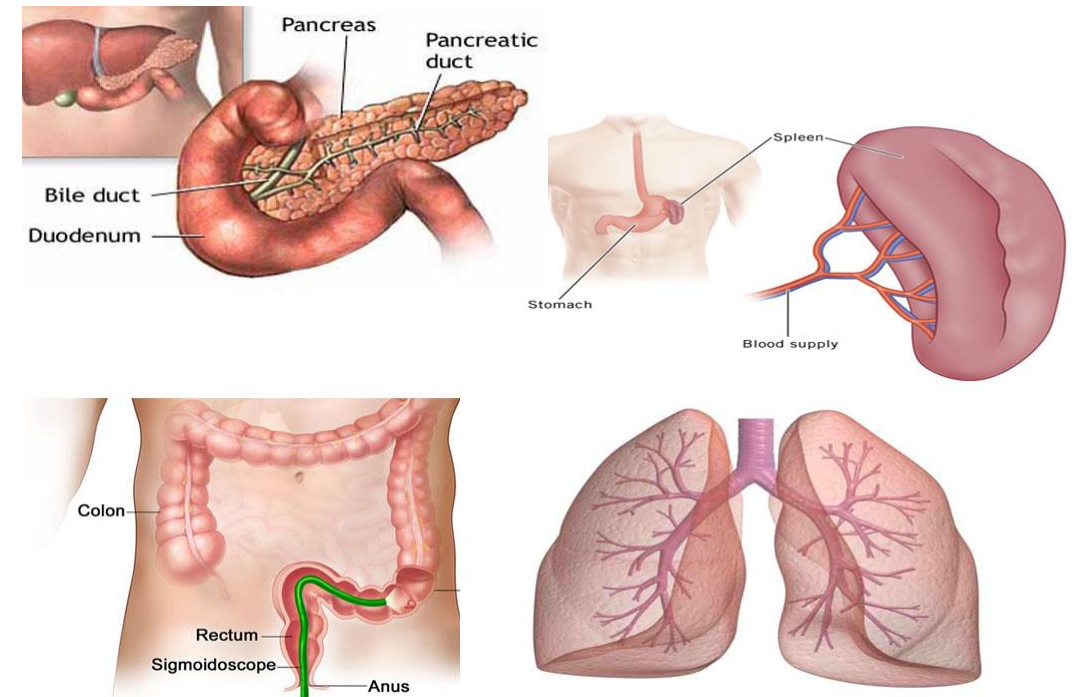
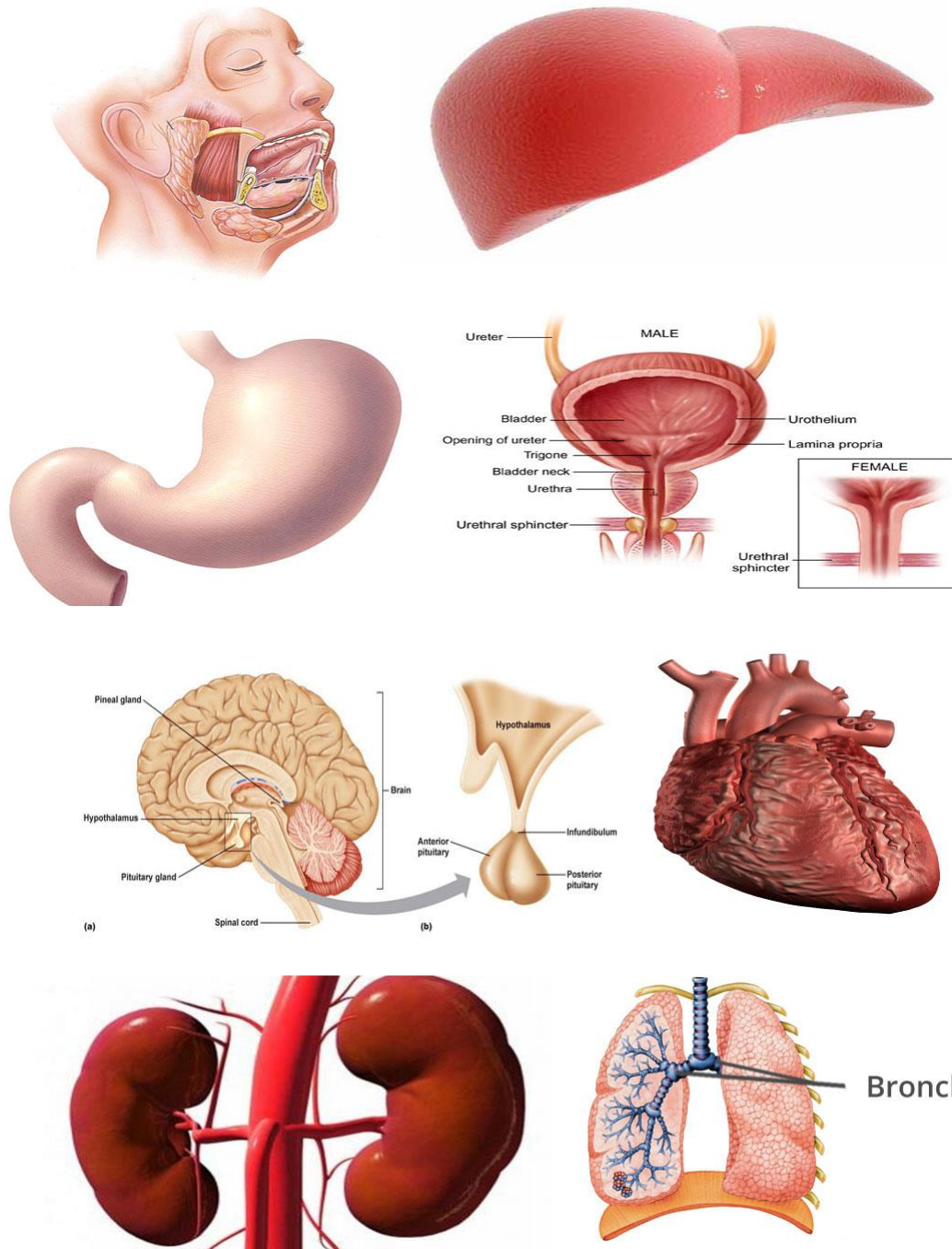
Electromagnetic Resonance:

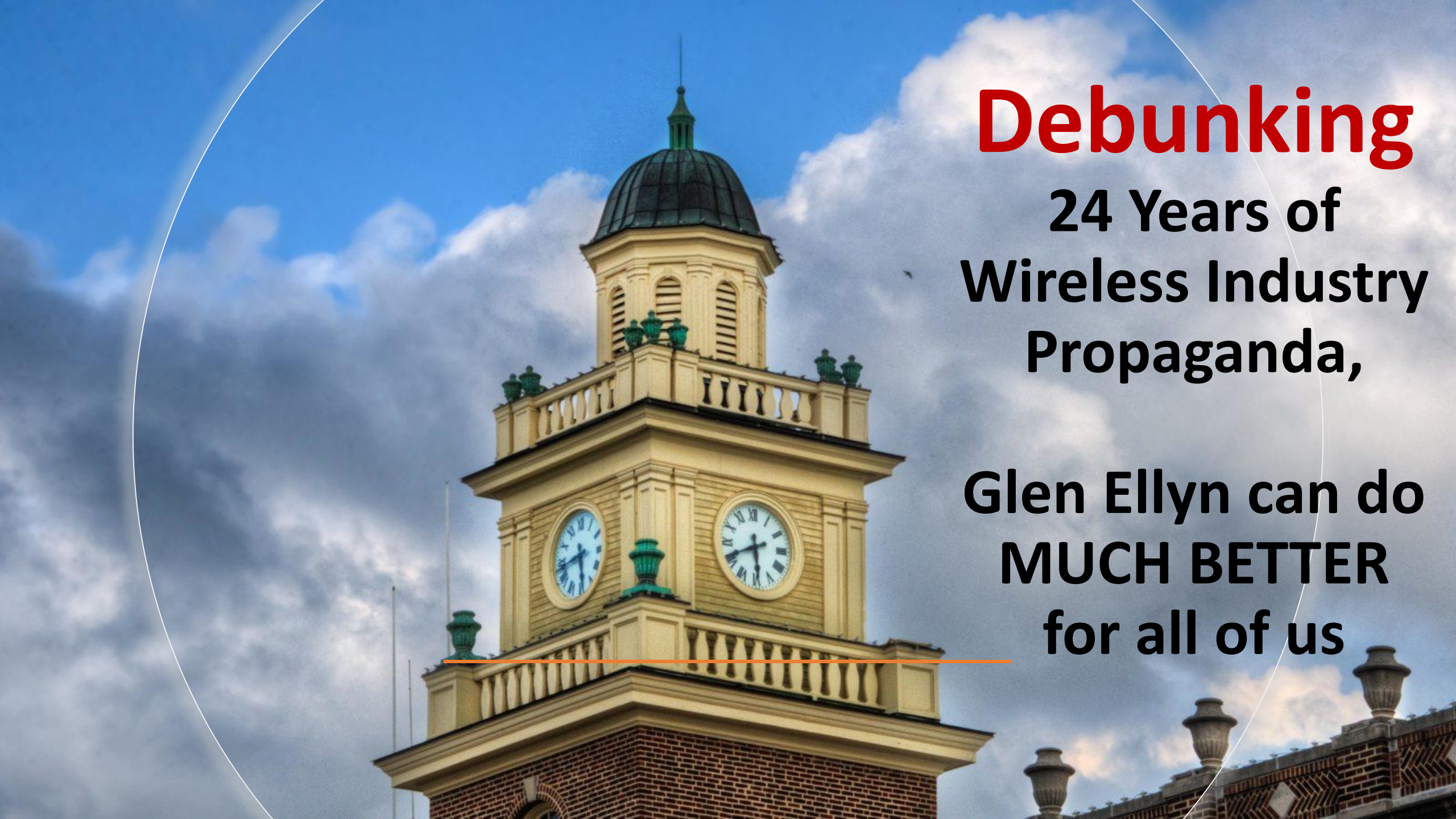
Small periodic forces near a resonant frequency that **produce large amplitude oscillations** in the system due to the storage of vibrational energy.



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 $\frac{1}{2} \times$ to $2 \times$ 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)

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

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 —

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

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

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

