

Special Education Teacher, Child Health Advocate (President Families Advocating for Chemical and Tech Safety), Foundation President (Jonas Philanthropies), special needs parent

Subject: Public Comment regarding Non-Ionizing Radiation Safety Guidelines, Biological Mechanisms, and Children's Health Exposures

My name is Lendri Purcell. I am writing to urge your our agency to re-examine its biological safety guidelines regarding electromagnetic field (EMF) and radiofrequency (RF) exposures, particularly as they impact developing children in learning environments.

I am personally sensitive to EMF emissions from mobile phones (experiencing headaches when holding a device near my ear) as well as enclosed spaces with high ambient radiation levels, such as airplanes and trains. To mitigate these health impacts, I moved from a major urban area to a rural community and rely primarily on landlines for professional and personal communications.

As a mother of two sons, I have observed starkly different outcomes based on environmental exposures. My first son was raised in a high-EMF environment—where cellular phones were used regularly around him, a router was situated under his pack-and-play, and a wireless baby monitor was in active use—and he was later diagnosed with autism and PANDAS (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections). My second son was raised in a low-EMF environment and has not experienced these health challenges.

As a Master's-level Special Education teacher with 15 years of classroom experience, I never encountered PANDAS early in my career, yet today I see it growing rapidly in schools. Having a son with PANDAS, I know its distinct symptoms firsthand—this is a relatively recent phenomenon. I have also observed notable patterns regarding autism. While teaching in a low-income Oakland school district, I had no students diagnosed with autism. However, when I transitioned to a higher-income district in Alameda, California, most of my students were on the spectrum. Many of their parents worked in the tech industry with higher workplace EMF exposures—a trend my colleagues report seeing as well. Given that PANDAS and autism often co-occur, I hope researchers will study parental occupations and EMF exposures. While medical science identifies PANDAS as an autoimmune reaction to a *Streptococcus* infection that targets the basal ganglia, I urge researchers and regulatory bodies to investigate whether environmental stressors—such as ubiquitous EMF exposure and altered calcium channel signaling—might heighten vulnerability to systemic inflammation and neuroimmune reactivity.

At an Environmental Working Group (EWG) event, I spoke with Olga Naidenko, a leading scientist specializing in radiation hazards, who emphasized that children's radiation exposure warrants significant concern compared to chemical exposures. In schools, children are continuously exposed to always-on Wi-Fi and required Chromebook use instead of physical textbooks. The foundation I work with funded a peer-reviewed study seeking to establish the world's first radiation exposure limits for children. The study found that children are exposed at levels 200 to 400 times higher

than recommended, and these exposures are only growing.

<https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2019.00223/full>

Early and chronic exposure to ambient EMF emissions may trigger cellular stress, mitochondrial dysfunction, or DNA damage. I ask the Commission to evaluate the biological framework and mechanism set forth by Dr. Martin L. Pall regarding Voltage-Gated Calcium Channels (VGCCs):

- **The Mechanism:** Pulsed and low-frequency EMFs exert physical forces on the voltage-sensing domain of VGCCs, leading to an excessive influx of intracellular calcium ions (Ca^{2+}).
- **Downstream Effects:** Elevated intracellular calcium triggers nitric oxide production, leading to the formation of peroxynitrite—a potent oxidant that induces oxidative stress, cellular damage, and local neuroinflammation.
- **Impact on Neurodevelopment:** Academic literature has explored how chronic calcium influx during critical perinatal windows can disrupt synaptogenesis and brain wiring, potential factors in Autism Spectrum Disorders (ASDs). Furthermore, oxidative stress driven by VGCC activation may promote neuroinflammation.

Given the daily, mandatory exposure of millions of school children to high-density wireless environments, the FCC must review modern science beyond thermal-only threshold models and adopt precautionary standards that protect vulnerable pediatric populations.

Sincerely,

Lendri Purcell, M.Ed.

Special Education Teacher

Referenced Studies & Academic Literature

1. **Funded Public Health Study:**
 - URL: [Frontiers in Public Health \(2019\) – Article 10.3389/fpubh.2019.00223](https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2019.00223/full)
2. **Martin L. Pall's Research on VGCC Activation & Biological Mechanisms:**
 - **Study:** Pall, M. L. (2013). *Electromagnetic fields act via activation of voltage-gated calcium channels to produce beneficial or adverse effects*. Journal of Cellular and Molecular Medicine, 17(8), 958–965.
 - Link: [PubMed / J Cell Mol Med](#)
 - **Study:** Pall, M. L. (2016). *Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression*. Journal of Chemical Neuroanatomy, 75, 43–51.
 - Link: [ScienceDirect / J Chem Neuroanat](#)
 - **Study:** Pall, M. L. (2018). *Wi-Fi is an important threat to human health*. Environmental Research, 164, 405–416.
 - Link: [ScienceDirect / Environ Res](#)
3. **Calcium Signaling, Synaptogenesis, and Neurodevelopmental Hypotheses:**

- **Study:** Pall, M. L. (2016). *Post-radiation damage & excessive intracellular calcium (Ca^{2+}) impacting synaptogenesis and neurodevelopment.*
 - **Link:** [NCBI Literature Review on EMFs and Intracellular Calcium](#)