

2. In your response, please describe which perspective(s) your comments represent:

I am an individual, however in the past I represented a group of hundreds of individuals working to improve the county wireless code in Thurston County, WA. This included participating in 7 member advisory committee on the wireless code rewrite. I come from this with both an understanding of current FCC wireless rules as well as an RF/EMF injured person and sensitive to RF & EMF exposure.

3. We invite individuals, families, caregivers, healthcare professionals, and organizations to share experiences regarding potential adverse health effects they believe may be associated with exposure to RF/EMFs. Respondents are encouraged to provide as much detail as they are comfortable sharing, recognizing that responses to this RFI will be public and therefore should not include PII or PHI. Examples of information that may be helpful to include are the following:

a. The type(s) of wireless technology or RF/EMF source(s) involved:

I experience adverse physical effects from mobile phones, Wi-Fi, smart meters, GPS signals, Bluetooth, wireless infrastructure, wearable devices, occupational equipment, also including but not limited to laptop, desktops, wireless phones, dirty electricity from power generation, etc. Really anything that puts off or attracts via antenna effect a pulsed, digital, or dirty electromagnetic field.

b. The nature, duration, frequency, and approximate timing of the reported exposure(s).

I was an early adopter of wireless technology, wore a pager from 1992-1995, purchased a mobile phone in 1995. I had wireless devices on my person 12+ hours per day 7 days a week until around 2018, approximately 16 years. I also regularly had a laptop on my lap for 6-18 hours per day. And be at a desktop computer 8 hours per day.

c. The potential adverse health effects experienced.

Headache, brain fog, tinnitus, low energy, limited concentration, irritability, increased anxiety, increased susceptibility to bacterial and fungal infections.

d. When potential adverse health effects first appeared relative to when exposure began and whether any changes in exposure coincided with potential adverse health effects.

Starting in the late 90's I would notice my head would get very hot while talking on my mobile phone for extended periods (more than 20 minutes). After several times I associated this with my mobile phone, but did not realize it was likely harmful, figured it was just heat.

Around 2008 I began to have constant dull headaches, low energy, and worsening brain fog. I virtually never experienced headaches or brain fog prior to this. This lasted for years, I tried changes to diet, exercise, massage, chiropractic, etc.

Nothing helped significantly, I continued trying various treatments and supplements with little effect until around 2018. Around that time, I began to notice a direct correlation between exposure to RF/EMF and worsening symptoms (headache worsened, brain fog worsened, energy levels dropped, irritability increased, I began to have tinnitus, developed bacterial and fungal infections).

Some of these effects started to happen immediately upon increased exposure. For example, if I had to use my mobile phone at all, or just being in a car with a connected (but not in active use) mobile phone,

sitting near a wireless phone (land line), using a laptop even when the laptop was away from me and only my hands were on it, these all produced worsening headaches and what felt like higher blood pressure. Exposure to higher levels of wireless radiation were directly connected to a night with increased tinnitus. It became very clear that my exposure to RF/EMF's, though more limited than many, was having an effect on my health.

e. Whether medical evaluation or treatment was sought, including any diagnoses.

As mentioned, I did seek medical intervention for my symptoms, though no one ever suggested the cause could be EMF/RF exposure. None of the interventions helped. It was not until I self-diagnosed, and limited my exposure that my health began to recover. Mitochondrial support through supplements (Ubiquinol in particular) has helped with recover and resistance.

f. Whether steps to reduce or eliminate exposure were taken and, if so, whether any subsequent changes in potential adverse health effects were observed.

In 2018, after clearly observing direct correlation between RF/EMF exposure and worsening symptoms, I decided to limit my exposure in every way that I could. Moved to a home with limited cell service, wired everything in our home and office, no wireless land lines, no Bluetooth or Wifi, used a separate wired keyboard and mouse when using a laptop and kept the laptop as far away as possible. Kept all wireless devices in airplane mode when not in use. And limited use of wireless devices to a few minutes per day. Also installed dirty energy filters in our home.

Almost immediately my symptoms stopped worsening, and within a month started to decrease, and within a year the constant headaches ended and brain fog lifted. I continue to limit my exposure. I am also still sensitive to RF/EMF, though my resistance seems to have increase slightly. If I go to areas with a high concentration of cell towers, or am in a car where a mobile phone is active for more than a few minutes, I start to develop a headache. If I am in an area with high enough concentration of cell towers for several hours, my headaches can become unbearable to the extent I cannot function.

g. Any supporting documentation, including scientific reports, exposure measurements, or other relevant information.

There are literally thousands of studies on the adverse effects of exposure to RF/EMF on humans, plants, insects, physical processes, etc., etc. Meta-analysis of these studies have shown the overwhelming level of adverse effects verses studies that claim to show no effect. And most of the no effects studies are sponsored by the wireless industry. Many websites on EMF/RF exposure have compiled lists of studies and seems unnecessary for me to list any of them here.

Exposure Standards and Risk Assessment

5. What existing national and international exposure standards, guidelines, or regulatory frameworks should federal health agencies consider when evaluating the potential adverse health effects of human exposure to RF/EMF?

The levels recommended by the Building Biology organizations, scientists and experts:

<https://www.emf-testing.co.uk/buildingbiologyemfguidelines> are the gold standard for health and well being. The ICNIRP (International Commission on Non-Ionizing Radiation Protection) standards are not as

safe as Building Biology standards but can be considered a compromise to the needs of the current society: <https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf>

n. What scientific, technical, or regulatory changes by federal health agencies, if any, would improve the assessment, disclosure, and regulation of wireless radiation exposure?

First and foremost, the FCC should not be the ones setting exposure limits, that should be in the hands of health experts. The FCC has demonstrated that they represent the interest of the communications industry in their rule making much more so than the people they should serve. Secondly, the idea that only heat effects should be considered was outdated when that standard was developed. Third, EMF/RF is not effected much by traditional walls or property lines. Consideration for the rights of the property owner and their desire not to be effected/intruded upon by unwanted wireless radiation must be considered. Currently, I have no right to limit or prevent wireless radiation from entering my home from cell towers, satellites, etc. The FCC rules allow them to place a cell tower in the right of way, adjacent to my property, and I would have little to no ability to prevent that. There is also no requirement for testing that the radiation levels meet the ridiculously high current standards, and I know for a fact, from personal field testing, that there are many, many areas, that exceed the very high US standards. Finally, we must consider the add-on effects of the cell towers, combined, with the radio towers, combined with all of the wifi everywhere, combined with the Bluetooth, radar on cars, etc., etc. Each of these cannot be considered in a vacuum, as that is not what is happening in the real world.

o. Is additional research needed to develop, test, and evaluate the effectiveness of procedures and techniques for minimizing exposure to electronic product radiation? Where are the largest gaps, if any, in knowledge? What research is needed to appropriately evaluate current or future national and international exposure standards, guidelines, or regulatory frameworks.

First of all, allowing potentially harmful technology, then developing standards later clearly is not working. The human body is electrical, and highly sensitive to electrical, magnetic, and radio fields. Any device that puts out such a field and has human or environmental exposure should have to demonstrate its safety, just like a drug. These devices can be built safer. They can be built to put out a harmonic frequency rather than a dirty, pulsed frequency. Research shows, harmonic and clean waveforms do not cause adverse effects. In fact those frequencies are often shown to be beneficial. Will it cost the manufactures a bit more, yes, but at greatly decreased health care costs. Further, manufactures need to offer a way to decrease or turn off emitting functions. Some cars you can disable most or all of the wireless features and emissions, others you cannot. Automakers in particular should have a low/no EMF/RF mode or options on all of the functions. This may completely disable some functions, but the car should be able to operate without them.

p. How, if at all, should a classification system account for exposure-related characteristics, including operating frequency, power density, specific absorption rate (SAR), electric- and magnetic-field strength, modulation and pulse characteristics, duty cycle, beamforming, simultaneous exposure to multiple frequencies, duration of exposure, distance from the source, proximity to the body, and cumulative exposure over time?

Consumers should be able to not only quickly identify the level of exposure on a product (including in cars, airplanes, etc), but should also be able to have relatively easy access to deeper details. Such as what is putting out the EMF/RF, the level of that function, and how or if it can be disabled.

6. What scientific evidence exists about potential adverse health effects caused by current exposure limits?

These studies can easily be found by your staff.

Measuring Human Exposure and Public Health Surveillance

7. What scientific methods are currently available for accurately characterizing individual and population-level RF radiation exposure?

EMF and RF reading devices that can record data are widely available.

8. What, if any, improvements in exposure assessment methodologies are needed to better evaluate real-world exposure conditions?

It needs to be done on a large comprehensive scale, and quickly.

9. What, if any, technical and exposure-related information should be disclosed to consumers, residents, workers, schools, healthcare providers, and local governments?

People need to know they are being exposed to harmful levels of radiation and what choices they can make to avoid it. This is so backwards, we should not have to work to avoid it, exposure to harmful radiation should be the exception, not the rule.

10. What data sources or surveillance systems currently exist to monitor potential adverse health effects associated with RF radiation exposure? Should additional data sources or surveillance systems be developed? Please discuss the benefits and challenges of the following data sources and surveillance systems, as relevant:

a. disease registries.

Correlation is difficult and many doctors don't even look for the cause of any disease. Causation identification needs to become a priority in medicine.

b. occupational monitoring.

Many workers are required to be exposed to high levels of RF/EMF by way of wireless headsets, wireless POS devices, reachable at any time by mobile phone, offices filled with WIFI, etc. etc. I have a hard time finding any employment where my exposure will not adversely affect my health.

c. environmental monitoring.

Our environment is saturated, and there are many places that are above current FCC safety levels. Cumulative levels are even considered. The levels of EMF/RF on airplanes are now insanely high. Way above any safety recommendation.

d. longitudinal cohort studies.

- e. biomonitoring.
- f. adverse event reporting.
- g. disease or illness clusters.
- h. Other.

Yes, yes, and yes, this needs serious action and quickly. The industry line of, "we don't know" related to adverse exposure needs to stop.

11. Should exposure assessment or risk evaluation differ for sensitive populations such as those noted below? Please explain.

- a. children.

Childrens body and brains have been shown to be much more susceptible to exposure due to ongoing development of their bodies and well as higher water levels and softer tissue that blocks less radiation. Safety levels for children should be much lower.

- b. pregnant women.

The developing fetus is much more susceptible, again much lower limits.

- c. older adults.

Don't know.

- d. individuals with implanted medical devices.

Yes, devices can be turned off, interrupted, etc. This has been shown conclusively in studies.

- e. workers with elevated occupational exposure.

Firefighter get paid more because their cancer rates (among other health effects) are so much higher, same should be true for higher EMF/RF exposure, and this needs to be disclosed by the employer.

- f. individuals with preexisting medical conditions.

There is no consideration given for the EMF/RF sensitive in todays world. It's very difficult to even function or get a job. However, we know that everyone is sensitive, but for some reason, some people notice/feel the effects more than others, everyone is being harmed.

- g. Other populations that may uniquely experience potential adverse health effects in response to RF radiation. Insects, birds, mammals, beneficial bacteria, fungus, plants, these are all being adversely affected.

Existing Evidence

12. What scientific evidence exists regarding potential adverse health effects associated with RF radiation exposure at levels below current federal exposure limits? Again the studies are there, easy to find.

13. According to scientific evidence, how do the technologies below affect cumulative exposure patterns?

Of course all of these add to cumulative exposure, they are all sources of pulsed or dirty EMF/RF signals. Think of each one as a source of hard to avoid tiny bullets, more tiny bullets is bad...

- a. 5G.
- b. 6G.
- c. Wi-Fi.
- d. Satellite-based communications.
- e. Internet of Things (IoT).
- f. Wearable technologies.
- g. Smart homes/appliances.
- h. Smart cities.
- i. Autonomous vehicles.
- j. Wireless medical devices.
- k. Communication enabled smart meters.

14. What scientific evidence exists regarding potential adverse environmental effects associated with RF radiation?

It's all around, and in studies, dead plants or dead branches of plants near sources of RF, this can be seen with electric fencing, smart meters, cell tower, radar at airports, etc. etc.

15. What types of scientific evidence should be considered when evaluating RF exposure associated with wireless infrastructure? Please comment on:

Wireless exposure is being forced on everyone. I have no choice whether I am exposed whether in my home from a nearby cell tower, the car driving by, satellites, other people cell phones, wifi everywhere. I can't even buy a new car that doesn't emit unhealthy levels of RF/EMF. The higher the density the stronger the signal, the more pronounced the adverse effects, this is true for plants, animals, insects, humans. What's happening with proliferation of wireless is not right, it's the invisible killer making us all less healthy, weakening our systems, making us more susceptible to disease. And it's getting harder and harder to limit exposure. It's impossible to avoid it, as there are satellites blanketing every inch of the earth even if you happen to get out of cell tower range, which itself is very difficult to do. Cumulative exposure limits must be set, and at much lower limits than they are currently. We know harm is being done at the higher levels that cause heat effects, there is no debate on this, yet there is no enforcement, no required testing, and these "safe" levels, which are being exceeded, are already set far far too high, levels that we know are causing non-heat effects as well. There should be levels that cannot be exceeded at or in homes, schools, malls, places of business. Individuals can choose to ignore these levels, but they should be aware of them, and products should be required to be well below them, and

assume everyone has wifi, Bluetooth, mobile phones, etc. in their homes. Their limits cannot be set in a vacuum, as if everyone only has one device and cell towers and satellites emit nothing.

- a. proximity to homes, schools, childcare facilities, healthcare facilities, and/or workplaces.
- b. cumulative neighborhood exposure.
- c. antenna density.
- d. small-cell deployment.
- e. livestock.

Federal Research Priorities

16. What are the highest priority research gaps regarding EMF and RF radiation and public health that the federal health agencies should address?

Cumulative exposure.

17. How can federal health agencies improve coordination of EMF and RF radiation research? Please comment on potential roles for federal health agencies including, but not limited to:

The FCC points to the below agencies for guidance, the below agencies say it's the FCC, none of them are accountable to anyone. Their needs to be a comprehensive framework for determining allowable exposure limits developed that considered the complete picture, health, environment, plants, insects, livestock. It doesn't matter which agency does it (though it should not be the FCC who sets or enforces these limits, as they are a captured agency). But their needs to be testing (in the public areas, where any people might be) to verify compliance with individual and cumulative limits.

- a. HHS Food and Drug Administration (FDA).
- b. HHS National Institutes of Health (NIH).
- c. HHS Centers for Disease Control and Prevention (CDC).

Additional Information

18. Please identify any additional scientific evidence, technical information, data, or recommendations that federal health agencies should consider when evaluating potential adverse health effects associated with RF/EMF radiation exposure.

There are experts in the field of the biological effects of EMF and RF, they should be leading this effort.