

Public Comment on RF/EMF Exposure and Health

Docket HHS-OASH-2026-0397

Attachment 1 — Detailed Responses and Recommendations

This attachment supports the short comment submitted in the regulations.gov text box. It provides numbered responses to key RFI questions, mechanistic evidence, and specific, actionable recommendations HHS can implement with existing authority under the MAHA framework.

Question 2 — Perspective

Individual consumer, parent, and health advocate concerned with children's cumulative exposure and the adequacy of current thermal-only standards. Comments draw on peer-reviewed literature on non-thermal mechanisms (oxidative stress, VGCC activation, glutathione depletion) and practical public-health considerations.

Questions 5 & related — Exposure Standards

Current U.S. limits (FCC, aligned with ICNIRP thermal thresholds) address only short-term heating. They do not account for non-thermal effects documented in the majority of experimental studies. Federal agencies should consider:

- ICNIRP and FCC thermal-only guidelines (current baseline — inadequate for non-thermal endpoints).
- IARC Group 2B classification of RF-EMF (2011; still in effect).
- Precautionary or biologically based approaches used or considered in several European jurisdictions.
- BioInitiative Working Group biologically based exposure recommendations.
- Evidence of VGCC activation and oxidative stress below thermal thresholds (Pall 2013; Yakymenko et al. 2016).

Regulatory change needed: Re-evaluate thermal-only limits. Adopt interim precautionary guidance that reduces unnecessary continuous exposure, especially for children, while independent research proceeds. Require real-world compliance testing that reflects actual multi-source, body-contact, and long-duration use.

Question 16 — Highest-Priority Research Gaps

Ranked gaps that should guide near-term HHS/NIH funding:

- 1. Oxidative stress and glutathione status in humans under real-world exposure.** Prospective measurement of GSH/GSSG ratio, lipid peroxidation (MDA), 8-OHdG, and related biomarkers in children and adults with personal dosimetry. Comparison of high- vs. low-exposure microenvironments (home, school, sleep).
- 2. Cumulative multi-source exposure in children.** Cohort of school-age children with 1-minute resolution personal RF dosimetry across home, school, and transit, linked to neurodevelopmental, sleep, and oxidative markers at 12–24 month intervals.
- 3. Mitochondrial function and VGCC-related endpoints.** Independent replication of Pall-type mechanistic findings and mitochondrial respiration effects at non-thermal intensities, with full exposure characterization and sham controls.
- 4. Electrosensitivity case definition and oxidative biomarkers.** Standardized clinical observation of self-reported intolerance presentations correlated with objective oxidative stress markers (existing data show ~80% of self-reported cases have detectable markers).

5. Intervention trials. Effects of exposure reduction (wired classrooms, nighttime router shutdown, distance) plus glutathione-support protocols on biomarkers and symptoms.

Questions 7–9 — Measurement and Public Disclosure

Current SAR testing does not capture real-world multi-source, body-contact, or cumulative exposure. Improvements needed:

- Personal and environmental dosimetry that records simultaneous sources (phone + Wi-Fi + infrastructure).
- Disclosure of typical and maximum emissions under realistic use (not only lab compliance conditions).
- Plain-language school and residential exposure information, including distance recommendations.
- Public maps or reporting of base-station and small-cell density near schools and homes.

Recommended Immediate Actions (Existing Authority)

These steps do not require new legislation and can proceed in parallel with research:

- Direct a portion of existing environmental or wireless-related research funds to the five gaps listed above, with mandatory conflict-of-interest disclosure and full exposure characterization.
- Issue interim public-health guidance: prioritize distance from devices, avoid body-contact use, keep routers and phones out of bedrooms, and prefer wired connections for fixed high-use applications.
- Update federal procurement and school-facility guidance to prefer structured Ethernet/fiber for fixed connections while retaining wireless for true mobility needs.
- Establish a transparent process to collect and systematically review clinical observations of exposure-associated symptoms rather than dismissing them.
- Require real-world exposure assessment in any future device or infrastructure evaluations.

Technological Competitiveness

Preferring wired/fiber for fixed applications does not reduce technological capacity. Fiber and structured cabling routinely deliver higher sustained bandwidth, lower latency, and better security than wireless for schools, offices, and homes. Hybrid designs (fiber backbone + switchable wireless access points) preserve mobility for phones and emergency services while cutting continuous ambient exposure. Other nations with stricter or precautionary approaches continue to deploy advanced networks. Leadership is maintained by solving performance and biological-load requirements together.

Key References

- Pall ML. Electromagnetic fields act via activation of voltage-gated calcium channels... J Cell Mol Med. 2013;17(8):958-965.
- Yakymenko I, et al. Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. Electromagn Biol Med. 2016;35(2):186-202.
- IARC. Non-Ionizing Radiation, Part 2: Radiofrequency Electromagnetic Fields. Monograph 102. 2013.
- HHS RFI Docket HHS-OASH-2026-0397 (September 2026).

This attachment is submitted to inform evidence-based policy that protects public health—particularly children—while preserving technological capability. The dominant non-thermal mechanisms (VGCC activation, oxidative stress, glutathione depletion) are sufficiently documented to justify immediate research prioritization and precautionary exposure reduction using existing authorities.