

Xfinity Mobile – The Next Phase of Wireless Communication

While everyone has been focused on 5G, Comcast has quietly installed their own wireless network right next to our homes. “Xfinity Mobile” is the latest development in Comcast’s push to use their cable and fiber optic infrastructure to provide ubiquitous wireless coverage. Their first attempt was using each customer’s gateway modem as a public WiFi hotspot, which I covered [in this article](#) back in 2015.

The major cable companies, including Comcast and Charter/Spectrum, have been installing what are called pico or femto cells on their existing co-axial cable and fiber optic infrastructure the past few years. These small cellular antennas are considered an upgrade to existing cable service so they are largely unregulated. This allows companies like Comcast to install the transmitters often just ten feet from a bedroom or living room window of unlucky families. Images of these newly installed cellular antennas can be seen below.

While these cellular antennas are small, they are often very powerful RF sources, especially for the adjacent homeowners. Here is a video that shows the RF emissions of one small cell:

https://www.youtube.com/watch?v=JQZ_0ZqWXvY

Note: This video was taken in the Santa Cruz Mountains where there were very few other RF sources. The Xfinity Mobile antenna is the primary source being detected by the RF meter.



Why is Comcast Installing its Own Cellular Network?

Major cable companies like Comcast have natural monopolies in the communities where they exist. This means they have installed and own the majority of the fiber optic and co-axial cable lines. Regulations also make it incredibly difficult for competitors to install the own cables. This is a capital asset that any

corporation wants to monetize to the best of their ability. Comcast and the other cable companies now understand that they can use their cable infrastructure to provide cellular backhaul to the major wireless companies. In the Eastern US, Charter/Spectrum is already using their co-axial cable and fiber backhaul system to partner with Sprint/T-Mobile to provide wireless service to more rural communities. This is how T-Mobile now advertises that they have 100% coverage across the United States.

As of this writing, Xfinity Mobile has not overtly partnered with a major cellular company. However, in some cases, Comcast is denying that their cable lines are a source of RF. This was a Comcast representative's response when asked about one of these pico/femto cells installed outside the home of a San Francisco Bay Area resident:

Hi XXXX,

Wanted to let you know I spoke with my Network manager this morning and he gave me a final report. After several tests and visits to the area they found no signs of any signal leakage from our cable system.

Here is what my network team shared with me: "per FCC Regulations, Cable Companies are not allowed to emit any signal into the atmosphere. Our trucks are equipped with sophisticated equipment that is constantly detecting any of these leaks, and if any are found they are fixed as soon as possible. We have thoroughly tested this location and the surrounding area and we have determined that there are not any devices that are malfunctioning that would cause any transmission of interfering signals into the air."

I apologize as I know, while this is good news it doesn't help resolve your resident's current situation. Please let me know if I can be of any assistance or answer any questions

Thanks

XXXXX Comcast

Can Xfinity Mobile be used for 5G?

This wireless system is currently being used for additional 3G/4G cellular service. However, the antennas can easily be upgraded to 5G frequencies once the technology develops further. In fact, these small transmitters are ideal for 5G because they can be placed directly next to homes and they sit directly upon the existing cable and fiber backhaul infrastructure that Comcast has installed the past decades.

This may be the least expensive and perhaps the most effective way to implement 5G. It will save wireless companies like AT&T and Verizon the massive capital expenditure and regulatory hurdles of installing their own fiber optic network and placing small cells on utility poles. The only catch for them is that now they will be renting the bandwidth from Comcast, rather than owning it themselves. From a business perspective, renting may be a much better option.

The following are images of the Xfinity Mobile pico/femto cells installed throughout the San Francisco Bay Area:



Xfinity Mobile antenna in Mill Valley, CA

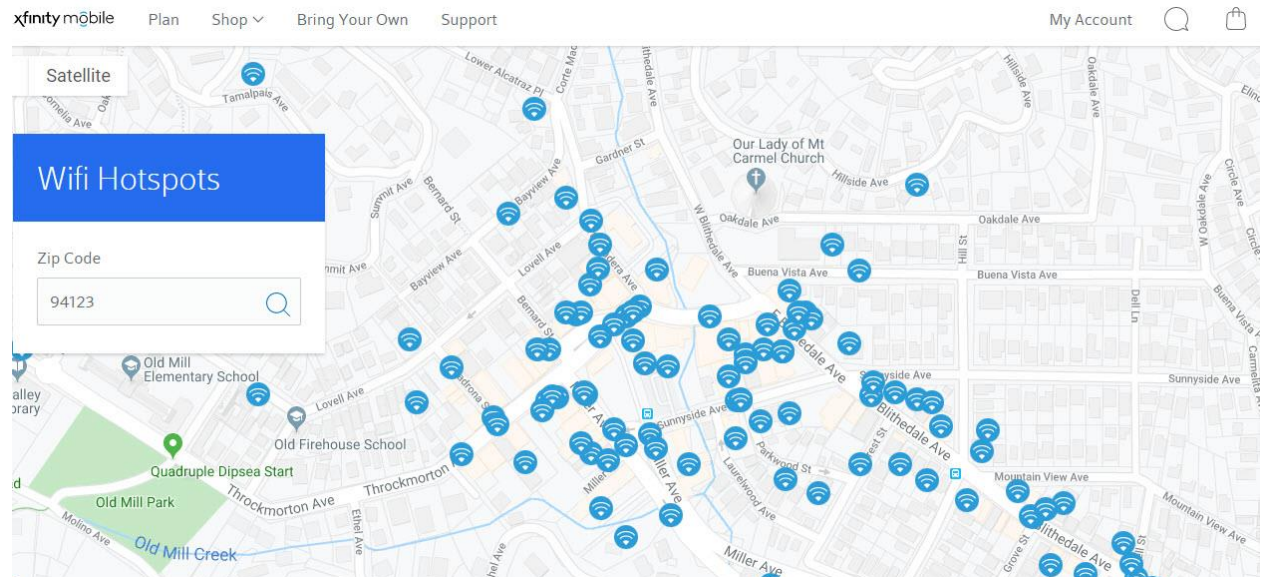


Image Credit: Xfinity.com

Xfinity Mobile Coverage – Mill Valley, CA



Xfinity Mobile Antenna – San Francisco, CA

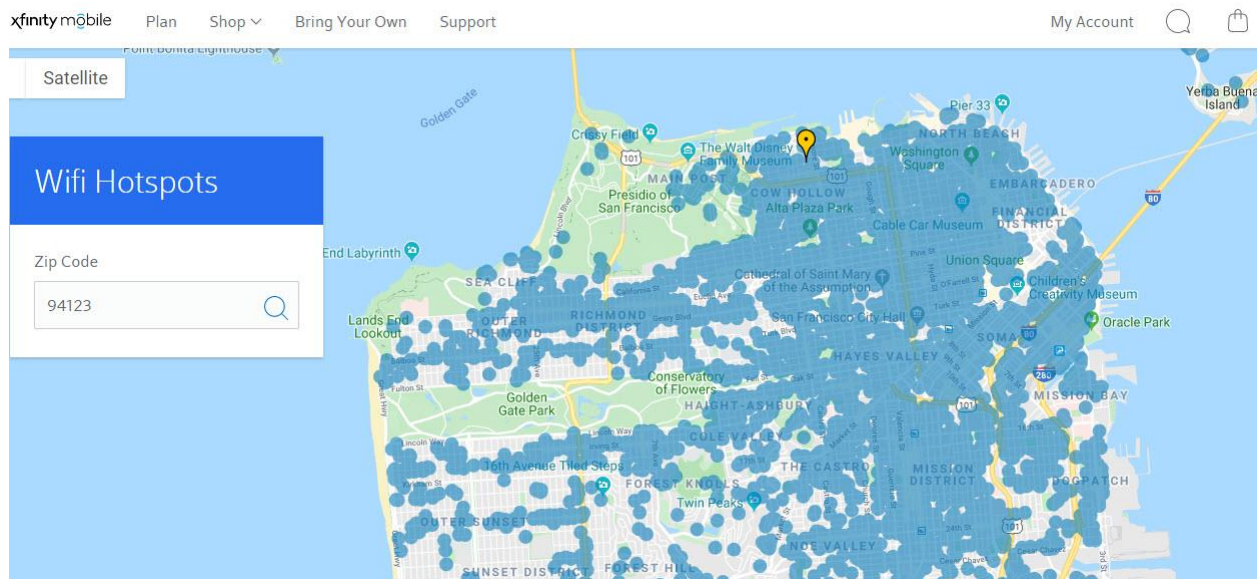
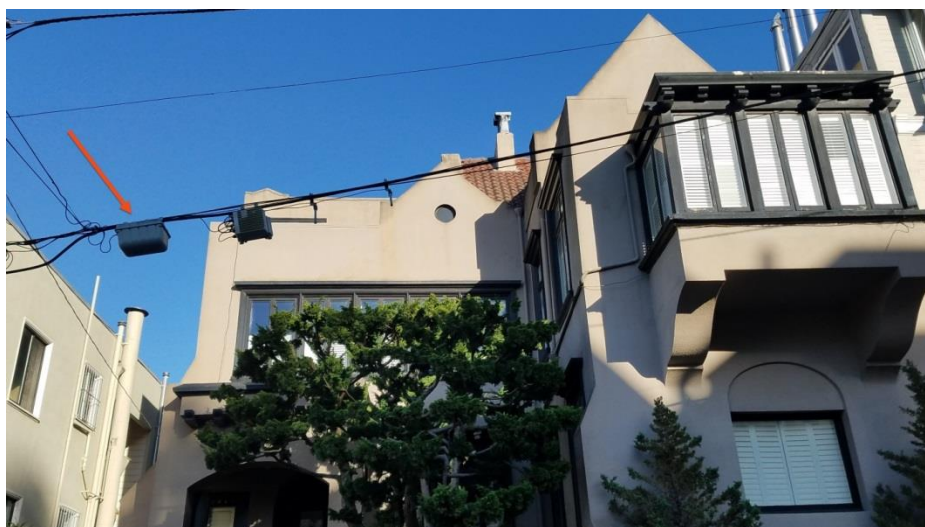
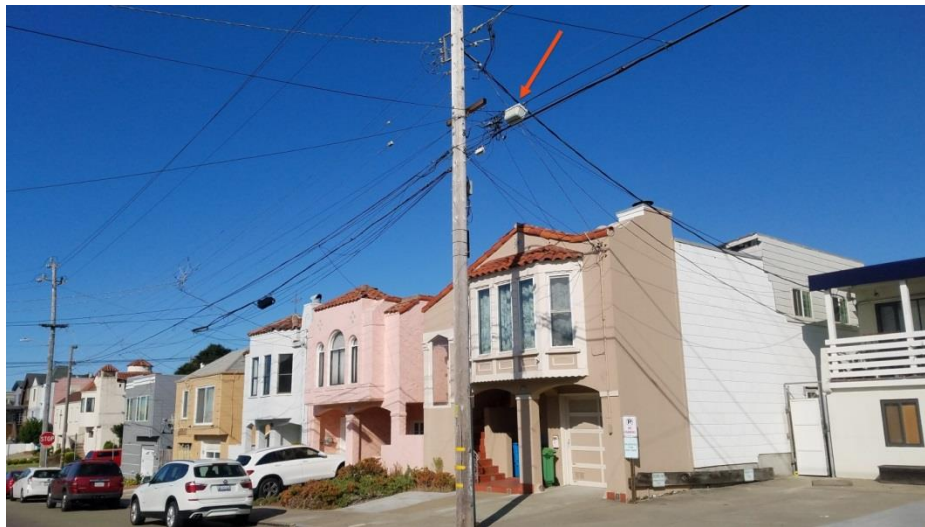
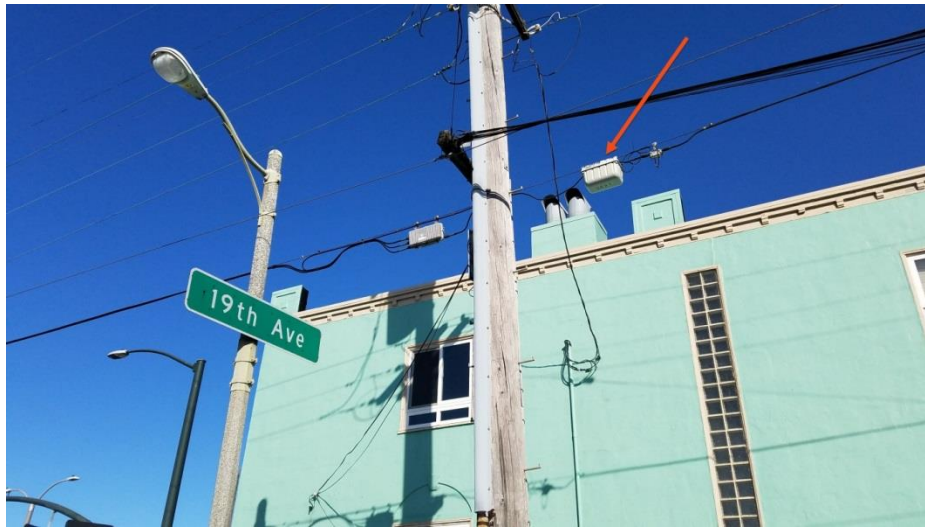


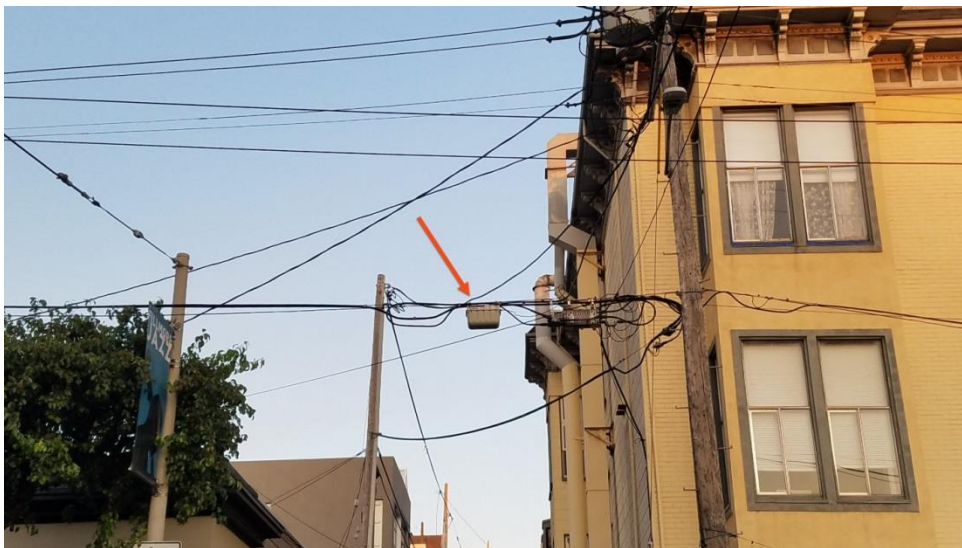
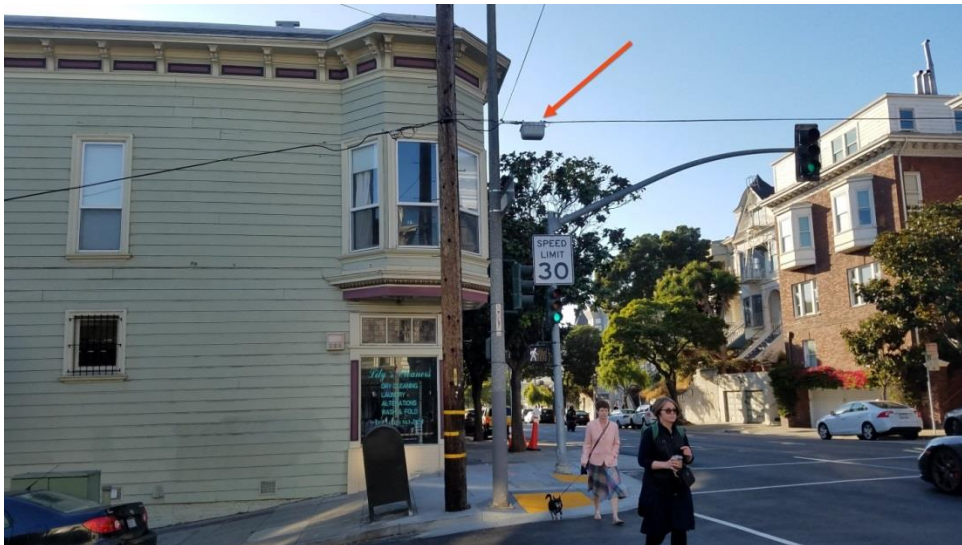
Image Credit: Xfinity.com

Xfinity Mobile Coverage – San Francisco, CA

Images of Xfinity Mobile antennas installed next to homes in San Francisco:







What are the Health Impacts of Xfinity Mobile?

There are two potential EMF issues with Xfinity Mobile. The most obvious is the increase in RF exposure in our homes and communities, which I discuss below. However, there is also a significant EMI (electromagnetic interference) component. In order to power the pico/femto cellular equipment, power is sent down the copper co-axial cables, which were often not designed to conduct electricity. In places where fiber has been installed, it is often a composite fiber/copper cable that allows for this power transmission. The power is then converted to the voltage needed for the cellular equipment, which can create unintended EMI emissions that conduct along the unshielded copper wires into all surrounding homes. This can create significant health problems for nearby residents. An industry press release outlining the process of power small cellular antennas with the communications power grid can be read [here](#).



4G/5G Outdoor Small Cells

Photo courtesy Tin Nguyen@Atomic50

As mobile data traffic continues to grow and outpace mobile network capacity, densification of the mobile network is one solution available to network operators to increase capacity. Small cells, or small wireless facilities, are another tool in the mobile operator tool kit to address the data demand as mobile traffic rapidly shifts to HD video content.

The traditional macro site distributed radio access network (D-RAN) architecture for mobile networks is evolving towards a hybrid combination of fiber-based fronthaul centralized radio access network (C-RAN) architecture using low power small radios coupled with D-RAN macro sites, and stand alone small cells.

Then there is the issue of RF emissions. Comcast is not breaking any laws in this regard. However, this is because the federal safety guidelines are not biologically based. As the Harvard School of Ethics detailed in [this widely acclaimed report](#), wireless companies such as Comcast are taking advantage of a regulatory environment that has been fully captured by the wireless industry and does not protect the health of our society.

The following is some of the best science that shows we have a problem at RF levels well below government safety guidelines (compiled by science writer and former NY Times contributor B. Blake Levitt in [this article](#)):

- “The 2011 International Agency for Research on Cancer (IARC) at the World Health Organization (WHO) classification of RF as a 2B (possible) human carcinogen. Newer research calls for RF reclassification as 2A (probable) carcinogen, or to Group 1 (known) carcinogen.

- The 2012 BioInitiative Report, edited by Cindy Sage and David O. Carpenter, MD, was updated to include nearly 2000 papers from over 10 countries by 29 international research scientists (10 from the U.S.). Noted were continued rollouts of wireless technologies jeopardizing global health, with recommendations for different standards, lower exposure limits, and a cautious science-based approach.
- The 2015 International Scientists Appeal to the UN/WHO by 220 peer-reviewed scientists from 41 nations about grave concerns over rising ambient EMF/RF. Their warnings include all RF-emitting devices: cell phones, infrastructure, wifi, 'smart' meter/grid technology, devices like baby monitors, and commercial broadcast. The warning extends to 4 and 5G small cells.
- The 2017 petition by Swedish scientist Lennart Hardell, signed by over 180 scientists and doctors from 36 countries, calling for a EU moratorium on 5G roll-out until human and environmental hazards are investigated by non-industry scientists. Signatories noted 5G will substantially increase cumulative RF effects on top of existing 2G, 3G, 4G, wi-fi, and other exposures. They urged EU to halt 4 and 5G until non-industry scientists show total radiation levels from all sources are safe, especially to children, pregnant women, and the environment.
- The 2017 U.S. National Toxicology Program's (NTP) release of a 16-year, \$28-million study that found causal relationships between cell-phone RF and DNA damage, malignant brain cancers (glioma), and benign nerve tumors (schwannomas) of the heart in male rats. NTP, the largest long-term low-level RF study ever conducted, used 2G-type radiation at non-thermal RF where effects were considered impossible. Newer generation signaling characteristics are even more complex.
- The 2018 Ramazzini Institute study in Italy verified NTP's findings at even lower non-thermal RF intensities. They also found brain tumors and schwannomas in both male and female rats. Consistent with NTP, Ramazzini showed effects are reproducible. Yet FCC, FDA, and industry ignore the data."

Levitt further states that "The other non-thermal research shows effects to: DNA, cell membranes, gene expression, neuronal function, the blood brain barrier, melatonin production, sperm damage, learning impairment, and immune system function. Known adverse effects to humans include infertility, neurogenerative changes, numerous cancers, and heart rate variability. For some this is not theoretical. Near towers and in classrooms with wifi, people have experienced headaches, increased noise sensitivity, rashes, nausea, exhaustion, muscle weakness, lower libido, premature bone aging, concentration and memory problems, and hyperactivity. Prenatal exposures have led to ADD and autism-like effects in test animals."

Original sources to the above scientific finding can be found on my [EMF Research](#) page.

What You Can Do

For the time being, the wireless industry is growing as fast as they can, perhaps to become too big to fail. It may also take some time before there is a significant political movement to limit the installation of this technology directly next to our homes. However, there are some things you can do now to protect your family. Here are a few ideas:

1 – Measure your actual RF exposure if you have one of the above antennas near your home.

Understanding your actual EMF exposure is only way to make informed decisions on solutions. You can find the RF meters I recommend [here](#).

2 – If using EMF meters to test your home seems overwhelming, hire a local EMF consultant to help you understand your environment. This is often the best first step families can take once they start paying attention to the EMF topic. [Contact me](#) if you would like to be introduced to someone locally that I trust.

3 – If your RF exposures are high, you may want to use seamless shielding on the [walls and windows](#) facing the street. This won't block everything, but it will help. An [EMF Bed Canopy](#) is typically another good sleep solution for people who live in city/suburban environments. This will also protect you from neighboring WiFi and other cellular antennas.

4 – If you are looking for a new home, choose one that does not have above ground power and cable infrastructure. This will make it more difficult to install wireless antennas next to your home

5 – Work with your state and local governments to create ordinances that do not allow your local internet service providers (ISP) to use their infrastructure to install additional wireless networks. Other cable/internet companies may try to follow Comcast's lead. As you can see below, there are many areas in the United States that are not served by Comcast and their Xfinity Mobile service. Don't let your ISP install an unnecessary wireless network in your community.

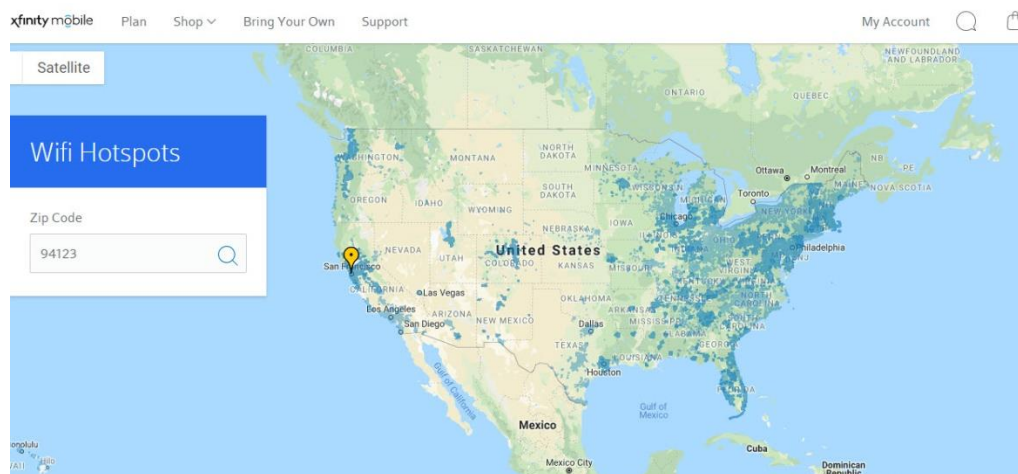


Image Credit: Xfinity.com

Xfinity Mobile Coverage – United States

6 – If you have such an antenna installed next to your home (Either 4G DAS / 5G or Xfinity Mobile), seriously [consider moving](#). You can determine the location of Xfinity Mobile antennas by putting an address into [this Xfinity Mobile webpage](#). You can then use Google Maps Street View to see if an antenna is installed.

7 – Encourage everyone you know to only use their smart phones for text messages. It is the high-bandwidth video and apps that cellular users have become addicted to that is a primary driver for the wireless buildout. Once this behavior changes, as it easily can per [Cal Newport's latest book](#), these cellular systems won't be as necessary, or profitable. It is ultimately up to society to determine how much microwave radiation they want to be exposed to. Awareness of the problem comes first.

Hopefully this article will help you to understand another aspect of the 5G buildout and the bigger EMF picture. This can be a complicated and sometimes overwhelming situation. However, by understanding it to the best of our ability, we can make more informed decisions to protect our health and that of our family. From there, we can move into helping society as a whole. Thank you for joining me in this worthwhile endeavor.