

RF RADIATION

AN INVISIBLE DANGER

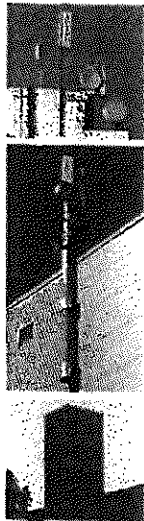


What is RF Radiation?

Radiofrequency (RF) radiation, a type of non-ionizing radiation, is the energy used to transmit wireless information. At low levels it is not considered a hazard. But at the levels produced by telecommunications equipment, including radio, television, and cellular antennas, RF radiation can "pose a considerable health risk"¹ for workers. As demand for cellular and wireless services grows, more of these antennas are being placed on rooftops and sides of buildings. Many are disguised to hide their presence.

What to look for...

Antennas that generate RF radiation come in different shapes and sizes and emit RF radiation in different directions. **Rectangular panel antennas** or dish-shaped transmitting antennas* generally send out RF radiation in one direction. **Cylindrical or rod-shaped antennas** emit RF radiation in more than one direction up to 360 degrees. **Hidden antennas** are designed to blend into their surroundings. They can be stand-alone (e.g. a flag pole) or a panel that blends into the side of a building, chimney, rooftop, or sign. These antennas are harder to identify and make it difficult to determine the RF radiation emitting direction.



Faux chimney conceals 15 panel antennas

Are you in danger?

Do you perform work where telecommunications antennas are present? If the answer is **YES**, then you could be exposed to hazardous levels of RF radiation.

Why it's dangerous...

- ▶ **RF radiation is invisible.**
- ▶ **Power levels vary.** The amount of RF radiation can be low when you start working and then spike to higher levels without warning.
- ▶ **Symptoms are often delayed.** By the time you feel the symptoms, such as overheating, reddening of the skin, and burns, you have already been over-exposed.
- ▶ **Your risk increases** the closer you are to the antenna and the longer you work in the RF radiation field.

RF radiation may interfere with medical devices (e.g. pacemakers), and concerns have been raised about possible non-thermal effects (e.g. nerve damage and psychological injuries).

Find out more about construction hazards.

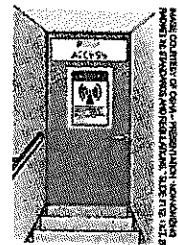
To receive copies of this Hazard Alert and cards on other topics

Call 301-578-8500

Know the basics...

1 Ask questions Ask your supervisor if cellular antennas or other RF radiation generating antennas are present. At a minimum, do your own visual assessment. The building owner or property manager should have, or know whom to contact for, information on the antennas, their locations, and the RF radiation levels.

2 Follow instructions When RF radiation is present, warning signs should be posted that include information on the hazard and a point of contact for information on the antenna. If you need to work within the RF field, the antenna owner should move or temporarily power down the device.² Ask your supervisor to confirm it's been powered down before proceeding.



3 Keep your distance Avoid standing right in front of or close to antennas. If there are antennas where you are working or on buildings close by, make sure the antennas are not pointed directly toward your work area. At a minimum, stay 6 feet away from a single antenna or 10 feet away from a group of antennas. A personal RF monitor and/or RF protective clothing may be needed. A monitor should sound an alarm if you are in an area where RF radiation is at a dangerous level. Protective clothing will shield you up to 1,000% of the FCC's maximum permissible exposure limit (MPE). It will not protect you from electrical shocks or arc flash.

If you think you are in danger:

Contact your supervisor. Contact your union.

Call the antenna owner

The contact information should be listed on the warning sign(s) or provided by the site owner/manager. Tell them you are a construction worker, describe the work you will be performing near the RF radiation generating antennas, and express your concern about an exposure hazard. Request a site power down for any work performed within the hazardous area or written confirmation that it is safe to perform work as described without a power down. If there are multiple antennas, repeat this process with each antenna owner.

Call the FCC - Get on the Record

1-888-225-5322 (press 5)

Tell them you are a construction worker performing work near RF radiation generating antennas and are concerned about an exposure hazard.

Call OSHA 1-800-321-6742

¹Not dish-shaped TV receivers

²OSHA: Non-Ionizing Radiation <https://www.osha.gov/SLC/radiation/nonionizing/>

³What is the FCC's policy on radiofrequency warning signs?... <https://transition.fcc.gov/oet/rt/safety/rf-faqs.html>

EXHIBIT A

Radiofrequency Electromagnetic Microwave Radiation Exposures

We are constantly bombarded with pulsed, data-modulated, Radiofrequency Electromagnetic Microwave Radiation (RF-EMR) exposures due to the proliferation of cellular wireless, radio and television signals. The emergence of densified 4G/5G will exponentially increase these RF-EMR exposures, resulting in scientifically-established melatonin-suppression, immuno-suppression, immediate and direct neurological damages and acceleration of the growth of cancerous tumors. (In the table, below, $\mu\text{W}/\text{m}^2$ is millionths of a Watt spread over a one-square-meter area and x is a multiplier).

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

EXHIBIT B

Conclusion: The measurements above explain why **close proximity** to the proposed million+ of microwave cell towers for the U.S. would be hazardous to the health of U.S. citizens. We need only **0.002 $\mu\text{W}/\text{M}^2$ (-85 dBm)** of RF microwave radiation for wireless telecommunications service. A locality can, therefore, set a **maximum output limit** from all frequencies/ antennas from Wireless Telecommunications Facilities (WTFs) in the public rights-of-way or in close proximity to where people live, sleep and heal at **0.1 Watt of Effective Radiated Power (ERP)** because that provides -85 dBm signal strength at a 1/2-mile down the street, with five bars on a cell phone and the **capacity needed** for everyone to make a call.

A typical WTF in the public rights-of-way outputs Effective Radiated Power at 1,500-7,500 watts ERP, which is between 15,000 and 75,000 times more power than is necessary to make "five-bar" cellular connections.