

## PUBLIC COMMENT

### U.S. Department of Health and Human Services

Request for Information on Electromagnetic Field (EMF) Exposure and Human Health

**Docket No. HHS-OASH-2026-0397**

**Submitted by:** Richard Anthony

(Individual member of the public / consumer / family and community perspective)

**Re:** The Need for Comprehensive Evaluation of RF, EMF, Conducted Electrical Interference, Electrohypersensitivity, and Aggregate Environmental Exposure in Children, Schools, Homes, and Communities

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I am submitting this comment as a member of the public concerned about the increasing prevalence of radiofrequency (RF) radiation, electromagnetic fields (EMF), conducted electrical interference (dirty electricity), and optical/electrical stressors in our homes, schools, neighborhoods, and communities.

My concern is not directed at a single technology. Rather, it addresses the total aggregate environmental load that has developed as wireless networks, smart infrastructure, switch-mode power supplies, electronic light dimmers, mandatory school computing devices, and modern electrical systems have become nearly ubiquitous.

Children are of particular concern. A child may spend six to eight hours each school day inside a building containing multiple active wireless access points, dense electrical wiring, fluorescent or LED lighting systems equipped with electronic dimmers, and numerous transmitting devices—compounded by school-mandated Chromebooks and portable computing devices operated directly at close proximity on desks and in laps. Outside of school, that same child is continuously exposed to overlapping residential Wi-Fi networks, cellular infrastructure, smart meters, and electrical grid transients. Furthermore, a growing segment of the population experiences debilitating physiological symptoms due to electrohypersensitivity (EHS), highlighting the urgent need for broader public health investigation.

This creates a critical public-health question: *“Are existing exposure standards adequately designed for the modern environment of prolonged, cumulative, simultaneous, and multi-source exposure—encompassing wireless radiofrequency radiation, low-frequency electromagnetic fields, conducted electrical phenomena, and cellular stress—particularly during childhood and over decades of lifetime accumulation?”*

This question warrants rigorous, independent research and proactive public-health oversight.

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## **1. Children and Schools Require Specific Consideration**

HHS specifically asks whether exposure assessments should differ for sensitive populations, including children.

Children warrant specialized consideration because exposure begins at a very young age and continues through critical developmental windows. Furthermore, tissue conductivity, thinner skulls, and a projected lifetime of cumulative exposure differentiate children from adult populations. Schools are primary environments for study because children spend thousands of hours inside these buildings during their developmental years.

I recommend that HHS investigate actual, real-world exposure conditions in representative schools, evaluating:

- The density, transmit power, and operating characteristics of wireless access points;
- The prevalence and continuous operating parameters of mandatory school Chromebooks and student computing devices;
- Proximity-based exposure at student workstations;
- Cumulative daily exposure spanning an entire school year.

Scientific literature recognizes that environmental stressors can significantly impact developing biological, endocrine, and neurological systems during vulnerable life stages<sup>1</sup>. Consequently, scientific uncertainty regarding low-level, long-term environmental exposure should not be interpreted as proof of safety; it must serve as a catalyst for high-quality, independent investigation.

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## **2. Evaluating Exposure Standards Against Real-World Conditions**

Current exposure standards were largely designed around thermal safety limits for isolated devices held at a distance, rather than modern, close-proximity, multi-source environments.

An individual today simultaneously encounters RF energy from personal smartphones, cellular towers, small cells, neighboring Wi-Fi routers, Bluetooth accessories, smart meters, and wearable tech. Compounding this wireless load are close-range student devices like Chromebooks, alongside low-frequency magnetic fields and conducted electrical transients (dirty electricity and electromagnetic interference generated by

switch-mode power supplies and electronic light dimmers) traveling along household and institutional wiring. Evaluating each exposure source in isolation fails to characterize the combined, cumulative biological load.

HHS should examine whether current standards adequately account for:

- Close-proximity body contact over prolonged durations, such as mandatory classroom laptops resting on growing bodies;
- Continuous duty cycles, pulse modulation, and signal characteristics;
- Overlapping high-frequency wireless fields combined with low-frequency electrical noise, dimmer-induced EMI, and voltage transients in closed spaces.

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### **3. Standardized Measurement in Real-World Environments**

I strongly encourage HHS to develop standardized protocols for measuring actual environmental exposure rather than relying exclusively on theoretical manufacturer specifications or limited laboratory simulations.

Residential properties and public spaces are routinely surrounded by multiple independently operated Wi-Fi networks, cellular signals, and electrical grid variables. For example, observations conducted outside public buildings and school perimeters demonstrate that institutional wireless networks can be detected clearly from parking lots and surrounding areas—often at distances extending far beyond immediate classroom walls. This highlights the extensive propagation footprint of modern access points and raises a straightforward question: *What level of cumulative electromagnetic exposure does an individual actually experience from all nearby wireless and electrical sources combined?*

The public deserves objective transparency regarding the cumulative environmental load experienced in everyday homes and neighborhoods. I recommend establishing standardized environmental monitoring to map frequencies, power densities, electric and magnetic field strengths, transient voltage spikes, and peak exposure levels under normal operating conditions.

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### **4. Re-evaluating Biological Plausibility and Toxicology**

Extensive animal research involving radiofrequency radiation has demonstrated measurable physiological effects and evidence of carcinogenic activity under specific experimental modulation conditions.

While controlled whole-body animal exposures cannot be directly equated with everyday human living conditions, these findings establish foundational proof of biological plausibility. They demonstrate that electromagnetic radiation can produce

measurable physiological effects under experimental parameters, justifying continued research into how varying frequencies, modulations, and cumulative intensities impact human physiology.

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## 5. Expanding Research Beyond Oncology to Systemic Health and Electrohypersensitivity

Research into low-level, long-term exposure must not be limited to cancer endpoints. HHS should prioritize independent studies examining:

- **Neurological and Cognitive Function:** Assessing impacts on focus, neurodevelopment, and neurotransmitter balance.
- **Mitochondrial Health and Cellular Stress:** Investigating how continuous electromagnetic fields and voltage transients impact cellular energy production, membrane stability, and internal antioxidant capacity.
- **Electrohypersensitivity (EHS) and Physiological Tolerance:** Acknowledging and studying the growing subset of the population that experiences severe, debilitating clinical symptoms—including neurological distress, cognitive impairment, sleep disruption, and autonomic nervous system dysfunction—when exposed to ambient electromagnetic fields, which profoundly alters their entire lifestyle and ability to function in modern infrastructure.
- **Sleep Architecture:** Chronic sleep fragmentation is a well-documented driver of autonomic nervous system dysfunction and metabolic disease<sup>2</sup>. Environmental stressors that disrupt restorative slow-wave or REM sleep warrant rigorous investigation.
- **Endocrine and Immune Health:** Evaluating how continuous electromagnetic fields and electrical transients influence hormonal signaling, cellular stress responses, and inflammatory markers<sup>1</sup>.

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## 6. Historical Physician Observations and Epidemiological Trends

Longstanding clinical observations by physicians—dating back decades to reports such as historical European physician appeals regarding mobile communications—highlight consistent patient-reported symptoms correlated with the expansion of electrical and wireless infrastructure. While historical observations and temporal correlations do not inherently prove causation, they provide vital hypotheses that should be systematically tested using modern epidemiological methods, objective exposure tracking, and longitudinal health data.

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## 7. Funding Transparency and Conflict of Interest

Given the massive commercial interests tied to wireless and electrical technologies, transparency regarding research funding is paramount. Federal agencies should enforce and encourage full disclosure of:

- Industry sponsorship and institutional financial relationships;
- Methodological independence and data sharing;
- Replicability of study outcomes.

Scientific evidence must be evaluated strictly on its methodology, reproducibility, and the totality of independent findings.

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## 8. Practical Exposure-Reduction Measures and Parental Disclosure in Schools

Without suggesting an outright ban on modern technology, HHS should investigate practical, common-sense measures to reduce unnecessary cumulative exposure in public spaces and educational institutions. Furthermore, families deserve transparent communication to make informed choices regarding their children's daily health and learning environments.

Recommended measures for study and implementation include:

- **Parental Disclosure and Awareness:** Encouraging schools to provide clear, accessible disclosures notifying parents of the wireless density, mandatory Chromebook usage, and electrical environment in classrooms, outlining potential health considerations, and empowering families to make informed choices both at school and at home.
- **Proximity Reduction and Head/Body Protection:** Advising against placing wireless devices like Chromebooks, iPads, and tablets directly against the body or lap, and encouraging practical safeguards such as utilizing wired headsets or speakerphone settings for voice communications.
- **Wired Adapters and Radio Deactivation:** Supporting the use of physical Ethernet adapters (such as USB-to-RJ45 adapters for Chromebooks or compatible wired adapters for iPads and other tablets) to connect to physical network jacks, **coupled with explicitly disabling local wireless radio transmitters (Wi-Fi, Bluetooth, and cellular toggles)** on the devices. This practice—applicable both in schools and at home—ensures that devices operate via a clean, wired connection while eliminating ambient wireless emissions at the user's desk.
- **Wired Infrastructure:** Prioritizing hardwired Ethernet drops for stationary educational equipment and device charging stations to reduce constant ambient wireless traffic in classrooms.

- **Strategic Device Management:** Implementing automated timers or switches to deactivate wireless transmitters and lighting dimmers when not required.
  - **Environmental Mitigation:** Utilizing line-filtering technologies and cleaner lighting drivers to mitigate conducted electrical noise (dirty electricity and dimmer-induced EMI) where appropriate.
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## 9. Requested Actions by HHS

I respectfully request that HHS:

1. Conduct or fund large-scale, independent studies of real-world RF and electrical exposure in operating schools and residential neighborhoods.
  2. Establish standardized, transparent methods for measuring cumulative, multi-source environmental exposure, including wireless signals, student computing devices, and conducted electrical transients.
  3. Review whether existing exposure standards adequately account for simultaneous, multi-source, and long-term cumulative exposure.
  4. Apply precautionary principles by giving specific consideration to children and electrohypersensitive individuals as sensitive populations.
  5. Investigate biological effects occurring below existing regulatory limits, particularly regarding neurological health, mitochondrial function, endocrine systems, and sleep architecture.
  6. Support guidelines that encourage transparent, accessible school disclosures regarding mandatory device usage so parents are fully informed of environmental exposures affecting their children.
  7. Require strict transparency and independent oversight concerning research funding and potential conflicts of interest.
  8. Develop evidence-based best practices for minimizing unnecessary environmental exposure in public facilities, including the promotion of wired network alternatives (such as Ethernet adapters) combined with manual wireless radio deactivation for student devices.
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## Conclusion

The electromagnetic environment surrounding today's children and communities is unprecedented, encompassing overlapping wireless networks, cellular infrastructure, mandatory classroom computing devices, electronic interference, and electrical grid variables. The core public-health question is no longer whether an individual device meets a static compliance check, but whether our safety standards reflect the reality of continuous, cumulative, multi-source exposure over a lifetime.

By utilizing this Request for Information to expand independent research, improve real-world exposure measurement, prioritize vulnerable populations, and support transparent parental communication and practical wired engineering alternatives, HHS can ensure that public health standards remain genuinely protective in our modern environment.

Respectfully submitted,

**Richard Anthony**

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