

No. 26-1121

**UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

In Re
**CHILDREN’S HEALTH DEFENSE, PETRA BROKKEN, DAVID O.
CARPENTER, MICHELE HERTZ,
ENVIRONMENTAL HEALTH TRUST,
PETITIONERS**

PETITIONERS’ REPLY IN SUPPORT OF MANDAMUS

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GLOSSARY

2019 Order: *Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order*, 34 FCC Rcd 11,687, 11,689-90 (2019).

EHT: *Environmental Health Trust v. FCC*, 9 F.4th 893 (D.C. Dir. 2021)

FCC: Federal Communications Commission

FDA: U.S. Food and Drug Administration

HHS: U.S. Department of Health and Human Services

NEPA: National Environmental Policy Act of 1969, 42 U.S.C. §§4321-4370h

Opposition: Opposition of Federal Communications Commission to Petition for a Writ of Mandamus, USCA Case #26-1121, Document #2195088

Petition: Petition for Writ of Mandamus, USCA Case #26-1121, Document #2174065

Public Notice: FCC Public Notice on Remand Order (Attached to Opposition)

RF: Radiofrequency

RFI: HHS, Request for Information on Electromagnetic Fields (EMFs), Radiofrequency (RF) Radiation, and Wireless Radiation Exposure, 91 FR 59792 (9/21/2026); see also <https://www.hhs.gov/press-room/hhs-seeks-public-input-electromagnetic-fields-wireless-radiation.html>

FDA Statements: FDA Center for Devices and Radiological Health Director Shuren 2018 Statement and 2019 Letter

INTRODUCTION

For five years, the FCC took no action on this Court's order to provide a reasoned explanation for the Commission's 2019 conclusion that its 1996 RF thermal-only exposure limits are adequate, despite pleas for compliance by Petitioners and others and a growing body of evidence of non-thermal harms from RF radiation even below the 1996 limits. Indeed, the FCC has expressly refused every opportunity to take up the issue in several recent rulemakings and adjudications.

The Commission has finally taken a single step, but only because the Court ordered a response to the *Petition*. And despite this step, the FCC's actions here and elsewhere make the Commission's priorities crystal clear: it is focused on deployment and is intent on eliminating every perceived "barrier" to deployment, including even those protecting human health and the environment. The recent Public Notice is essentially a plea for industry help in the construction of *post-hoc* rationalizations for what the Commission did in 2019 and is not much interested in anything else.

The current *Opposition's* claims of RF safety are as hollow and unreasoned as were the conclusions that led to the *EHT* order. Just as the Commission did in 2019, in its *Opposition*, the Commission continues to ignore scientific evidence and individual testimonies about non-thermal harms; continues to dismiss the

possibility that RF radiation below current exposure limits may be a toxic agent that threatens all living things; and for its claims of safety, continues to rely wholly on meritless FDA Statements that RF exposure at or below current limits has not been proven harmful.¹

The FDA Statements relied on in the *Opposition* are the same ones *EHT* rejected as a basis for reaching any conclusions about safety, finding them conclusory and unreasoned, with an analytical void. Critically, HHS (the FDA's parent agency) has initiated its own, first-ever investigation of safety issues in connection with RF radiation, which further militates against any reliance on the old FDA Statements.

The *Opposition* asks this Court to deny the *Petition* based on a weak indication that the FCC *might* do something nine months from now. However, as discussed in the *Petition* and also below, the *TRAC*² factors weigh heavily in favor of mandamus: notwithstanding the recent Public Notice, the five-year, unexplained delay does not comport with the rule of reason and the need for mandamus is not lessened by the mere possibility that the Commission might comply with the *EHT*

¹ Petitioners note that the issue is not whether the evidence proves that below-limits exposures are harmful; it is whether “exposure to RF radiation at levels below the Commission’s current limits may cause negative health effects ...” *EHT*, 9 F.4th at 903 (emphasis added).

² *Telecommunications Research & Action Center v. FCC*, 750 F.2d 70 (D.C. Cir. 1984).

order at some unspecified future date; the health and welfare interests at stake are considerable; and the effects of mandamus on the Commission's priorities would be salutary.

Petitioners respectfully request that the Court retain jurisdiction and require a filing within six months that either provides the reasoned explanation or advises the Court that the Commission will institute a new rulemaking to revise the current thermal-only, human-specific rules.³

ARGUMENT

A) Delay

The first *TRAC* factor favors mandamus because the Commission's delay does not comport with the rule of reason. The *Opposition* does not explain why the Commission cold-shouldered the *EHT* remand order for five years. Rather, the *Opposition* effectively concedes that the order has remained unanswered not because the subject matter is complex, or because the record is voluminous, or because the FCC lacks resources, or because the outcome will be significant. Rather, the Commission implicitly admits that the order has remained unanswered

³ If the FCC does try to salvage the 2019 conclusion with a better explanation, it must do so consistently with the Supreme Court's *Regents* decision: the explanation must be based on the 2019 record and can only better explain reasons that were expressly listed in the 2019 decision. The FCC cannot provide new reasons or "better explain" things that were not explained in the original order. *See Dep't of Homeland Sec. v. Regents of the Univ. of Cal.*, 591 U.S. 1, 20-21 (2020).

because the Commission did nothing to comply with it. The problem is not that the Commission's pace in responding to the order has been slow; it is that for years there has been no pace at all. During the five years the Commission let the remand languish it also repeatedly refused to address exposure issues in other rulemakings⁴ and adjudications.⁵

The Commission does not deny that it has a clear duty to act or attempt to justify its failure to act. Instead, it pins its request for the Court's indulgence on a new Public Notice issued after the Court ordered a response to the *Petition*. But this

⁴ *Modernizing the Commission's National Environmental Policy Act Rules*, 2026 FCC LEXIS 2249, FCC 26-64, (Oct. 2026) ("substantive changes to the Commission's rules limiting human exposure to RF emissions is outside the scope of this proceeding"); *In re Upper C-Band (3.98-4.2 GHz)*, FCC 26-46, ¶72, n. 252, 2026 FCC LEXIS 1554, *62 (Jul. 2026) ("beyond the scope"); *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, 41 FCC Rcd 623, 629, ¶12, n. 48 (Jan. 2026) (addressing in exposure rules proceeding).

⁵ ASR Application A1280552, Condon, MT, WTB Decision (Aug. 20, 2026), available at https://wireless2.fcc.gov/UlsEntry/attachments/attachmentViewRD.jsp;ATTACHMENTS=IeMSa0EKWXfJKOnyjTp7XYHLPC5UD6v8ctF_7C3kOLG1cXMaoUv3!919259447!1080463033?applType=search&fileKey=65991413&attachmentKey=22557524&applID=4876197&attachExt=pdf&attachLocDt=202608&applOrLicKey=T; ASR Application A1208809, WTB Decision (Aug. 21, 2026), available at <https://wireless2.fcc.gov/UlsEntry/attachments/attachmentViewRD.jsp?applType=search&fileKey=2062267075&attachmentKey=22558192&applID=4934451&attachExt=pdf&attachLocDt=202608&applOrLicKey=T>; ASR Application A1216114, Oakboro, NC, WTB Decision (Sep. 10, 2026), available at <https://wireless2.fcc.gov/UlsEntry/attachments/attachmentViewRD.jsp?applType=search&fileKey=381744610&attachmentKey=22568625&applID=4764915&attachExt=pdf&attachLocDt=202609&applOrLicKey=T>. Applications for Review of all three decisions have been or will be submitted to the Commission.

belated action is no excuse for the five-year delay; indeed, the FCC “cannot retroactively make reasonable the already-unreasonable delays.” *See Afghan & Araqui Allies v. Blinken*, 103 F.4th 807, 817 (D.C. Cir. 2024); *cf. Da Costa v. Immigr. Inv’r Program Office*, 80 F.4th 330, 342 (D.C. Cir. 2023) (finding delay acceptable, where Agency pointed to specific obstacles that led to the delay).

Aside from the 30-day comment-deadline in the Public Notice, the Commission offers no timetable for action, and no assurance that it intends to comply with the *EHT* order. The *Opposition*’s notes that “[t]he agency will need time to digest and take account of the comments submitted in response to its invitation” (*Opposition* p. 3) and will “require a minimum of nine months” from the comment deadline to respond to the order (*id.* n. 9) certainly do not offer an action plan that is “reasonably definite.” *See In re. Ctr. for Biological Diversity & Ctr. for Food Safety*, 53 F.4th 665, 672 (D.C. Cir. 2022). Nor do these statements suggest that without Court intervention, the Commission will stop playing “administrative keepaway.” *See In re Core Communs., Inc.* 531 F.3d 849, 859 (D.C. Cir. 2008).⁶ In

⁶ Footnotes 5 and 6 in the *Opposition* cite published D.C. Circuit cases from the 1980’s and 90’s that do not weigh against mandamus in a case like ours, where the Commission took no action on a court order for five years before the Petition was filed and has not indicated whether, when, or how it intends to comply with the order. *See, e.g., Grand Canyon Air Tour Coalition v. FAA*, 154 F.3d 455, 477 (D.C. Cir. 1998) (describing pre-petition steps taken by FAA to comply with Congressional mandate); *Her Majesty the Queen v. United States EPA*, 912 F.2d 1525, 1534-5 (D.C. Cir. 1990) (describing pre-petition efforts to resolve complex technical issues in connection with acid rain); *In re Monroe Communications*

sum, in light of the clear duty to act, the unexplained five-year delay, and the lack of any commitment or plan, the first *TRAC* factor weighs in favor of mandamus.⁷

B) Interests at Stake

The third and fifth *TRAC* factors favor mandamus because human health and welfare are at stake and there is abundant evidence of mounting harm from the Commission's failure to act, notwithstanding the FCC's persistent refusal to engage with that evidence.

“*TRAC*'s third factor (which overlaps with the fifth, at least in this context) asks whether the case is primarily about ‘human health and welfare’ or ‘economic

Corp., 840 F.2d 942, 944, 946-7 (D.C. Cir. 1988) (agency acted after pre-petition delay of approximately one year; court retained jurisdiction due to allegations of bad faith); *In re American Federation of Gov't Employees*, 790 F.2d 116, 118-19 (D.C. Cir. 1986) (agency undertook some actions and published goals indicating earnest mission to complete required actions); *United Steelworkers of America v. Rubber Mfrs. Asso.*, 783 F.2d 1117, 1119 (D.C. Cir. 1986) (agency proposed specific timetable for action); *Oil, Chemical & Atomic Workers International Union v. Zegeer*, 768 F.2d 1480, 1483-4 (D.C. Cir. 1985) (describing pre-and post-petition steps taken by Agency, including express timetable for progress); *TRAC*, 750 F.2d 70 (D.C. Cir. 1984) (FCC assured court it was moving expeditiously on resolving overcharge claims; Court issued mandate and retained jurisdiction and required FCC to provide anticipated resolution dates and regular status reports).

⁷ Opposition pp. 21- 22 claims it is acting in good faith. Whether that is so is subject to fair debate. As Petitioners observed in the Petition, Doc. #2174065, p. 31, however, mandamus does not require that the agency's delay be driven by improper conduct or motive, and this Court has ended administrative keep-away without directly resolving the question of good faith. *TRAC*, 750 F.2d at 80. *See also, Am. Rivers & Idaho Rivers United*, 372 F.3d 413, 420, n. 15 (D. C. Cir. 2004); *Pub. Citizen Health Research Group v. FDA*, 740 F.2d 21, 34 (D.C. Cir. 1984).

regulation,” *In re Barr Labs., Inc.*, 930 F.2d 72, 75 (D.C. Cir. 1991) (parentheses in original), and holds that “delays that might be reasonable in the sphere of economic regulation are less tolerable when human health and welfare are at stake.” *TRAC*, 750 F.2d at 80. “Factor five is a broader version of the same idea: [T]he court should also take into account the nature and extent of the interests prejudiced by delay.” *DaCosta*, 80 F.4th at 344 (brackets in original; internal quotations, citation omitted).

Human health and welfare are undeniably at stake in this case, which involves RF exposure limits whose purpose is not economic, but rather (at least on paper) protection of human health and welfare and the environment. Moreover, the evidence that the FCC’s inaction threatens the interests at stake is substantial. The body of evidence includes the *EHT* record evidence that was available in 2019, such as scientific studies that “do challenge a fundamental premise of the Commission’s decision to terminate its notice of inquiry—namely, the premise that exposure to RF radiation at levels below the Commission’s current limits does not cause negative health effects,” *EHT*, 9 F.4th at 907 (italics in original); “substantive evidence of potential environmental harms”;⁸ and

⁸ Human health and welfare depend on the natural environment, and harms to the environment are thus relevant to the *TRAC* analysis. *See, e.g., In re Ctr. for Biological Diversity*, 53 F.4th at 671 (ESA-protected species valuable to health and welfare of the nation); *In re Bluewater Network*, 234 F.3d 1305, 1316 (D.C. Cir.

substantial information and material from, for example, the American Academy of Pediatrics, J.A. 4,533; the Council of Europe, J.A. 4,242-44, 4,247-57; the Cities of Boston and Philadelphia, J.A. 4,592-99; medical associations, *see, e.g.*, J.A. 4,536-40 (California Medical Association); thousands of physicians and scientists from around the world, *see, e.g.*, J.A. 4,197-4,206 (letter to United Nations); J.A. 4,208-17 (letter to European Union); J.A. 5,173-86 (Frieburger Appeal by over one thousand German physicians); and hundreds of people who were themselves or who had loved ones suffering from the alleged effects of RF radiation, *see, e.g.*, J.A. 8,774-9,940; *see also* J.A. 4,218-39 (collecting statements from physicians and health organizations expressing concern about health effects of RF radiation).

EHT, 9 F.4th at 09-10, 914. Additionally, as discussed in the *Petition*, the body of evidence includes post-2019, *current* evidence of human and environmental harm, including ongoing suffering described in affidavits from the Petitioners in this case and in individual comments submitted in various FCC dockets, as well as newer scientific literature. *See e.g., Petition* pp. 11-14, 29-30, 33-35.⁹

That the “exact threat” posed by wireless radiation is not yet fully understood does not weigh against mandamus; indeed, that is precisely what the FCC’s

2000) (noting all *TRAC* factors, including environmental harm, favored mandamus).

⁹ Current evidence of harm is offered not to enhance the 2019 record, but to address *TRAC* factors 3 and 5, which require the Court to consider the *current* effects of the Commission’s failure to comply with the *EHT* order. That evidence continues to mount. *See* Addendum 1, Sample Comments on the FCC Public Notice Docket and on Docket HHS-OASH-2026-0397 (documenting adverse effects of RF radiation), and Addendum 2, Declaration of Theodora Scarato (describing additional, post-2019 studies of human and environmental harms from RF radiation).

response to the *EHT* mandate will help to illuminate. *Cf. In re Ctr. for Biological Diversity*, 53 F.4th at 671. Moreover, as discussed in the Petition, the proliferation of wireless facilities and devices since promulgation of the exposure rules in 1996 means that any threat posed by the Commission's inaction has increased exponentially; indeed, even the Commission acknowledges the ubiquity of wireless devices and recognizes that its "examination of the effects of RF energy exposure on human health could have broad ramifications." *Opposition* p. 17.

The FCC neither acknowledges nor disputes the post-2019 evidence of harm, including to the individual Petitioners. Instead, Respondent claims the delay in responding to the *EHT* order poses no threat to human health and welfare because before the Commission issued the 2019 Order that is the subject of the *EHT* order, it "obtained a statement from the FDA that the 'totality of the available scientific evidence continues to not support adverse health effects in humans caused by exposures at or under the current radiofrequency energy exposure limits.'" *Opposition* p. 18.

When the FCC relied on the FDA Statements in the 2019 Order as a basis for its conclusion that the 1996 RF exposure limits are adequate, the *EHT* Court characterized them as "conclusory" and an "unreasoned analysis" with an "analytical void" that failed to explain why current exposure limits are adequate.

EHT, 9 F.4th at 904, 906, 910-11. The FDA Statements bear no more weight now than in *EHT*.

Caution is required when it comes to the FDA Statements not only because of the shortcomings identified in *EHT*, and not only because the Statements do not adequately address the body of pre- and post-2019 evidence described above, but also because on September 17, 2026, HHS—the FDA’s parent agency—issued an RFI seeking public input on electromagnetic fields and wireless radiation, about topics including, among others, health experiences and clinical observations, exposure standards and risk assessment, potentially sensitive populations, existing scientific evidence, and research priorities. *See Request for Information on Electromagnetic Fields (EMFs), Radiofrequency (RF) Radiation, and Wireless Radiation Exposure*, 91 FR 59792 (9/21/2026); *see also* <https://www.hhs.gov/press-room/hhs-seeks-public-input-electromagnetic-fields-wireless-radiation.html>. While HHS has not expressly disavowed the FDA Statements, the Agency’s RFI certainly mitigates against placing any weight on them before the current inquiry is complete.

As in 2019, “an agency cannot simply ignore evidence suggesting that a major factual predicate of its position may no longer be accurate.” *See EHT*, 9 F.4th at 907. Yet notwithstanding *EHT*’s unequivocal rejection of the FDA Statements as a basis for reasoned analysis, the Commission has chosen again to rely on the

Statements, and to “hitch its wagon to the FDA’s unexplained disinterest” in evidence of the sort described above. *See EHT*, 9 F.4th at 910. This Court should not allow the Commission to transform the failed justification for its 2019 Order into a successful excuse for continuing inaction.

C) Priorities

Ordering the FCC to comply with the five-year-old *EHT* remand order—which requires the Commission to provide reasoned explanation for its 2019 determination that its 1996 RF exposure limits are adequate to protect health—would not improperly put Petitioners “at the head of the queue” or improperly upset the Commission’s priorities. To the contrary, any reshuffling caused by mandamus will be long overdue, and will benefit almost every man, woman, and child in the country, as well as the birds, bees, trees, and other *flora* and *fauna* on which all life depends.

With respect to queue-related concerns, the Petitioners in this case do not seek individual relief; rather, they seek relief that will benefit every living being who encounters wireless radiation. Because the Petitioners seek systemic relief, and contrary to the Commission’s claim (*see Opposition* pp. 20-21), there is no basis for concern about “line-jumping,” because *everyone* affected by wireless radiation will move ahead in the queue when the Commission finally acts. *Cf. Afghan & Iraqi Allies*, 103 F.4th at 819 (concerns about line-jumping unfounded where

agency action would benefit everyone in the relevant class); *contrast Da Costa*, 80 F.4th 344 (line jumping an issue where plaintiffs seeks individual rather than systemic relief, at the expense of other similarly situated individuals); *In re Barr Laboratories*, 930 F.2d at 73 (similar).

As for the Commission's other responsibilities, the *Opposition* points to several FCC proceedings with start dates long *after* the *EHT* remand order. *See Opposition* pp. 19-20. But although the Commission "ticks off its multiple competing priorities, many of which arose after" *EHT*, "it has not explained with precision the personnel or resource tradeoffs that it faces, or why those constraints justify a complete end to this case." *See Afghan & Iraqi Allies*, 103 F.4th at 819.

Indeed, the Commission has not indicated that it lacks resources to complete any of these proceedings, but even if it had, as this Court has noted, "because agencies have only finite resources, any order to step up activity in one program may harm others. Yet this concern can go only so far—agency resources always are limited, and we have never suggested that the possibility of their shifting is always enough to make any *TRAC* relief inappropriate." *Id.*

The FCC has demonstrated in no uncertain terms that its top priority is blanketing the country in wireless infrastructure and devices, and that it is intent on eliminating every perceived "barrier," even those that exist to protect health and the environment, notwithstanding a court mandate to address the matter. In the face

of this and given federal preemption of state and local efforts to prevent human and environmental harm from wireless radiation, a reasoned explanation as to why the Commission's thirty-year-old, thermal-only, human-only RF exposure limits are adequate is a top priority for *all* living beings. However, the FCC has made it clear that without court intervention, responding to the *EHT* order will remain the Commission's bottom priority for the indefinite future.

CONCLUSION AND REQUESTED RELIEF

For the foregoing reasons, Petitioners respectfully ask this Court to retain jurisdiction, and to order the Commission to provide a filing within six months that either (a) provides a reasoned explanation as required by *EHT* that is consistent with *Regents*, or (b) advises the Court that the Commission will institute a new rulemaking to revise the current thermal-only, human specific rules.

Respectfully Submitted,

/s/ W. Scott McCollough

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CERTIFICATE OF COMPLIANCE

With Type-Volume Limit, Typeface Requirements and Type-Style Requirements

1. This document complies with the type-volume limit of Fed. R. App. P. 21 and the Court's August 26, 2026 order (Doc. #2189998). This document contains 3,181 words.

2. This document complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type-style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared in a proportionally spaced typeface using Times New Roman, 14 point.

/s/ W. Scott McCollough

CERTIFICATE OF SERVICE

I hereby certify that on October 9, 2026 a copy of the attached Reply in Support of Mandamus was filed with the Clerk of the Court for the U.S. Court of Appeals for the D.C. Circuit through the CM/ECF System and was separately served on Respondents.

To FCC, by email (by consent; *see* 47 C.F.R. § 1.1.13(b)):
LitigationNotice@fcc.gov

To the Department of Justice by email:
USADC.ServiceCivil@usdoj.gov
Civil Process Clerk

/s/ W. Scott McCollough

ADDENDUM 1

DECLARATION OF RISA EVANS

I, Risa Evans, declare as follows:

1. I am a Staff Attorney at Children's Health Defense.
2. I assisted with preparation of this Reply in Support of Mandamus.
3. As part of my work, I compiled the comments and links in this Addendum, which are from the electronic dockets of FCC ET 13-84 and HHS-OASH-2026-0397.
4. The comments below accurately restate the comments posted on the dockets.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on this 9th day of October, 2026.

/s/Risa Evans

Risa.evans@childrenshealthdefense.org

Sample Recent Comments by Individuals on HHS-OASH-2027-0397
Request for Information on Electromagnetic Fields (EMFs), Radiofrequency
(RF) Radiation, and Wireless Radiation Exposure

Joan Gugerty [Excerpt]

September 23, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-0702>

Six months ago, I had been having trouble sleeping through the night. No matter what supplements or calming medicine I took, I would often wake up feeling very alert and I could lay there for hours trying to get back to sleep, and if I did it would only last about an hour and I would wake up again; I felt highly stimulated and could not relax - I could not figure out what was going on. This had been going on for many years. One of my physicians suggested that I might be sensitive to wireless radiation and suggested that I turn off the wireless at night. I began doing that and immediately I felt differently. I did not have that stimulated feeling (like I wanted to get up and move around).

If I sleep anywhere where I cannot turn off the wireless, I have trouble relaxing and sleeping. As soon as I come home and turn off the wireless at night, I sleep well.

Robin Lloyd [Excerpt]

September 23, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-0609>

I discovered years ago that the migraine headaches I was suffering daily were being caused by the wireless WiFi radiation in my home. When I would turn off the wifi my headaches would go away. This was HUGE! I had been suffering daily as I said for years! I now live out in the desert 30 miles outside of the closest city and I have absolutely NO wireless anywhere on my 10 acres because of this. I am very very sensitive to it and it absolutely was ruining my life before I discovered the cause. PLEASE PLEASE PLEASE back off on this unrelenting wireless growth!

Roseanne Feltman [Excerpt]

September 23, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-0563>

After the installation of a 5G cell tower in November 2021, constant high levels of microwave radiation began hitting my sleeping area through my bedroom window. As a result, my husband and I became very injured and sickly, experiencing the following non-exhaustive list of symptoms over an 18-month period:

Sleep disturbances

- Insomnia
- Chronic fatigue
- Never feeling refreshed

Mood disturbances

- Depression
- Sadness
- Irritability
- Rage

Vision problems

- Blurry vision
- Dry eyes
- Floaters
- Vision loss
- Eye twitching
- Sensitivity to light

Neurological problems

- Memory loss
- Brain fog
- Dizziness
- Feeling disoriented
- Saying the wrong words
- Dropping things

Heart problems

- Palpitations
- Chest pain
- High blood pressure

Hearing issues

- Ringing in the ears
- Hearing loss

Physical pain

- Sharp pain in ears
- Joint and muscle pain
- Leg cramping
- Headaches
- Burning and stabbing pain

Hormonal issues

- Hair loss
- Thyroid enlargement
- Thyroid nodule
- Reproductive issues

Metabolic issues

- Weight gain
- Inability to lose weight
- Excessive weight loss

Irregular temperature regulation

- Getting overheated
- Excessive sweating
- Facial flushing

Other

- Teeth grinding
- Hand tremors
- Urinary issues
- Aggressive nosebleeds
- Trouble breathing
- Coughing
- Coughing up blood
- Nausea
- Dry heaving

Based on MyChart data dating back to 2007, I went from an average of 2.5 doctor's visits per year to 22 doctor's visits within 18 months. The above list of ailments was generated from our doctors' records during this time.

During the 18 months of pain and sickness, we thought the air quality or pollution were responsible for how terrible we felt. Then, on a whim, I ordered an RF/Microwave radiation scanner, which led us to the source of our affliction. A thorough scan revealed radiation levels so high that the scanner could not register them (the meter's maximum reading was 20,000 microwatts per meter squared). The readings came from a cell tower about 1.5 blocks away, which emitted a direct beam of radiation into our bedroom window, exposing us nightly to continuous microwave radiation.

Upon discovering this, we blocked the radiation from coming into our window, which brought the signal down to almost nothing, almost eliminating the levels where we slept. That night, I experienced my first night of solid 8 straight hours of sleep in over a year. That was the first night that neither of us woke up repeatedly to use the restroom. Following this was the first morning in over a year that my husband was able to get out of bed without excruciating joint pain. That was the first night that our bodies began to heal.

Since removing ourselves from this harmful environment 2 years ago, nearly all our symptoms have disappeared. I have returned to my previous rate of 2.5 doctor's visits per year. All that remains for me is a shrinking thyroid nodule and a sensitivity to RF/microwave radiation exposure that yields unpleasant to unbearable physical reactions.

The entire experience, including its aftermath, has been extremely difficult, scary, and sad for my family. It took two years to recover emotionally and find the strength to share my story. Although I hate telling people about this, I do so out of love, because I don't want anyone to go through what happened to us.

David Shine [Excerpt]

September 25, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-0867>

I am commenting as an individual, family member, and electrical engineer. My wife has developed an extreme sensitivity to RF emissions with increasing impact on her life. As an engineer, I have been able to validate this through direct experimentation. In a blinded fashion, I turned on the 5G cellular band on a

modern iPhone on and my wife reported and rapid onset headache. I then turned off that band and she reported the headache went away. I did this multiple times, including experiments where I never actually changed the setting, and in all cases the headache correlated with turning on the 5G band and abated when it was off. This is a conclusive result that her physical pain is correlated to the proximity to a 5G radiator. In addition, when we are within line of sight to a modern cell tower, she will frequently experience pain and discomfort until we are a significant distance from the tower. This limits her ability to have a routine, pain-free existence and is particularly problematic for office work, travel, etc.

K. Stauffer

September 26, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-0966>

In about 2011, I began noticing that I was bothered by wireless radiation. It began with the newer TV's which I could not use, then it escalated to wi-fi and cell phones. After becoming inundated by my many neighbors wi-fi, I had to leave my home and sleep in the country, because I could no longer sleep. I began sleeping in a building I had access to, in the country, which helped. Along with sleep difficulties, the exposure caused me nerve pain up and down my middle, tingling feet, tachycardia, and more. After a hard search on what to do, trying to shield my home to no avail, I made the very difficult decision to move to Green Bank, West Virginia. My life was not a life I wanted to leave, and like all who have come here, I spent a lot of money making the move. And I spent a lot of money on home shielding attempts. I have lived and owned a home in Green Bank area for 10 years now, and have made a life here, but still find I am frustrated at the limitations that have been placed on me and the other refugees here. At the very least, we need a place to live. A protected area. Although Green Bank is called the "Quiet Zone," and it is better than the outside world, due to no cell towers and smart meters, etc., It is far from perfect and far from the kind of quiet people who have this affliction need. Those of us who suffer this challenge have a right to a place to live on this earth. This has truly become a 'human rights issue,' and we need help.

Sheri Bedsole [Excerpt]

September 28, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-1060>

In 2019 I was in perfect health and suddenly began to experience acute symptoms of tremors and muscle flinching at night, extreme fatigue, pain in hands when holding a phone, pain in chest when near a computer or remote control, interrupted sleep. After much consternation and searching for answers I learned Smart Meters were installed in my neighborhood in January of 2019 and I clearly determined that to be the source. I provided a doctor's medical verification to the power company to request an opt out meter. During the five weeks I waited for the meter after submitting the application, I was suffering so badly I called the power company multiple times to plead for the installation and this is not at all my nature. After I received an opt-out meter in July 2019, the tremors and flinching stopped immediately. But only after implenting MANY other mitigation measures I learned about from EMF advocacy groups (which took a lot of digging to find) did I experience nearly complete relief. But my health never returned to the full measure of stamina as before smart meters, and if I get a lot of exposure I start to have pains again when near devices and fatigue.

Zach Newton, MD

September 29, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-1169>

I am a neurologist and I see patients all the time who describe their experiences with EMF's or wireless radiation exposure causing symptoms. They complain of headaches or health problems starting after a cell tower is put in near their home, or after a smart meter is put in, etc. I am extremely concerned about the effects of all of these things on our health. After nearly thirty years of explosive wireless growth, do we actually know what constant, cumulative exposure to all of this is doing to us? Cumulative exposure from dozens of wireless devices needs to be studied instead of only testing one device at a time. RF levels need to be measured in schools. Children are even more sensitive to the effects of these exposures. We should all be able to know what our actual exposure is. As a physician, I think there should be a national system for doctors to report suspected RF-related health effects.

Charlotte Kikel [Excerpt]

September 30, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-1228>

It took me 3 years to figure out that my cell phone was causing my heart palpitations. When I got rid of it, all my symptoms were gone. We ended up

having to leave our home in CO when 5G cell antennas were installed in front of our neighborhood. We now live in the mountains outside of Santa Fe, NM where cell phones do not work. One of the many things I've learned is that no one can question technology because when you do that you are questioning progress but it has to be questioned.

Donna Miller

September 21, 2026

Link to comment: <https://www.regulations.gov/comment/HHS-OASH-2026-0397-0076>

I am writing as a patient and former telecommunications industry professional who was diagnosed with a Clear Cell Grade 2 Meningioma in August 2019. I spent 20+ years working in the wireless telecommunications industry, where I was directly involved in developing wireless networks tower sites, small cell sites, and rooftop and in-building distributed antenna systems for major carriers including AT&T, Verizon, T-Mobile, and formerly Sprint nationwide.

My job required me to work in close proximity to operating antennas and while transmitters were active. I was exposed to RF radiation on a frequent basis, often at close range, with cumulative exposure over years of employment. I deployed networks at various locations including the Empire State Building, Barclays Arena, and The Kennedy Center.

Since my diagnosis, I have been forced to confront a devastating pattern that I observed within my industry: I have watched colleagues and friends, skilled professionals who shared similar occupational exposure, die of brain tumors and aggressive cancers at young ages. I don't believe these were isolated incidents. The concentration of serious illness among workers routinely exposed to antenna radiation suggests a correlation that demands investigation.

I believe strongly that my occupational exposure to operating antennas caused my meningioma. The location of my tumor, the nature of my work, and the pattern of illness I witnessed among my peers cannot be dismissed as coincidence. Current FCC safety guidelines focus solely on thermal effects and do not account for the kind of chronic, close proximity occupational exposure that I and my deceased colleagues experienced.

This issue is deeply personal, but it is also a matter of occupational and public health. Workers installing and maintaining our nation's wireless infrastructure

deserve protection. The public living near these facilities deserves answers. And patients like me deserve recognition that our experiences matter.

I urge HHS to prioritize research into occupational RF exposure and brain tumor risk, to examine patterns of illness among telecommunications workers, and to update safety standards that have failed to protect people in my profession. Please do not allow another generation of workers to face what I and my friends have faced.

**Sample Recent Comments by Individuals on FCC Docket #13-84,
*Reassessment of Federal Communications Commission Radiofrequency
Exposure Limits and Policies***

Agnes Forette

Oct. 2, 2026

Link to comment: <https://www.fcc.gov/ecfs/search/search-filings/filing/26110079112>

I have been a computer graphic designer since the 1990s. In 2022, when I turned on the WiFi of a new, more powerful router, I had a sudden, overwhelming reaction and had to evacuate the house until it was turned off. Since then, I have been unable to expose myself to radiation from wireless devices, mobile phones, WiFi, Bluetooth or cell towers without wearing a whole shielding outfit. The last time I went shopping bareheaded, I lost consciousness and was taken to the hospital emergency department, where the doctor told me never to expose myself to synthetic EMF radiation again.

When not exposed to radiation, I am in perfect health. In 2023, an additional cell tower was installed 1 km from home, and I can no longer access my own garden or the upper floor without protection. Despite a medical certificate from the environmental pathologies department of a hospital, my requests for accommodation or assistance from public and health services are dismissed. The consequences for my life are disastrous:

- No longer any access to public spaces.
- No longer any access to healthcare: I am losing my teeth and fear dental infection or hospitalization, which would be impossible given radiation levels in healthcare facilities.
- Dismissed by doctors: the last ones I consulted either made fun of me or offered psychiatric care, which is inappropriate for my environmental issues.
- Dismissed by government administrations.
- I am socially isolated because almost everyone carries irradiating devices, while my condition is not widely recognized, and most people do not believe EMR Syndrome is real.
- I cannot relocate: finding a home without neighbours, far from a cell tower, and without a smart meter is now almost impossible.

I am living on borrowed time as levels keep increasing and there are no longer any no-RF zones to take refuge. For years, without adequate information about the dangers of radiofrequencies, I used a cordless phone, a mobile phone and WiFi, trusting that regulatory limits protected me. If I had had real information about the dangers of RF, I could have chosen wired connections and calls at home, because all this wireless technology was not necessary.

The same lack of information meant I was unaware of the need to ground every device connected to the mains, although this is easy to manage and would probably have prevented or alleviated my current situation. I am part of the international collective EMP Victims. At www.empvictims.org, you will find more than 4,600 signatories to our Humanitarian Appeal and numerous video testimonies from people around the world living similar situations to mine.

Sherry Kaye Lamb

October 1, 2026

<https://www.fcc.gov/ecfs/search/search-filings/filing/26110078943>

My name is Sherry Lamb and I have been diagnosed by Dr Govett, an Environmental Medicine and Ear, Nose, and Throat Doctor in Oklahoma City, in the year 2013 with Electromagnetic radiation syndrome (known as EMR syndrome).

My daily symptoms are unbearable. I have been isolated for many years, very rarely going out of my home, except to shop for food and other necessities, due to symptoms my body experiences when exposed to cell phones, wireless, and towers. The symptoms when I am around cell phones (especially 5G phones), and wireless, are instant and incapacitating. I am sick for days after an exposure. I feel dizzy, nauseous, am sensitive to odors, sounds, and my senses are very overloaded and overstimulated. These exposures also cause cognitive dysfunction, memory loss, mood disorders, and inability to focus or concentrate. I experience many more symptoms such as hair loss, eye pain, bladder spasms, stomach pain, heart palpitations, and more. It is a daily battle of many different symptoms as RF radiation from these technologies affects every cell and system of the body. I have been suffering with this disability since 2010, over 16 years, so it would be beneficial for me if there were technologies that could be used that are safer and less destructive to the cells of my body.

Please consider the file of research I have attached. Thank you.

Sarah Howard, Letter from Dr. Tamara Sachs

September 30, 2026

Link to Comment: <https://www.fcc.gov/ecfs/search/search-filings/filing/26110078792>

Sarah Howard is a patient under my care. Sarah has disabling sensitivity to electromagnetic fields, including, but not limited to, non-ionizing radio frequency (RF), microwave radiation from Wi-Fi networks, cell phones, cordless phones, wireless utility meters, and dirty electricity that is produced by digital utility meters.

When she is exposed to non-ionizing radiation, electromagnetic fields and dirty electricity, she develops debilitating symptoms that substantially limits many of her major life activities.

For medical reasons, Sarah Howard requires accommodations at her home via installation of only analog, non-digital utility meters. Please work with her to provide the accommodations she needs for her medical disability. Thank you.

Henry (Hank) Allen [excerpt]

September 21, 2026

Link to Comment: <https://www.fcc.gov/ecfs/search/search-filings/filing/26110077403>

My name is Henry Allen, and I am submitting these comments because the FCC's radiofrequency exposure standards are not an abstract issue to me. Wireless radiation has affected my health, where my family can live, how we use technology, and ultimately the course of my life.

For approximately 19 years, I have experienced what I believe to be severe sensitivity to radiofrequency radiation. My symptoms have included headaches, dizziness, extreme fatigue, heart palpitations and irregular heart rhythms. Over many years, I repeatedly observed that reducing my exposure to wireless devices and RF sources reduced my symptoms.

Eventually, my family moved from California's San Francisco Bay Area to a rural property near Eagle, Idaho, in large part because I was struggling with the

increasingly dense wireless environment. At the time, the nearest major cell tower was more than two miles away, and I was able to function much better.

That changed dramatically in 2021.

A new approximately 65-foot macro cell tower was constructed roughly 600 yards, or about 1,800 feet, from our home. Shortly after that tower became operational, I began experiencing atrial fibrillation. I was rushed to St. Luke's emergency department, required cardioversion during my first episode, was hospitalized more than a dozen times and ultimately underwent cardiac ablation.

What concerned me most was the pattern.

My AFib episodes repeatedly began during a narrow period in the late afternoon or early evening, generally around 4:30 to 5:30 p.m. My home sits directly along the line between the new tower and another existing macro tower approximately two miles away. An RF professional came to my property and measured the RF environment during these peak evening hours. We observed substantially higher RF exposure during the same general period when my episodes were occurring. I also plotted the locations where my AFib episodes began and found that they clustered in and around this same area.

After several episodes, I left Idaho for a 10-day road trip to Florida. During that trip I did not experience a single AFib episode. Within two days of returning home, I experienced AFib again.

I have documented the tower locations, maps, photographs, RF measurements, videos and my experience here: <https://idahoansforsafetechnology.org/5g-cell-tower-in-eagle-causes-life-threatening-injure/> I encourage the Commission to review that documentation as part of my comments.

My experience has also shown me that individual biological vulnerability deserves serious consideration. After years of unexplained illness, we discovered significant hidden water damage and mold contamination in our home. My family ultimately spent more than \$200,000 removing hidden mold and modifying and shielding our home from RF exposure. After I began treatment for mold-related illness, my tolerance for RF exposure improved substantially. Environments and wireless devices that had previously caused significant symptoms became much easier for me to tolerate. That experience raises an important question: are some people

substantially more susceptible to RF exposure because of underlying environmental illness or other biological vulnerabilities?

I believe the Commission should consider clinical experience from professionals who work directly with environmentally sensitive individuals, including physicians, toxicologists, environmental health researchers and building biologists. In particular, I encourage the FCC to consult Dr. Neil Nathan, author of Toxic, who has extensive clinical experience with mold-related illness and environmental sensitivities. His work is relevant to understanding why some individuals may respond very differently to the same RF environment.

I have also observed what I believe may be environmental effects on my property. Approximately a week before the nearby tower became operational, I checked my beehive and found it healthy and thriving. Shortly after the tower was turned on, and shortly after my first AFib episode, I checked the hive again and found it completely decimated. I documented the hive on video, which is available at the website linked above.

Since then, I have repeatedly noticed another striking pattern. Each spring, I have fruit trees in my backyard located in the more heavily exposed path between the two towers. Year after year, I see very few bees pollinating those trees. On the opposite side of my home, where the structure provides substantial RF shielding and exposure is considerably lower, I continue to see bees pollinating trees in my front yard.

I am not presenting these observations as scientific proof of causation. I am placing them in the record because they are repeatable real-world observations that should not simply be ignored.

My experience traveling outside the United States also changed the way I look at this issue. I spent approximately three weeks traveling through Italy with my family. We stayed in hotels, traveled through populated areas, used public transportation and had normal cellular service. Yet for the first time in years, I felt remarkably well. I had energy, slept well and my heart remained steady despite being surrounded by modern wireless technology.

Italy has historically taken a more precautionary approach to RF exposure from fixed telecommunications infrastructure than the United States. For many years, Italy applied a precautionary RF level of 6 V/m in homes and other places where people spend extended periods of time. In 2024, that level was increased to 15 V/m

averaged over 24 hours. Italy's approach still demonstrates that modern wireless service can coexist with substantially lower precautionary exposure targets than the maximum levels permitted under U.S. rules.

For someone who has experienced RF sensitivity for many years, the difference I experienced there was striking. I am not suggesting that my personal experience alone proves why I felt better in Italy. I am asking the Commission to seriously examine the experience of countries that have chosen more precautionary exposure policies while maintaining modern telecommunications systems. We do not have to reinvent the wheel.

Michelle Foster [excerpt]

September 21, 2026

Link to Comment: <https://www.fcc.gov/ecfs/search/search-filings/filing/26110077387>

I ask the Commission to take this opportunity to conduct an updated, thorough, transparent, and genuinely independent examination of the evidence concerning the biological, health, and environmental effects of chronic exposure to radiofrequency radiation, including effects that may occur outside the traditional framework of acute tissue heating.

For my family, this issue is not theoretical. It has profoundly affected our daughter's ability to live a normal life. She experiences severe electromagnetic hypersensitivity (EHS), and exposure to wireless and electromagnetic sources can produce symptoms that significantly affect her health and functioning. Whatever terminology is ultimately used to describe this condition and whatever mechanisms future research may establish, the consequences she experiences are real.

Her world has become extraordinarily small. She cannot simply leave the house and go to any public place or even a friend's home without considering the wireless environment and the potential consequences to her health. Things that most people do without a second thought require her to evaluate whether she can safely tolerate the exposure.

As wireless technology has become ubiquitous, avoiding exposure has become impossible. Our own home, the one place where she should reasonably be able to feel safe, has required extensive modification. We have spent thousands of dollars attempting to remediate our home and reduce RF and other electromagnetic exposures. We have had to research shielding, modify her environment, evaluate

sources of exposure, and make choices that most people never have to contemplate. Even after spending thousands of dollars, it still is not enough.

There is effectively nowhere our daughter can go where exposure can reliably be avoided. For someone with severe EHS, that can mean losing something most people take for granted, which is the ability to participate freely in society.

This is why the FCC's review matters so much. . . .

I also urge the Commission to take seriously the experiences of people reporting electromagnetic hypersensitivity. I recognize that questions remain regarding the mechanisms and causes of EHS and that scientific organizations do not universally agree about whether symptoms attributed to electromagnetic exposure are caused by RF exposure itself. But scientific uncertainty should not make the people experiencing these symptoms invisible. People like our daughter are living with the consequences now.

We are modifying our homes. We are spending our savings. We are restricting where we travel. Some of us struggle to access medical care, employment, housing, transportation, and public spaces because wireless infrastructure is essentially everywhere. Our experiences deserve investigation rather than dismissal.

The FCC's responsibility is especially important because individuals have very little ability to control their involuntary exposure. A person can choose whether to purchase a particular wireless device, but that person cannot choose whether neighbors use wireless equipment, whether businesses install wireless systems, whether public buildings operate Wi-Fi, or whether cellular infrastructure operates near places where they live and must travel. That imbalance makes protective standards extraordinarily important.

Technology and connectivity have brought substantial benefits to society. Protecting public health does not require rejecting technology. It requires ensuring that technological progress occurs alongside rigorous, modern, evidence-based safety standards.

I am asking the Commission to listen to us. Please fully comply with the D.C. Circuit's remand by conducting a meaningful review of the scientific record, including evidence concerning non-cancer effects and chronic exposure. Please consider research representing differing scientific conclusions rather than

dismissing evidence simply because it challenges long-standing assumptions. Please investigate the experiences of people reporting EHS and support research capable of determining why these individuals experience the symptoms they do. And if significant scientific uncertainty remains, please acknowledge that uncertainty openly.

We hope that someday our daughter can leave home without having to choose between participating in ordinary life and protecting her health. No one should become confined to their home because the modern environment has become something their body cannot tolerate.

September 21, 2026

Lonnie Gordon

Link to Comment: <https://www.fcc.gov/ecfs/search/search-filings/filing/26110077189>

I am writing to share my personal history with electromagnetic sensitivity and the profound impact wireless radiation has had on my health, daily functioning, and quality of life.

I have always loved technology. For many years, my office was equipped with multiple wireless devices: DECT cordless phones, a wireless headset, a Wi-Fi router on my desk, a cell phone with an ear device, and other equipment that produced continuous radiofrequency emissions. Prior to that, I worked for several years on the 18th floor of a building while employed by the District Attorney's Office, where microwave dishes were mounted directly above my workspace. I cannot say whether that contributed to the onset of my condition, but it was part of my long-term exposure history.

Over time, I became increasingly ill and did not understand why. I developed severe fatigue, pain, and debilitating symptoms that left me bedridden for nearly two years. Physicians told me it was fibromyalgia or chronic fatigue syndrome, but none of the treatments helped, and no one could explain the cause. I also developed persistent tinnitus, which I still live with today.

Eventually, after extensive searching and consultation, I learned about electromagnetic sensitivity. A building biologist evaluated my home and found significant wireless radiation from my router, DECT phones, and high levels of dirty electricity surrounding my workspace and bedroom. Once these sources were removed or mitigated, my symptoms improved enough for me to function again.

Today, my home is fully hardwired. I use Ethernet instead of Wi-Fi, I have installed a kill switch to turn off electricity around my bedroom at night, and I am extremely careful with my cell phone use. Even with these precautions, I remain highly sensitive to radiofrequency exposure in public places. The ubiquity of wireless devices, cell towers, and Wi-Fi networks makes it difficult for me to leave my home. I am effectively homebound because of the widespread RF emissions in the community around me.

My life has been profoundly altered by this condition. I cannot participate in normal daily activities, go into stores, or spend time in public spaces without experiencing symptoms. The expansion of wireless infrastructure — including small cells, 5G installations, and constant device emissions — has made it increasingly difficult to live a normal life.

I am submitting this comment because the FCC must recognize that long-term, cumulative exposure affects real people. The court specifically directed the FCC to address impacts on children, long-term exposure, the ubiquity of wireless devices, environmental effects, and the adequacy of testing procedures. My experience reflects exactly why these issues matter. The current exposure guidelines do not protect individuals like me, and they do not account for chronic, real-world exposure conditions.

I respectfully urge the FCC to adopt precautionary measures, update its exposure guidelines, and acknowledge the growing number of individuals experiencing adverse health effects associated with wireless radiation. Thank you for considering my experience.

DECLARATION OF THEODORA SCARATO

I, Theodora Scarato, declare as follows:

1. I was a petitioner and served as Executive Director of the Environmental Health Trust during the proceedings in Environmental Health Trust v. Federal Communications Commission, No. 20-1025, consolidated with No. 20-1138, decided by this Court on August 13, 2021, and reported at 9 F.4th 893 (D.C. Cir. 2021).
2. I have authored and co-authored several peer-reviewed publications addressing the scientific evidence and policy implications of radiofrequency (“RF”) radiation exposure on health and the environment.
3. Since the FCC issued its 2019 Termination Order and this Court issued its 2021 remand decision, I have submitted approximately 400 filings in ET Docket No. 18-34 and other relevant FCC proceedings, encompassing more than 4,500 documents. These materials include scientific studies, government records, technical reports, public health recommendations from expert organizations, and records obtained through hundreds of FOIA requests I submitted to federal agencies.
4. While the FCC has delayed action for over five years, the scientific literature on RF exposure and its effects on human health and the environment has continued to significantly expand.
5. This post-2019 scientific literature is not being offered to enhance the 2019 EHT record, but to address TRAC factors 3 and 5, which require the Court to consider the ongoing, current effects of the Commission’s failure to comply with the EHT order.
6. The studies that I have included in the addendum to this Declaration represent a small sampling of illustrative peer-reviewed, published scientific studies that address the specific issues this Court identified as requiring further explanation by the FCC, including studies reporting the effects of RF radiation exposure on children; the health implications of long-term exposure to RF radiation, including non-cancer effects like genetic effects, reproductive effects, and effects to the endocrine and nervous systems; the ubiquity of wireless devices and other technological developments that have occurred since the Commission updated its guidelines over 30 years ago; and the impacts of RF radiation on the environment.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on this 9th day of October, 2026.

/s/ Theodora Scarato
Theodora.scarato@proton.me
202-677-5854

Sampling of Post-2019 Peer-Reviewed, Published Studies on the Non-Cancerous Health Effects and Environmental Effects of RF Radiation Exposure

Effects of RF Radiation on Children

- Hava Bektas et al., [*Comparison of Effects of 2.4 GHz Wi-Fi and Mobile Phone Exposure on Human Placenta and Cord Blood*](#), BIOTECHNOLOGY & BIOTECHNOLOGICAL EQUIPMENT (2020) (study reports associations between maternal mobile phone exposure and markers of oxidative stress and DNA damage in placenta and cord blood, indicating that “combined effects of Wi-Fi plus mobile phone exposure have a higher potential to cause synergistic harmful effects”).
- Devra Davis et al., [*Wireless Technologies, Non-Ionizing Electromagnetic Fields and Children: Identifying and Reducing Health Risks*](#), CURRENT PROBLEMS IN PEDIATRIC AND ADOLESCENT HEALTH CARE (2023) (co-authored by former National Institute of Environmental Health Sciences Director Dr. Linda Birnbaum, this review describes children’s developmental vulnerabilities and scientific evidence of adverse biological effects from wireless radiation, recommending exposure reduction in schools and healthcare settings to protect children).
- Maninder S. Setia et al., [*Radiofrequency Electromagnetic Field Emissions and Neurodevelopmental Outcomes in Infants: A Prospective Cohort Study*](#), CUREUS (2025) (prospective cohort study finds higher measured household RF levels linked with poorer infant motor, problem-solving, and personal-social developmental scores).
- Maggie Wang et al., [*A Systematic Review of Mobile Phone Use and Pregnancy and Fetal Outcomes*](#), JOURNAL OF EXPOSURE SCIENCE & ENVIRONMENTAL EPIDEMIOLOGY (2026) (systematic review of cell phone use and fetal outcomes by researchers at Columbia University, Johns Hopkins University, and Cornell University reports evidence including altered fetal and neonatal cardiac function and increased preterm birth. The authors conclude that the evidence supports measures to reduce RF exposure).
- Raihanah Chokeli et al., [*Environmental Radiofrequency Exposure and Genotoxic Biomarkers in Schoolchildren: A Cross-Sectional Analysis*](#),

SCIENTIFIC REPORTS (2026) (study of schoolchildren reports that higher measured RF exposure and closer school proximity to mobile phone base stations were significantly associated with higher micronuclei frequency, a biomarker of genomic instability, despite exposures below international guidelines).

- Ae-Kyoung Lee et al., [*Real-World Assessment of RF-EMF Exposure From 3G, 4G, and 5G Mobile Networks Across Different Urbanization Levels*](#), IEEE ACCESS (2026) (measurement study reports higher whole-brain RF absorption from base stations in urban areas due to network densification and 20–35% higher RF absorption rates in the child model compared with the adult model).

Ubiquity of RF Radiation Exposure

- Norton Escopelli Soares et al., [*SAR Estimations in a Classroom With Wireless Computers*](#), JOURNAL OF MICROWAVES, OPTOELECTRONICS AND ELECTROMAGNETIC APPLICATIONS (2025) (engineering modeling finds substantially increased localized RF absorption in classroom arrangements with multiple Wi-Fi-emitting laptops (increases up to 40 fold in the back) as compared to a single student and laptop).
- Jiang Liu et al., [*Characterization of EMF Exposure Induced by French Cellular Networks*](#), ANNALS OF TELECOMMUNICATIONS (2026) (measurement study of French networks that estimates that exposures in areas with higher ambient levels (1 V/m ambient-field scenario) from continuous base-station (cell tower) emissions result in these environmental emissions contributing to the majority of exposures (70% of monthly head exposure and 87% of whole-body exposure) exceeding contributions from personal phone use).
- Arno Thielens et al., [*Urban Radio-Frequency Electromagnetic Field Exposure in New York City*](#), ENVIRONMENTAL RESEARCH (2026) (field measurements across all five New York boroughs find mean environmental RF exposure of 0.97 V/m, numerically comparable to the French Liu et al. 2026 study's 1 V/m scenario, with cellular downlink the largest contributor);

Non-Cancerous Effects of RF Radiation Exposure

- Joshua M. Pearce, [*Limiting Liability With Positioning to Minimize Negative Health Effects of Cellular Phone Towers*](#), ENVIRONMENTAL RESEARCH (2020) (literature-based analysis concludes “there is already enough medical and scientific evidence to warrant long-term liability concerns;” recommends minimizing human exposure when locating cell towers).
- Stephanie L. Smith-Roe et al., [*Evaluation of the Genotoxicity of Cell Phone Radiofrequency Radiation in Male and Female Rats and Mice Following Subchronic Exposure*](#), ENVIRONMENTAL AND MOLECULAR MUTAGENESIS (2020) (National Toxicology Program/NIEHS study reports increased DNA damage in frontal cortex of male mice leukocytes of female mice, and hippocampus of male rats following long-term RF radiation exposure).
- Sofwatul Mokhtarah Maluin et al., [*Effect of Radiation Emitted by Wireless Devices on Male Reproductive Hormones: A Systematic Review*](#), FRONTIERS IN PHYSIOLOGY (2021) (systematic review reports reduced testosterone following RF exposure, particularly in animal studies).
- Sungjoon Kim et al., [*Effects of Mobile Phone Usage on Sperm Quality—No Time-Dependent Relationship on Usage: A Systematic Review and Updated Meta-Analysis*](#), ENVIRONMENTAL RESEARCH (2021) (systematic review and meta-analysis of 18 studies involving 4,280 samples associates mobile phone exposure with reduced sperm motility, viability, and concentration).
- David Schuermann & Meike Mevissen, [*Manmade Electromagnetic Fields and Oxidative Stress—Biological Effects and Consequences for Health*](#), INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES (2021) (Universities of Basel and Bern review of oxidative stress in animal and cell studies concludes a “trend is emerging..., i.e., that EMF exposure, even in the low dose range, may well lead to changes in cellular oxidative balance” with implications for that very young or old individuals who will be more vulnerable).
- A. M. Dagro et al., [*Computational Modeling Investigation of Pulsed High Peak Power Microwaves and the Potential for Traumatic Brain Injury*](#), SCIENCE ADVANCES (2021) (U.S. Army and Air Force Research Labs computational

study predicts high-powered pulsed microwave exposure could cause brain injuries similar to explosive blasts and football head impacts – even at levels deemed safe by FCC RF limits).

- Federico Bertagna et al., [*Effects of Electromagnetic Fields on Neuronal Ion Channels: A Systematic Review*](#), ANNALS OF THE NEW YORK ACADEMY OF SCIENCES (2021) (systematic review of electromagnetic fields including RF radiation identifies diverse effects on neuronal ion-channels and differentially modulated at multiple levels).
- Xue Luo et al., [*Electromagnetic Field Exposure-Induced Depression Features Could Be Alleviated by Heat Acclimation Based on Remodeling the Gut Microbiota*](#), ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY (2021) (animal study reports depression-like features and altered gut microbiota and metabolites following pulsed 2.45 GHz (Wi-Fi frequency) exposure).
- Alfonso Balmori, [*Evidence for a Health Risk by RF on Humans Living Around Mobile Phone Base Stations: From Radiofrequency Sickness to Cancer*](#), ENVIRONMENTAL RESEARCH (2022) (review of 38 studies reports that 73.6% identified adverse health outcomes – radiofrequency sickness, cancer, and changes in biochemical parameters among people living near mobile phone base stations (cell towers)).
- Rita Rahban et al., [*Association Between Self-Reported Mobile Phone Use and the Semen Quality of Young Men*](#), FERTILITY AND STERILITY (2023) (Swiss study involving the University of Geneva, Swiss Tropical and Public Health Institute, and University of Basel associates higher self-reported mobile phone use with lower sperm concentration and total sperm count).
- Jody C. Cantu et al., [*Analysis of Global DNA Methylation Changes in Human Keratinocytes Immediately Following Exposure to a 900 MHz Radiofrequency Field*](#), BIOELECTROMAGNETICS (2023) (Air Force Research Laboratory study finds epigenetic effects, with 114 genes “significantly differentially methylated,” in human skin cells at RF exposure levels that are a fraction of the FCC’s current RF exposure limits. Authors conclude ‘the results highlight a potential epigenetic role in the cellular response to RF-EMFs’’).
- Sachin Gulati et al., [*Evaluation of Oxidative Stress and Genetic Instability Among Residents Near Mobile Phone Base Stations in Germany*](#), ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY (2024)

(observational study of 24 residents reports greater chromosomal damage in the group with higher measured RF radiation exposure from wireless network base station RF emissions).

- Nicole Bijlsma et al., [*Does Radiofrequency Radiation Impact Sleep? A Double-Blind, Randomised, Placebo-Controlled, Crossover Pilot Study*](#), FRONTIERS IN PUBLIC HEALTH (2024) (trial reports reduced subjective sleep quality and altered NREM-sleep EEG power during repeated overnight exposure to a 2.45 GHz-emitting baby monitor).
- Dimitri Besset et al., [*Influence of Radiofrequency Electromagnetic Fields Exposure on Sleep Patterns in Preterm Neonates*](#), INTERNATIONAL JOURNAL OF RADIATION BIOLOGY (2024) (study associates higher chronic, but not acute, RF exposure with greater sleep fragmentation in preterm infants).
- Henry Lai & B. Blake Levitt, [*Radiofrequency Radiation-Induced Gene Expression*](#), REVIEWS ON ENVIRONMENTAL HEALTH (2025) (review documents RF-related gene-expression changes concluding the “data supports the notion that RFR is a stressor that causes oxidative changes and DNA and protein damage in cells under different exposure conditions, in many biological systems”).
- Bilal Cakir et al., [*Radiofrequency Regulates the BET-Mediated Pathways in Radial Glia Differentiation in Human Cortical Development*](#), CELL REPORTS (2025) (Yale School of Medicine laboratory experimental study in human cortical organoids reports disrupted neural progenitor differentiation and increased autism-associated gene expression following Bluetooth-frequency RF radiation exposure at levels approximately 4,000 times below the FCC’s current RF exposure limit).
- Steven G. Weller et al., [*A Scoping Review and Evidence Map of Radiofrequency Field Exposure and Genotoxicity: Assessing In Vivo, In Vitro, and Epidemiological Data*](#), FRONTIERS IN PUBLIC HEALTH (2025) (scoping review maps more than 500 studies and identifies evidence of RF-related genotoxic effects, including findings at exposures below the FCC’s current RF exposure limits).

- Ronald L. Melnick & Joel M. Moskowitz, [*Exposure Limits to Radiofrequency EMF Do Not Account for Cancer Risk or Reproductive Toxicity Assessed From Data in Experimental Animals*](#), ENVIRONMENTAL HEALTH (2026) (risk assessment applying EPA toxicological methodology to reproductive impacts findings from WHO-commissioned reviews estimates that current public RF exposure limits are at least 8–24 times higher than calculated levels protective of male reproductive health).
- Nushin Naderi et al., [*Influence of Radiofrequency Electromagnetic Radiation on Spermatogenesis and Sperm Function in Rodent Models: A Systematic Review*](#), REPRODUCTIVE TOXICOLOGY (2026) (systematic review of rodent studies reports reduced sperm quality, altered reproductive hormones, oxidative stress, DNA damage, and apoptosis following RF radiation exposure).

Environmental Effects of RF Radiation

- Shalinder Kaur et al., [*Sensitivity of Plants to High Frequency Electromagnetic Radiation: Cellular Mechanisms and Morphological Changes*](#), REVIEWS IN ENVIRONMENTAL SCIENCE AND BIO/TECHNOLOGY (2021) (review examines RF-related changes in plant gene expression, enzyme activity, and growth. Authors propose that the main entry point for the biological effects corresponds to an increase in ROS metabolism and cytosolic calcium that leads to various cellular responses including changes in gene expression and/or enzymatic activities, which could ultimately result in immediate cellular alterations or delayed plant growth).
- Zhuoheng Zhong et al., [*Morphophysiological and Proteomic Responses on Plants of Irradiation with Electromagnetic Waves*](#), INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES (2021) (review examines millimeter-wave effects, finding low powers induce distinct cellular, molecular, and proteomic alterations, and modify metabolic pathways in plants without significant heating).
- B. Blake Levitt et al., *Effects of Non-Ionizing Electromagnetic Fields on Flora and Fauna: [Part 1. Rising Ambient EMF Levels in the Environment](#); [Part 2. Impacts: How Species Interact With Natural and Man-Made EMF](#); [Part 3. Exposure Standards, Public Policy, Laws, and Future Directions](#)*, REVIEWS ON ENVIRONMENTAL HEALTH (2022; published online in 2021) (three-part comprehensive review of over 1,000 studies on non-ionizing EMF

(including RF radiation) impacts to flora and fauna documents rising ambient RF exposures and how scientific research on all frequencies and taxa studied indicate that “low-level exposures have numerous adverse effects, including on orientation, migration, food finding, reproduction, mating, nest and den building, territorial maintenance, defense, vitality, longevity, and survivorship.” Gaps in wildlife protection are documented under existing standards and recommendations are made for policy action to address chronic low-level exposure).

- Alain Thill et al., [*Biological Effects of Electromagnetic Fields on Insects: A Systematic Review and Meta-Analysis*](#), REVIEWS ON ENVIRONMENTAL HEALTH (2024) (systematic review and meta-analysis reports the vast majority of studies identified harmful biological effects including disrupted navigation, reduced reproduction and fertility, altered flight dynamics, immune dysfunction, mitochondrial damage, and DNA strand breaks).
- Vera Jeladze et al., [*Numerical Dosimetry of Specific Absorption Rate of Insects Exposed to Far-Field Radiofrequency Electromagnetic Fields*](#), INTERNATIONAL JOURNAL OF RADIATION BIOLOGY (2025) (modeling study of honeybees, wasps, ladybugs, and mantises finds brain and body RF absorption varies substantially with frequency, polarization, and anatomy, with peak tissue absorption at selected frequencies between 6 and 60 GHz).
- Oliver Lindecke et al., [*Disruptive Effects of Brief Radiofrequency Noise Exposure on Migratory Bat Navigation*](#), SCIENCE (2026) (study concludes exposure to broadband RF noise disrupted migratory bats’ flight orientation, with effects persisting for hours after initial exposure).