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Ex Parte

Ms. Marlene H. Dortch,
Secretary Federal Communications Commission
445 12th Street,
SW Washington, DC 20554

Re: Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies, ET Docket No. 13-84; Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields, ET Docket No. 03-137

Dear Ms. Dortch:

On May 18, 2016 Devra Davis and Theodora Scarato met with Adrienne Perry and Edward Smith to discuss issues raised in the pending Further Notice of Proposed Rulemaking in the above-captioned proceeding.

We reviewed state of the art modeling of the brain of children seen in the research studies cited below and shared materials that support the conclusions of EHT to reduce exposure. These conclusions are supported by our advisors who include Siegal Sadetzki MD, a chief expert counselor in the Israeli government, R.S. Sharma MD PhD, Deputy Director of the Indian Medical Research Council, the Indian government and Belgian officials.

We discussed the fact that the FCC is relying on outdated assumptions and outdated models to test phones. There is growing scientific recognition that the current test systems are fundamentally flawed and do not reflect the current growth in use by infants and toddlers. We urged the FCC to issue a general call for precautions for children consistent with the advice of over a dozen other governments, as experts are recognizing the growing application of wireless transmitting devices to infants and toddlers including: the iPotty, the iBouncy chair, and the iRocking chair as well as the talking Wi-Fi Barbie. We also explained that currently used smartphones in cardboard virtual reality devices have not been tested for exposure into the young child's brain and eyes and are being used in many school districts around this country despite the lack of safety testing.

We also discussed the fact that other countries require that cordless phones and baby monitors to be voice activated, whereas those in the US are sending and receiving microwave radiation 24/7, exposing people unnecessarily to wireless radiation. In addition, this results in using energy that need not otherwise be used, and adds a burden to broadband.

We noted that devices today are mandated to have an advisory under legal notices that details how to ensure the user is not violating FCC regulations. Some advisories also state, "to reduce RF radiation use a hands-free device or a speakerphone." This was demonstrated on the iPhone.

We specifically discussed peer-reviewed evidence that the models that are now used by the FCC to estimate exposure into children are flawed and do not adequately reflect children's greater vulnerability. We called for the retraction of Foster and Chao and for the FCC to not rely on that paper.

Furthermore, we called for the FCC to consult with its counterpart in other countries that have recently reviewed evidence on children, toddlers and infants and have mandated devices with improved software and hardware that are voice activated and generally emit less radiation than those used in the United States. This would serve three goals. First of all it would extend battery life and reduce greenhouse gas is associated with current patterns, second it would reduce traffic on the Internet and finally it would eliminate any long-term health impacts associated with these devices.

We discussed the following research studies:

Morris, R.D.; Morgan, L.L.; Davis, D.L., "[Children Absorb Higher Doses of Radio Frequency Electromagnetic Radiation From Mobile Phones Than Adults.](#)" in Access, IEEE , vol.3, no., pp.2379-2387, 2015 doi: 10.1109/ACCESS.2015.2478701

We played the following video related to the Morris 2015 paper
<https://www.youtube.com/watch?v=J5MMhm70lCY>.

Fernandez-Rodriguez, C.E.; De Salles, A.A.A.; Davis, D.L., "[Dosimetric Simulations of Brain Absorption of Mobile Phone Radiation—The Relationship Between psSAR and Age.](#)" in Access, IEEE , vol.3, no., pp.2425-2430, 2015 doi: 10.1109/ACCESS.2015.2502900

Gandhi OP, Morgan LL, De Salles AA, Han YY, Herberman RB, Davis DL. (2012). [Exposure limits: the underestimation of absorbed cell phone radiation, especially in children.](#) Electromagn Biol Med. 31(1), 3451.

F. Barnes and B. Greenenbaum, "[Some Effects of Weak Magnetic Fields on Biological Systems:](#)

[RF fields can change radical concentrations and cancer cell growth rates.](#)" in *IEEE Power Electronics Magazine*, vol. 3, no. 1, pp. 60-68, March 2016.

Morgan LL, Miller AB, Sasco A, Davis DL, [Mobile phone radiation causes brain tumors and should be classified as a probable human carcinogen \(2A\) \(review\)](#). *Int J Oncol*. 2015 May;46(5):1865-71. Epub 2015 Feb 25.

We left copies of the following handouts as examples of how to educate citizens on how to reduce exposure:

How to Protect Your Family

Choose wired over wireless

- Get a corded landline phone and forward cell phones to it.
- Use corded plug-in (non-wireless) connections for printer, mouse, internet, gaming, and routers, etc.—with all wireless functions OFF.

Safeguard sleep

- Stop use of and power off computers, tablets and phones one hour (or longer) before bedtime.
- Do not sleep with a cell phone, tablet or laptop.

Maximize distance from self and others

- Radiation decreases as you move away from the source.
- Locate devices away from laps, bras and pockets, as the radiation can damage sperm and may be linked to breast cancer.
- Use air tube headset or use speaker phone at maximum distance from head and body.

Protect children

- Children are particularly vulnerable and should not use cell phones except in an emergency.
- If children are using a phone or other device for work or play, select all 3 of the following settings to turn off the radiation from cell phones and wireless devices: Airplane mode ON, and Wi-Fi OFF, and Bluetooth OFF.
- Don't use a mobile device while a child is on your lap or in your arms.

Power off in vehicles

- Mobile devices distract drivers, emit more intense radiation during travel, and metal surroundings create radiation hot-zones.

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Doctors' Advice to Patients & Families

Wireless & Health: Simple Precautions Make Sense



This pamphlet reviews precautionary advice by Doctors and governments to reduce exposure to wireless radiation.

 **ENVIRONMENTAL
HEALTH TRUST**

Brought to you by: Physicians, biomedical scientists, and neurosurgeons—including Charles Teo, MD; Merrin Hebert, MD, PhD; Anthony B. Miller, MD; Doreyman Kaplan, PhD; Arnie J. Sasco, MD, PhD; Stephen T. Gnanapavan, MD; Dr. Enca Motery-Blythe, BMBBS; Debra Lee Davis, PhD, MPH.

Wireless Radiation Exposures

Wireless devices—such as tablets, laptops, game consoles, baby monitors, and wifi routers—all emit the same type of wireless microwave radiation as cell phones. Children, pregnant women, and men hoping to father healthy children are more vulnerable to this exposure.

The Child Brain and Skull Absorb up to Ten Times More Invisible Wireless Radiation than the Adult (Gandhi et al., 2012)



Cell phone radiation absorbed into brain, skull, and eyes of 6-year-old
(Fernandez et al., 2010)

New anatomically based research shows radiation absorption.

Increased Cancer Risk

Wireless radiofrequency radiation was classified as a Class 2B "Possible Human Carcinogen" by the World Health Organization's International Agency for Research on Cancer in 2011. Evidence has increased since 2011, indicating that cell phone and wireless radiation should be classified as a "probable carcinogen" because of increased brain cancer (Davis et al., 2015).

Those exposed at younger ages show up to eight times more brain cancer risk.

Radiation Absorption from Tablet into a 6-Year-Old's Brain (in this image, white & yellow areas are the highest absorption)



Federal University of Rio Grande do Sul, UFRGS Ferreira and de Salles (2015)

Wireless Exposure Damages Brains



Animals prenatally exposed to cell phone radiation develop damaged and fewer brain cells.

How Wireless Impacts Children's Health

Accumulating research shows that wireless microwave radiation affects fetal brain development, the immune system and reproductive function. Even very low doses of wireless radiation affect brain metabolism and electrical activity.

Yale University researchers found that when pregnant mice were exposed to radiation from a simulated operating phone, their offspring had impaired memory, increased hyperactivity and altered brains. Several research studies show wireless impairs brain development at various ages.

The Reproductive System

Numerous studies indicate that wireless exposures decrease sperm quantity and quality (including altered DNA) and damage testes and ovaries.

Testes Damaged by Wi-Fi Equipment Radiation



Long-term Wi-Fi exposure decreases testes volume

(Dastag et al., 2010)

Government Protections Worldwide

Over 20 countries—including France, Belgium, Israel and the European Union—have taken policy actions to "reduce exposure to children," addressing cell phones, laptops, cell towers and Wi-Fi in schools in order to protect public health.

detailed references available at EHTrust.org

[Click here to download the Doctors Advice on Wireless](#)

How to Protect Your Family

- 1. Do not hold the phone directly against your head or body**
Use speakerphone, other hands-free device, or another device that meets EHT guidance.
- 2. Beware of a weak signal**
Your phone works harder and emits more radiation into you when the signal is weak or blocked.
- 3. Protect children, the pregnant abdomen, and men who want to become fathers**
Children absorb twice as much radiation as adults. Sperm are especially vulnerable.
- 4. Do not sleep with your cell phone**
Phones do not emit radiation when off or in airplane mode.
- 5. Corded landlines are swifter, safer, and more secure**
Cordless phones also emit microwave radiation.
- 6. Do not text while moving e.g. driving, hiking, biking, walking, skiing.**
Milliseconds can make the difference between life or death.

Brought to you by:

The Global Campaign for Safer Cell Phones provides open-source resources that educate and motivate health professionals, teachers, parents, and students about simple and safer ways to use cell phones. Our multi-media toolkit can be downloaded at EHTrust.org.

Prepared by physicians, biomedical scientists, and neurosurgeons including Kevin O'Neill, FRCGS (SN), Ronald B. Herberman, MD, Charles Teo, MD, David Servan-Schreiber, MD, PhD, Annie J. Sasco, MD, DrPH, Stephen Sinatra, MD, John West, MD, Richard Stein, MD, PhD, Devra Lee Davis, PhD, MPH

Find out more about how to reduce your risk and get the latest news on our website EHTrust.org and #PracticeSafeTech.

Doctors' Advice to Patients & Their Families

Cell Phones & Health: Simple Precautions Make Sense



This pamphlet reviews precautionary advice by governments to reduce your exposure to cell phone radiation.

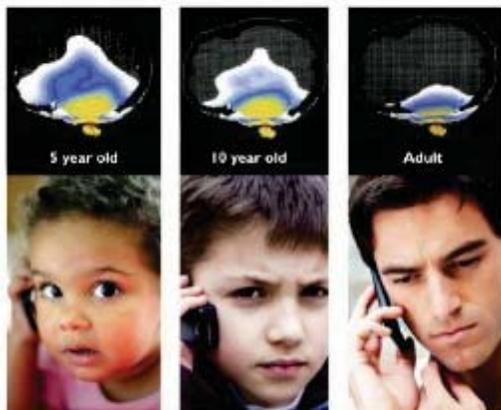


[Click here to download the Doctors Advice for Cell Phones](#)

Cell phones are two-way microwave radios that were never properly tested for safety.

Antennas for cell phones are continually searching for signals from towers to send and receive information. The body or brain absorbs about half the radiation emitted from a phone at any time.

Children absorb more radiation than adults



Courtesy Om R. Gandhi and Green America

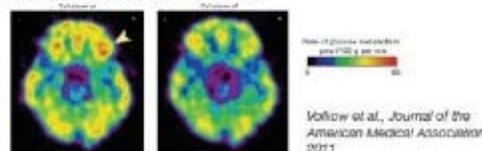
People who use cell phones more than 30 minutes per day (average) for 10 years have a doubled or higher risk of brain cancer. Teenagers who start to use cell phones develop 4 to 5 times more brain cancer in less than a decade. Links to studies can be found at EHTrust.org.

WORLD HEALTH ORGANIZATION (2011)

On May 31, 2011, the World Health Organization/International Agency for Research on Cancer classified the electromagnetic radiation from cell phones as possibly carcinogenic to humans based on an increased risk for glioma, a malignant type of brain cancer, associated with use of mobile phones.

Can Cell Phones Cause Cancer and Disease?

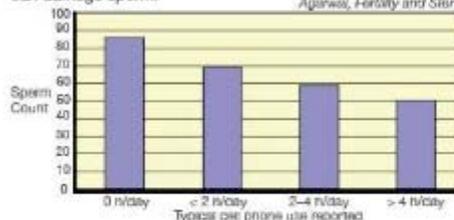
A number of well-designed studies indicate that cell phone use increases cancer risk. Cell phones change the brain. After 50 minutes of holding a cell phone on or next to the ear, the brain of a healthy adult shows significant changes in glucose metabolism—the brain's fuel—at precisely those areas reached by cell phone radiation. The long-term impact of these changes is unknown. Recent research suggests that cell phones, cordless phones, and other wireless devices can also disturb heart rate.



Cell Phones Lower Sperm Count

Men who use cell phones 2 to 4 hours per day have 30% lower sperm count than non-users; daily use over 4 hours results in 40% lower sperm count. Studies have shown that microwave radiation can damage sperm.

Agarwal, *Fertility and Sterility*, 2008



HEALTH CANADA (2011)

"Health Canada reminds cell phone users that they can take practical measures to reduce RF exposure. The department also encourages parents to reduce their children's RF exposure from cell phones since children are typically more sensitive to a variety of environmental agents."



Click here to download the SAVE THE GIRLS
<http://ehtrust.org/wp-content/uploads/2015/02/Save-the-Girls4.pdf>

Click here to download the SAVE THE BOYS
<http://ehtrust.org/wp-content/uploads/2015/02/Save-the-Boys4.pdf>

We shared information on the BabySafe Project from BabySafeProject.org. See handout below

Are You Pregnant?

Protect Your Baby from Wireless Radiation!



Recent studies from Yale University show that exposure to wireless radiation can have profound effects on brain development, including symptoms of Attention Deficit/Hyperactivity Disorder (ADHD).

Now, doctors and researchers around the world are urging pregnant women to take simple steps to limit their exposure to wireless radiation.

For more information, including links to scientific studies and video interviews with medical doctors and public health experts, please visit our web site, **BabySafeProject.org**.

10 Tips for Reducing Your Exposure to Wireless Radiation

1. Avoid carrying your cell phone on your body (e.g. in a pocket or bra).
2. Avoid holding any wireless device against your body when in use.
3. Use your cell phone on speaker setting or with an "air tube" headset.
4. Avoid using your wireless device in cars, trains or elevators.
5. Avoid cordless phones, especially where you sleep.
6. Whenever possible, connect to the internet with wired cables.
7. When using Wi-Fi, connect only to download, then disconnect and disable Wi-Fi.
8. Avoid prolonged or direct exposure to Wi-Fi routers.
9. Unplug your home Wi-Fi router when not in use (e.g. at bedtime).
10. Sleep as far away from wireless utility meters (i.e. "smart" meters) as possible



The BabySafe Project
www.BabySafeProject.org
#KnowYourExposure

