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Commonwealth of Massachusetts

Submitted To: Joint Committee on Consumer Protection and Professional Licensure
24 Beacon Street
Room 109-E
Boston, MA 02133

Testimony in Strong Support of:

S.107 An Act relative to disclosure of radiofrequency notifications
S.108.An Act relative to the safe use of handheld devices by children.

Submitted By: Devra Davis PhD, MPH, President, Environmental Health Trust
Submitted To: Joint Committee on Consumer Protection and Professional Licensure
Committee Members, Sponsor, Co-Sponsor, MA Department of Public Health, MA Department of Public Utilities, MA Department of Telecommunications and Cable, MA Department of Elementary and Secondary Education, MA Attorney General, Governor Baker, Senator Warren and Senator Markey:

Dear Esteemed Legislators and Public Servants,

On behalf of Environmental Health Trust (EHT), a non-profit research and public educational organization of scientists, physicians, engineers, and public health specialists, I am writing in strong support of S.107 An Act relative to disclosure of radiofrequency notifications requires manufacturer warnings be prominently displayed on product packaging of wireless radiation-emitting devices and S.108.An Act relative to the safe use of handheld devices by children.

For the past decade, EHT has provided state of the art information to legislators around the world, including a series of [briefings](#) with members of your legislature in 2015, as well as officials of local school and health boards. Environmental Health Trust is a scientific think tank focused on research, policy and awareness.

I was Founding Director of the Board on Environmental Studies and Toxicology of the U.S. National Research Council, and Founding Director of the Center for Environmental Oncology at the University of Pittsburgh Cancer Institute. President Clinton appointed me to the Chemical Safety and Hazard Investigation Board, and I am former Senior Advisor to the Assistant Secretary for Health in the Department of Health and Human Services.

S.107 is critically important because most people are unaware of the fine print warnings on wireless devices and they use devices in ways that increase their exposure and ways that could result in them exceeding FCC safety limits. The public needs to be informed of the radiofrequency notifications.

All wireless technology devices—including laptops, tablets, cell phones, wireless access points, and all other “wireless” transmitters—emit radio frequency (RF) electromagnetic non-ionizing radiation. The Federal Communications Commission (FCC) regulates RF energy emitted from FCC-regulated transmitters, and ensures

that all mobile phones and wireless devices sold in the United States comply with the agency's limit on RF energy exposure, however, only when used at a specified distance from the body.¹ The user manuals of all wireless devices contain this as RF safety information directing the user to maintain compliance with these FCC radio frequency limits by maintaining this distance between the device and the user's body.

For example, the FCC body separation distance for most wireless laptops, tablets, baby monitor bases, Wi-Fi routers, video gaming consoles, and other devices such as wireless printers is 20 centimeters (or 7.87 inches), as stated in their user manuals.² For cell phones, the specific distance is stated in the user manual and usually ranges from 25mm to 5mm. Most people are unaware of these [fine print warnings](#).

A lack of awareness of [these separation distances](#) could result in individuals being exposed to radiation levels that exceed FCC regulations.

The reality that cell phone and wireless device users can be exposed to RF radiation values that exceed regulatory limits is confirmed by [recent information](#) released by the government of France. The French National Frequencies Agency (ANFR) tested over 300 cell phones in body contact positions (i.e., *without the separation*) and released findings this year showing that the vast majority of cell phones had radiation measurements that far exceed European allowable limits: *by over 3 times*. In other words, the cell phones only passed premarket laboratory tests when tested with a separation distance between the phone and test dummy. Without the separation distance, limits were breached.

If one were to take the French government data and generate the equivalent values with U.S. FCC testing methods at body distance, then numbers become *even more significant*. The cell phone radiation measurements could exceed United States allowable limits up to *over 9 times*. Please see this chart below that shows France's data and an estimate of the U.S. equivalent data. ([Online PDF](#) of 379 phone measurements)

France Data on Cell Phone SAR Radiation at Body Contact Positions

Examples of Some Phones That Exceed Regulatory Limits When Tested at Body Contact

Cell Phone make/model	SAR Radiation Measurement Test Results		
	Manufacturer test separation distance	0 mm Distance body contact simulation European test 10 gram average	0 mm Distance body contact simulation Estimated for US FCC test 1 gram average
Polaroid, PRO 881A	1.050 W/kg at 15 mm	7.42 W/kg	14.84 W/kg
HTC, ONE SV	0.366 W/kg at 15 mm	7.18 W/kg	14.36 W/kg
Blackberry Z10	0.934 W/kg at 15 mm	6.80 W/kg	13.60 W/kg
NOKIA, Lumina 530	0.86 W/kg at 15 mm	6.57 W/kg	13.14 W/kg
Apple, IPHONE 5	.825 W/kg at 10 mm	5.32 W/kg	10.64 W/kg

Compare cell phone
SAR test results with
government
regulatory SAR
limits.

1.6 W/kg
USA SAR
LIMIT

2.0 W/kg
Europe
SAR LIMIT

Most of the cell phones tested by France exceeded regulatory SAR limits

¹ FCC RF Safety Webpage <https://transition.fcc.gov/oet/rfsafety/rf-faqs.html#Q5>

² FCC Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields OET Bulletin 65 Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65c.pdf

Passing S.107 is *the first step* in protecting the public. It would inform citizens that their devices expose them to radiofrequency microwave radiation, and this would raise public awareness. It also is a step towards addressing children's cumulative exposures to wireless radiation.

Research has shown that children absorb proportionately more radiation than adults and are more vulnerable. "When electrical properties are considered, a child's head's absorption can be over two times greater, and absorption of the skull's bone marrow can be ten times greater than adults" ([Gandhi et al. 2011](#)). Children's skulls are thinner, their heads are smaller, and the radiation penetrates more deeply into their brain.

Current FCC federal exposure limits for radio frequency electromagnetic fields (RF-EMF, which includes cell phone and wi-fi technologies) were established nearly 30 years ago based on outdated thermal standards. These FCC limits have come under sharp criticism by the [GAO](#), the [American Academy of Pediatrics](#), the [U.S. Department of the Interior](#), and research scientists from around the world for relying on outdated standards and outdated science. In response, the FCC opened a [Proceeding Number 13-84](#) in 2012 concerning human exposure limits to radio frequency radiation, which notably asks, "we specifically seek comment as to whether our current limits are appropriate as they relate to device use by children." Over 1,000 submissions have been made to the FCC. To date, no actions have been taken and no scientific research review has been completed by any federal agency.

Please learn more about the U.S. government's reports on cell phone and wireless radiation on our webpages "[EPA Reports on EMFs](#)" and "[U.S. Government Reports](#)". Currently there is no "safe" level of exposure, and until the United States sets adequate standards that protect children, it is imperative that local governments support policies that protect public health by reducing exposure to as low as possible.

Recently released research findings from the premiere test program of the National Institute of Environmental Health Sciences (NIEHS) add to the body of scientific evidence indicating that RF microwave radiation, even at legal limits, can be harmful. The 10 year, \$25 million NIEHS National Toxicology Program's [Studies of the Toxicology and Carcinogenicity of Cell Phone Radiation](#) reports that RF exposure resulted in increased rates of highly malignant, very rare tumors: gliomas of the brain and schwannomas of the heart.³ These experimental findings are consistent with human studies showing increased rates of gliomas and acoustic neuromas (schwann cells) among humans exposed to cell phone radiation. This September, scientists from the National Toxicology Program (NTP) presented the radio frequency study genotoxicity findings at the annual meeting of the Environmental Mutagenesis and Genomics Society. They found DNA damage was significantly increased in specific brain tissues in some of the exposure groups. The NTP abstract concludes, "exposure to RFR [radio frequency radiation] has the potential to induce measurable DNA damage under certain exposure conditions."

Other studies finding increased risk of glioma in regular cell phone users are of special relevance. In 2014, a [French national study](#) linked higher cell phone exposure to increased glioma in cell phone users.⁴ A newly published research [report](#) in the *American Journal of Epidemiology* found that Canadians who have used cell

³ Wyde, Michael, et al. "[Report of Partial findings from the National Toxicology Program Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd: Sprague Dawley® SD rats \(Whole Body Exposure\)](#)." *bioRxiv*, no. 055699, 2016.

⁴ Coureau, Gaëlle, et al. "[Mobile phone use and brain tumours in the CERENAT case-control study](#)." *Occupational Environmental Medicine*, vol. 71, no. 7, 2014, pp. 514-22.

phones for 558 hours or more have more than a doubled risk of brain cancer.⁵ Previously [published re-analysis](#) of the multi-country Interphone study data has found stronger, positive associations with glioma risk among long-term users and heavy users, and a [statistically significant association](#) between tumor location and amount of radiation exposure from a cell phone.^{6,7}

We invite you to review the proceedings from an expert forum on Wireless and Health at the Hebrew University of Jerusalem, hosted by the Israel Institute for Advanced Study and the Environmental Health Trust, with participation and support from the U.S. National Institute of Environmental Health Sciences. Highlights of the conference with [lectures, videos, and slide presentations](#) can be found on our website. Environmental Health Trust also held an expert forum in Jackson Hole, Wyoming on July 30, 2017, and lectures by [Dr. Devra Davis](#), [Dr. Annie Sasco](#), [Dr. Marc Arazi](#) and [Dr. Anthony Miller](#) are now available as online resources.

In the United States, there are several local policies in place to inform the public about these separation distances. The City of Berkeley's "[Cell Phone Right To Know](#)" Ordinance requires phone sellers to publicly inform consumers with the following information:

"If you carry or use your phone in a pants or shirt pocket or tucked into a bra when the phone is ON and connected to a wireless network, you may exceed the federal guidelines for exposure to RF radiation."

In 2011, San Francisco, California was the first city in the nation to pass cell phone safety legislation with a "Right to Know" Ordinance unanimously passed by the Board of Supervisors. Although full implementation was blocked after [the CTIA sued the city](#), the City maintains a [public information webpage](#) on cell phone radiation which states "manufacturers warn (in the cell phone user manuals) "if a user holds a phone too close to their body, a phone may exceed the radiofrequency energy exposure limitation set by the Federal Communications Commission ("FCC")."

In 2011, the Burlingame, California City Council voted to include cell phone safety [guidelines](#) in their Healthy Living in Burlingame initiative, which gives [recommendations](#) on how to reduce exposure and states:

"The Federal Communications Commission (FCC) mandates that all cell phone manuals caution users to hold the phone a short distance (.6 inch to 1 inch) from the body. (See your manual's fine print.) While scientists continue to research and debate this matter, here are some simple things you can do to minimize your exposure to cell phone emissions"

Awareness is growing that the public needs more information about wireless devices. In Suffolk, New York, [2014 legislation](#) requires all county buildings to post notices that wireless routers are in use stating, "Notice: Wireless technology in use."

A growing number of U.S. school districts across the country are taking measures to inform students that wireless devices should be used in positions away from the body.

⁵ Momoli, F., et al. "[Probabilistic multiple-bias modelling applied to the Canadian data from the INTERPHONE study of mobile phone use and risk of glioma, meningioma, acoustic neuroma, and parotid gland tumors.](#)" *American Journal of Epidemiology*, 2017.

⁶ Turner, Michelle C., et al. "[Investigation of bias related to differences between case and control interview dates in five INTERPHONE countries.](#)" *Annals of Epidemiology*, vol. 26, 12, 2016, pp. 827-32.

⁷ Grell, Kathrine, et al. "[The intracranial distribution of gliomas in relation to exposure from mobile phones: analyses from the INTERPHONE study.](#)" *American Journal of Epidemiology*, vol. 184, no. 11, 2016, pp. 818-28.

Ashland, Massachusetts was the first U.S. public school system to develop Mobile Device [“Best Practices”](#), which includes:

- “Turn off the device when not in use
- Turn wifi on only when needed
- Always place the mobile device on a solid surface
- Viewing distance should be a minimum of 12 inches from the screen
- Specific product information guides are available by request through the IT Department
- All classrooms will have best practices posted.
- We ask that staff members regularly remind and instruct students in using best practices in regards to mobile devices.”

These Ashland [“Best Practices”](#) are posted in each classroom and teachers’ training includes a review of these policies.

In Worcester, Massachusetts, the school committee [recently voted to approve “Precautionary Options on Radiofrequency Exposure”](#) to be posted on the Worcester District Website. The public document includes FCC and EPA stated measures to reduce Radio Frequency exposure such as using a speakerphone to reduce total exposure to the head and “increase the distance between wireless devices and your body.”

Several Public School Districts, including the [Onteora School District, New York](#), and [Petaluma, California](#), recommend that laptops and tablets be on a table and “not on a lap.” Although these districts do not inform students and staff that these wireless devices emit radiation, it is important to note that parents in these Districts have lead strong efforts to hardwire the school internet connections, in order to eliminate the radiation exposures from the devices and access points. While such “Best Practices” may reduce some of the near-field radiation exposure for school children who might otherwise place the devices on their laps, the daily classroom radiation exposures from ceiling access points and classroom devices in use are ongoing and still need to be addressed.

[The Maryland State Children’s Environmental Health and Protection Advisory Council](#) (CEHPAC) issued a 2017 Report advising the Department of Education to recommend local school districts reduce classroom wireless radiation exposures by providing wired—rather than wireless—internet connections. CEHPAC recommendations also include placing devices on desks and other measures to reduce exposures. Wired connections with wireless functions OFF eliminate the radio frequency exposures from wireless devices and represent protective public health advice.

Just this year in January of 2018, the Chief of Montgomery County Schools [sent a memo](#) to all staff with the recommendations to place “laptops on desks and tables rather than in laps.” The CTO also provided references to the [CEHPAC recommendations](#) on reducing wireless exposures to children.

Environmental Health Trust has a compilation of all of these actions in our [online policy database](#).

Medical Recommendations

The American Academy of Pediatrics (AAP)—our nation’s largest organization of pediatrician and pediatric specialists—has repeatedly [warned](#) of children’s greater vulnerability to wireless radiation and recommended [policy action](#) to update our nation’s radio frequency radiation limits and inform consumers about cellular radiation. The AAP [recommends](#) that exposure to children be reduced and has issued ten strategies to reduce

families' exposures. In addition to the American Academy of Pediatrics, the [Vienna Medical Association](#) and [Athens Medical Association](#) are among the many [international medical organizations](#) that have issued practical measures for the public to reduce exposure to cell phone and wireless devices in their daily lives.

Two years ago, over 230 scientists who have published peer-reviewed research on EMFs and health appealed to the United Nations in [The EMF Scientist Appeal](#) urging immediate action to protect the public and strengthen exposure limits. More recently, over 180 scientists and doctors from 35 countries sent [a declaration](#) to officials of the European Commission calling for a moratorium on the increase of cell antennas for planned 5G expansion.

The Connecticut Department of Health has [issued cell phone advice](#) in a two page document, which includes, "*It is wise to reduce your exposure to radiofrequency energy from cell phones whenever possible.*" Cell Phone proclamations have been issued in [Jackson Hole, Wyoming](#), [Pembroke Pines, Florida](#), and [Portland Maine](#). In 2014, the [Greenbelt, Maryland City Council](#) unanimously voted to alert citizens about the fine print warnings and possible health risks of cell phones and wireless devices by sharing resources on how to reduce cell phone radiation exposure.

This year the California Department of Health [issued advice](#) on how to reduce exposure. In the California Department [press release](#) Dr. Smith of the CDPH states, "Children's brains develop through the teenage years and may be more affected by cell phone use," said Dr. Smith. "Parents should consider reducing the time their children use cell phones and encourage them to turn the devices off at night."

The governments of France, Belgium, Canada, Austria, the United Kingdom (UK), India, Australia, Germany, Switzerland, Israel, Finland, Greece, Russia, Switzerland, Cyprus, Singapore, Turkey, and the Council of Europe all have online [public resources](#) specifically recommending that children's exposure should be reduced or minimized, and these governments provide resources detailing how the public can reduce exposure to radio frequency radiation.

As it has done on passive tobacco smoke and air bags for cars, Massachusetts now has an incredible opportunity to lead the nation in informing the public about the radio frequency exposure from cell phones and wireless devices. For your review, I have included a list of the fine print manufacturers' advice on several commonly used cell phones and wireless devices. We have included not only cell phones, but also video game consoles, wireless printers, wireless speakers, wireless watches, virtual assistants and even wireless baby monitors.

Environmental Health Trust advisors stand ready to answer any questions and provide additional information.

Sincerely,



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Appendix I: Fine Print Warnings on Cell Phones and Wireless Devices

“Keep the BlackBerry device at least 0.59 in. (15 mm) from your body (including the abdomen of pregnant women and the lower abdomen of teenagers) when the BlackBerry device is turned on and connected to the wireless network.” - [Blackberry Bold 9930](#)

When you wear the BlackBerry device close to your body, use a RIM approved holster with an integrated belt clip or maintain a distance of 0.98 in. (25 mm) between your BlackBerry device and your body while the BlackBerry device is transmitting. Use of body-worn accessories, other than RIM approved holsters with an integrated belt clip, might cause your BlackBerry device to exceed radio frequency (RF) exposure standards if the accessories are worn on your body while the BlackBerry device is transmitting. The long term effects of exceeding RF exposure standards might present a risk of serious harm.” - [Blackberry Torch 9800 & 9900](#)

”To be sure that human exposure to RF energy does not exceed the FCC, IC, and European Union guidelines, always follow these instructions and precautions: Orient the device in portrait mode with the Home button at the bottom of the display, or in landscape mode with the cellular antenna away from your body or other objects.” - [Apple iPads](#)

“iPod has been tested and meets applicable limits for radio frequency (RF) exposure. Specific Absorption Rate (SAR) refers to the rate at which the body absorbs RF energy. The SAR limit is 1.6 watts per kilogram in countries that set the limit averaged over 1 gram of tissue and 2.0 watts per kilogram in countries that set the limit averaged over 10 grams of tissue. During testing, iPod radios are set to their highest transmission levels and placed in positions that simulate use near the body, with 5mm separation.

To reduce exposure to RF energy, use the supplied headphones or other similar accessories. Carry iPod at least 5mm away from your body to ensure exposure levels remain at or below the as-tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified.” - [Apple iPod Touch](#)

”To reduce exposure to RF energy, use a handsfree option, such as the built in speakerphone, the supplied headphones, or other similar accessories. Carry iPhone at least 10mm away from your body to ensure exposure levels remain at or below the tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified.” - [Apple iPhone 5](#)

”To reduce exposure to RF energy, use a handsfree option, such as the built in speakerphone, the supplied headphones, or other similar accessories. Carry iPhone at least 5mm away from your body to ensure exposure levels remain at or below the as tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified.” - [Apple iPhone 5S](#)

”To reduce exposure to RF energy, use a hands free option, such as the built-in speakerphone, the supplied headphones, or other similar accessories. Carry iPhone at least 10mm away from your body to ensure exposure levels remain at or below the as tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified.” - [Apple iPhone 4S](#)

"To reduce exposure to RF energy, use a hands free option, such as the built in speakerphone, the supplied headphones, or other similar accessories. Carry iPhone at least 10mm away from your body to ensure exposure levels remain at or below the as tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified."

- [Apple iPhone 4](#)

"To reduce exposure to RF energy, use a hands free option, such as the built-in speakerphone, the supplied headphones, or other similar accessories. Carry iPhone at least 15mm away from your body to ensure exposure levels remain at or below the as tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified."

- [Apple iPhone 3GS](#)

"During testing, Apple Watch radios are set to their highest transmission levels and placed in positions that simulate use against the head, with 10mm separation, and on the wrist, with no separation. When placing Apple Watch near your face, keep at least 10 mm of separation to ensure exposure levels remain at or below the as-tested levels." - [Apple Watch](#)

"Specific Absorption Rate (SAR) refers to the rate at which the body absorbs RF energy. The SAR limit is 1.6 watts per kilogram in countries that set the limit averaged over 1 gram of tissue and 2.0 watts per kilogram in countries that set the limit averaged over 10 grams of tissue. During testing, iPod radios are set to their highest transmission levels and placed in positions that simulate use near the body, with 5mm separation. To reduce exposure to RF energy, use the supplied headphones or other similar accessories. Carry iPod at least 5mm away from your body to ensure exposure levels remain at or below the as-tested levels. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified." - [iPod Touch](#)

"Bodyworn SAR testing has been carried out at a separation distance of 1.0 cm. To meet RF exposure guidelines during bodyworn operation, the device should be positioned at least this distance away from the body. Organizations such as the World Health Organization and the US Food and Drug Administration have suggested that if people are concerned and want to reduce their exposure, they could use a handsfree accessory to keep the wireless device away from the head and body during use, or reduce the amount of time spent using the device." - [Samsung Galaxy Note 3](#)

"Body- worn SAR testing has been carried out at a separation distance of 1.0 cm. To meet RF exposure guidelines during body worn operation, the device should be positioned at least this distance away from the body." - [Samsung Galaxy S5](#)

"Bodyworn SAR testing has been carried out at a separation distance of 1 cm. To meet RF exposure guidelines during bodyworn operation, the device should be positioned at least this distance away from the body. Organizations such as the World Health Organization and the US Food and Drug Administration have suggested that if people are concerned and want to reduce their exposure, they could use a handsfree accessory to keep the wireless device away from the head and body during use, or reduce the amount of time spent using the device." - [Samsung Galaxy S5 Active](#)

"Usage precautions during 3G connection : Keep safe distance from pregnant women's stomach or from lower stomach of teenagers. Body worn operation: Important safety information regarding radiofrequency radiation

(RF) exposure. To ensure compliance with RF exposure guidelines the Notebook PC must be used with a minimum of 20.8 cm antenna separation from the body.” - [Samsung 3G Laptop](#)

“Caution: Exposure to Radiofrequency Radiation: The device shall be used in such a manner that the potential for human contact normal operation is minimized. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.” - Belkin WIFI Router Manual

“In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.” - [HP Printer](#)

“This device meets RF exposure guidelines when used either in the normal use position against the ear or when positioned at least 1.5 cm away from the body. When a carry case, belt clip or holder is used for body worn operation, it should not contain metal and should position the product at least 1.5 cm away from your body.” - [Google Nexus 5](#)

“To ensure that RF exposure levels remain at or below the tested levels, use a belt clip, holster, or similar accessory that maintains a minimum separation distance of 1.0cm between your body and the device, with either the front or back of the device facing towards your body. Such accessories should not contain any metallic components. Body worn accessories that do not meet these specifications may not ensure compliance with applicable SAR limits and their use should be avoided.” - [HTC Desire](#)

“To ensure that RF exposure levels remain at or below the tested levels, use a belt clip, holster, or similar accessory that maintains a minimum separation distance of 1.0 cm between your body and the device, with either the front or back of the device facing towards your body. Such accessories should not contain any metallic components. Body worn accessories that do not meet these specifications may not ensure compliance with applicable SAR limits and their use should be avoided.” - [HTC One M8](#)

“Exposure to Radio Frequency Signal Your wireless handheld portable telephone is a lowpower radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals. In August, 1996, the Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for handheld wireless phones. Those guidelines are consistent with the safety standards previously set by both U.S. and international standards bodies: ANSI C95.1 (1992) * NCRP Report 86 (1986) ICNIRP (1996) Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. Phone Operation NORMAL POSITION: Hold the phone as you would any other telephone with the antenna pointed up and over your shoulder. Safety Guidelines: 119 Tips on Efficient Operation For your phone to operate most efficiently:] Do not touch the antenna unnecessarily when the phone is in use. Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed. Check the laws and regulations on the What steps can I take to reduce my exposure to radiofrequency energy from my wireless phone? If there is a risk from these products - and at this point we do not know that there is - it is probably very small. But if you are concerned about avoiding even potential risks, you can take a few simple steps to minimize your exposure to radiofrequency energy (RF). Since time is a key factor in how much exposure a person receives, reducing the amount of time spent using a wireless phone will reduce RF exposure. If you must conduct extended conversations by wireless phone every day, you could place more distance between your body and the source of the RF, since the exposure level drops off dramatically with distance. For example, you could use a headset and carry the wireless phone away from your body or use a wireless phone connected to a remote

antenna. Again, the scientific data do not demonstrate that wireless phones are harmful. But if you are concerned about the RF exposure from these products, you can use measures like those described above to reduce your RF exposure from wireless phone use.” - [LG Vu Plus](#)

“This device was tested for typical body worn operations with the back of the phone kept 1 cm (0.39 inches) between the user’s body and the back of the phone. To comply with FCC RF exposure requirements, a minimum separation distance of 1 cm (0.39 inches) must be maintained between the user's body and the back of the phone.” - [LG G2](#)

“When a carry case, belt clip or holder is used for body worn operation, it shouldn't contain metal and should position the product at least 1.5 cm away from your body. In order to transmit data files or messages, this device requires a quality connection to the network. In some cases, transmission of data files or messages may be delayed until such a connection is available. Ensure the above separation distance instructions are followed until the transmission is completed.” - [LG G3](#)

“This device meets RF exposure guidelines when used either in the normal use position against the ear or when positioned at least 5/8 inch (1.5 centimeters) away from the body. The specific maximum SAR values can be found in the Certification Information (SAR) section of this user guide. For more info, go to www.sartick.com. When a carry case, belt clip or other form of device holder is used for body worn operation, it should not contain metal and should provide at least the above stated separation distance from the body. Note that mobile devices may be transmitting even if you are not making a voice call.” - [Nokia Lumia Icon](#)

“For bodyworn operation, the phone has been tested when positioned a minimum of 15 mm from the body without any metal parts in the vicinity of the phone or when properly used with an appropriate accessory and worn on the body. For devices which include “WiFi hotspot” functionality, SAR measurements for the device operating in WiFi hotspot mode were taken using a separation distance of 10 mm.” - [Sony Xperia Z2](#)

“Note: Reduce the risk of heat-induced injury or fire by adhering to the following:

- 1) Do not place the computer or AC adapter on a soft surface, such as a bed.
- 2) Do not rest the computer or AC adapter on your lap for extended periods.
- 3) Use the computer on a flat, hard surface, such as a desk.
- 4) Ensure that the ventilation is not obstructed.”

- [Acer C720 Chromebook](#)

“WARNING! Exposure to Radio Frequency Radiation: The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact is minimized during normal operation of tablet PCs and notebook computers.

WARNING! To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface.

During normal operation of notebook computers with displays greater than 30.5 cm (12 inches): To avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antennas should not be less than 20cm (8 inches), including when the computer display is closed. To identify the location of the wireless antennas, refer to the computer user guides included with your computer.” - [HP Chromebook 14 G4](#)

“Do not leave your notebook PC on your lap or near any part of your body to prevent discomfort or injury from heat exposure. Do not place your notebook PC on uneven or unstable work surfaces.”

“To maintain compliance with FCC RF exposure compliance requirements please avoid direct contact to the transmitting antenna during transmitting. End users must follow the specific operating instructions for satisfying RF exposure compliance.” - [ASUS Notebook PC for Chromebook](#)

“Warning, Exposure to Radio Frequency (RF) Radiation: The radiated output of this device is below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized. The end user must avoid any extended human RF exposure directly in front of the device, up to a distance of 20cm, when unit is on.” - [Luxul Wireless Controller System](#)

“United States of America USA and Canada Safety Requirements and Notices

Do not touch or move antenna while the unit is transmitting or receiving.

Do not hold any component containing the radio such that the antenna is very close or touching any exposed parts of the body, especially the face or eyes, while transmitting.

Regardless of the power levels, care should be taken to minimize human contact during normal operation.

This device should be used more than 20 cm (8 inches) from the body when wireless devices are on and transmitting.

FCC Statement for Wireless LAN use:

“While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm² may be exceeded at distances close to the antenna installed. Therefore, the user must maintain a minimum distance of 20cm from the antenna at all times” - [Samsung Chromebook](#)

"The Baby unit shall be installed and used such that parts of the user's body other than the hands are maintained at a distance of approximately 20 cm (8 inches) or more." - [Motorola Baby Monitor MBP33](#)

“CAUTION: The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.” - [HP Laserjet Printer](#)

“Caution: To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm (8 inches) must be maintained between the antenna for the integrated Wireless LAN Mini PCI Express Card built into the screen section and all persons. You are not allowed to disable “sleep mode” for the power management function, if you cannot maintain the sufficient antenna separation (at least 20 cm).” - [Lenovo Computer](#)

“To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.” - [TP LINK Wireless Router](#)

“WARNING: While this device is in operation, a separation distance of at least 20 cm (8 inches) must be maintained between the radiating antenna and users exposed to the transmitter in order to meet the FCC RF exposure guidelines.” - [Verizon Fios Router](#)

“This product complies with FCC radiation exposure limits under the following conditions:

- The base must be placed to allow a minimum of 20 cm (8 inches) between the antenna and all persons during normal operation.” - [Toshiba DECT Phone](#)

“FCC RF Exposure Warning:

To comply with FCC RF exposure requirements, the base unit must be installed and operated 20 cm (8 inches) or more between the product and all person’s body.” - [Panasonic DECT Home Cordless Phone](#)

“To reduce exposure to RF energy, use a hands-free accessory or other similar option to keep this device away from your head and body. Carry this device at least 10 mm away from your body to ensure exposure levels remain at or below the as-tested levels. Choose the belt clips, holsters, or other similar body-worn accessories which do not contain metallic components to support operation in this manner. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified, and use such accessories should be avoided.”

“For body-worn operation, this device has been tested and meets the ICNIRP guidelines and the European Standard EN 62209-2, for use with dedicated accessories. SAR is measured with this device at a separation of 1.5 cm to the body, while transmitting at the highest certified output power level in all frequency bands of this device. Use of other accessories which contain metals may not ensure compliance with ICNIRP exposure guidelines.” - [Asus Phone](#)

“The RF field strength of the wireless device or devices that may be embedded in your notebook are well below all international RF exposure limits as known at this time. Because the wireless devices (which may be embedded into your notebook) emit less energy than is allowed in radio frequency safety standards and recommendations, manufacturer believes these devices are safe for use. Regardless of the power levels, care should be taken to minimize human contact during normal operation. ...As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on and transmitting.”

[The Samsung Chromebook manual](#)

“Usage precautions during 3G connection : Keep safe distance from pregnant women’s stomach or from lower stomach of teenagers. Body worn operation: Important safety information regarding radiofrequency radiation (RF) exposure. To ensure compliance with RF exposure guidelines the Notebook PC must be used with a minimum of 20.8 cm antenna separation from the body.”

[Samsung 3G Laptop Manual](#)

“A cellular antenna is located at the top edge of iPad Wi-Fi + 3G, when oriented with the Home button at the bottom. For optimal mobile device performance and to be sure that human exposure to RF energy does not exceed the FCC, IC, and European Union guidelines, always follow these instructions and precautions: Orient the device in portrait mode with the Home button at the bottom of the display, or in landscape mode with the cellular antenna (located under the black edge at the top of the device) away from your body or other objects.”

[Apple iPad Manual](#)

“Use hands-free operation if it is available and keep the BlackBerry device at least 0.98 in. (25 mm) from your body (including the abdomen of pregnant women and the lower abdomen of teenagers) when the BlackBerry device is turned on and connected to the wireless network.” [Blackberry Bold Manual](#)

Caution: Exposure to Radio Frequency Radiation. The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized. When connecting an external antenna to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

- [Belkin Wi-Fi Router](#)

“To reduce exposure to RF energy, use a hands-free accessory or other similar option to keep this device away from your head and body. Carry this device at least 10 mm away from your body to ensure exposure levels remain at or below the as-tested levels. SAR is measured with this device at a separation of 1.5 cm to the body, while transmitting at the highest certified output power level in all frequency bands of this device. Use of other accessories which contain metals may not ensure compliance with ICNIRP exposure guidelines.” - [Zenphone 2](#)

“Note: Reduce the risk of heat-induced injury or fire by adhering to the Following: 1) Do not place the computer or AC adapter on a soft surface, such as a bed. 2) Do not rest the computer or AC adapter on your lap for extended Periods. 3) Use the computer on a flat, hard surface, such as a desk. 4) Ensure that the ventilation is not obstructed.” - [Acer C720 Laptop](#)

“Use the device only in its normal operating positions. This device meets RF (Radio Frequency) exposure guidelines when used normally. It should not contain metal and you should position the device the above-stated distance from your body. To successfully transmit data files or messages, this device requires a good quality connection to the network. In some cases, transmission of data files or messages may be delayed until such a connection is available. Ensure that the above separation distance instructions are followed until the transmission is completed.” - [HP Products with Wireless Modules](#)

“IMPORTANT NOTE: FCC Compliance statement This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures: • Reorient or relocate the receiving antenna. • Increase the separation between the equipment and receiver. • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. • Consult the dealer or an experienced radio/TV technician for help. IMPORTANT NOTE: FCC Operation Guide This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. IMPORTANT NOTE: FCC Caution Statement Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. IMPORTANT

NOTE: FCC RF exposure statement The antenna(s) used for this device must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. This device is restricted to indoor use only within the 5.15-5.25 GHz band to reduce any potential for harmful interference to co-channel MSS operations. IMPORTANT NOTE: FCC Shielded cable statement This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.” - [Samsung Mobile Media Streaming Device](#)

“This application and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.” - [Samsung Communication Controller for Wireless Devices](#)

“Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz/5 GHz Band, may be present (embedded) in your printer system. The following section is a general overview of considerations while operating a wireless device. ... The power output of the wireless device or devices that may be embedded in your printer is well below the RF exposure limits as known at this time. Because the wireless devices (which may be embedded into your printer) emit less energy than is allowed in radio frequency safety standards and recommendations, manufacturer believes these devices are safe for use. Regardless of the power levels, care should be taken to minimize human contact during normal operation. As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on and transmitting.” - [Samsung Monochrome Laser Printer](#)

“Keep the mobile device and its antenna at least 2.5 centimetres (1 inch) from your body when transmitting. If you have an implantable medical device, such as a pacemaker or defibrillator, consult your doctor before using this mobile device. Persons with implantable medical devices should observe the following precautions: • ALWAYS keep the mobile device more than 20 centimetres (8 inches) from the implantable medical device when the mobile device is turned ON. • DO NOT carry the mobile device in the breast pocket. Small children Keep your mobile device and its accessories away from small children. These products are not toys and may be hazardous to small children.” - [MOTOROLA XOOM](#)

“IC Radiation Exposure Statement This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.”
-[VIZIO SmartCast Crave 360 Speaker](#)

“FCC RF Exposure Information

WARNING! Read this information before operating the wireless device.
In August 1996, the Federal Communications Commission (FCC) of the United States, with its action in Report and Order FCC 96-326, adopted an updated safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both

U.S. and international standards bodies. The design of this wireless device complies with the FCC guidelines and these international standards.

Body-Worn(Wrist) and Next-to-Mouth Operation

This device was tested for typical body worn (Wrist) operations with the back of the device kept 0 inches (0cm) between the user's body (Wrist).

This device was also tested for typical Next to-Mouth (Face) operations with the front of the device kept 0.39 inches (1cm) from the user's mouth (Face). To comply with FCC RF exposure requirements, a minimum separation distance of 0.39 inches (1cm) must be maintained between the user's mouth (Face) and the front of the device. Any accessories containing metallic components may not be used.

- [GizmoGadget and Wristband](#)

"This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body."

- [iHome SmartPlug](#)

RF Radiation Exposure Statement: This equipment complies with FCC's and IC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device (excluding its handset) and users.

- [GPop TRAVEL WIRELESS SPEAKER](#)

"Caution: Exposure to Radio Frequency Radiation The radiated output power of this device is far below the FCC radio frequency exposure limits Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized When connecting an external antenna

to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation."

- [Wireless USB Adapter Belkin](#)

"SAR compliance for body operation is based on a separation distance of 10 mm between the unit and the human body. Carry this device, at least 10 mm away from your body to ensure RF exposure level compliant or lower to the reported level. To support body operation, choose the belt clips or holsters, which do not contain metallic components, to maintain a separation of 10 mm between this and your body." [Pocket Wi-Fi](#)

Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

[-Spike User Manual](#)

“Avoid using the Wi-Fi hotspot in areas that emit electromagnetic waves or in enclosed metallic structures eg lifts (elevators)....The wireless device is designed to be used in close proximity to the body. We declare that the product detailed in this manual, and in combination with our Page 35 of 36 accessories, conform with the essential requirements of The Radio Communications Standard (Electromagnetic Radiation Human Exposure) 2003 and the Australian Communications and Media Authority Section 376 of the Telecommunications Act 1997 when used at a distance of not less than 5mm from the body. The worst case SAR result is published on the manufacturer’s website at zte.com.au/virgin” - [Wi-Fi Hotspot Virgin Mobile](#)

“SAR compliance for body operation is based on a separation distance of 10 mm between the unit and the human body. Carry this device, at least 10 mm away from your body to ensure RF exposure level compliant or lower to the reported level. To support body operation, choose the belt clips or holsters, which do not contain metallic components, to maintain a separation of 10 mm between this and your body.”

- [Sprint Mobile Hotspot](#)

“ This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.” - [Lumex Projector Beam pod Manual_8484](#)

End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The portable device is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set a SAR limit of 1.6 W/kg averaged over one gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the body...” -[Hello Barbie](#)

“This equipment generates, uses and can radiate radio frequency energy...

SAR Information: The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types 7inch tablet-Cubby (FCC ID: XHWCUBBY) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for use on the body is 0.298 W/kg. This device was tested for typical body-worn operations with the back of the handset kept 1.5cm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 0.5cm separation distance between the user’s body and the back of the handset. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.”

[-Sprout Channel Cubby Tablet](#)

Exposure to Radio Frequency Energy: The LEAPFROG™ tablet contains a radio transmitter and receiver that sends and receives radio frequency (RF) energy through its internal antenna. The rate at which RF energy is absorbed by the human body is referred to as the specific absorption rate (SAR). The LEAPFROG tablet complies with SAR absorption requirements for Wi-Fi operation established by the Federal Communications Commission (FCC), Industry Canada (IC), and European Community (EC). This tablet has a FCC ID number: HFS-UYT [Model Number: 31576, 31577] and the specific SAR levels for this tablet can be found at the following FCC website: fcc.gov/oet/ea/ - [LeapFrog Epic Tablet Manual](#)

“When using the device, ensure that the antenna of the device is at least 20 cm away from all persons.”

- [TND™ Tablet 70 User Manual](#)

“RF Exposure Information (SAR) For body-worn operating conditions, the Karma Controller (KWBH1) must be provided with a separation distance of at least 1.0 cm between the device and human body, and must not transmit simultaneously with any other antenna or transmitter. This device has been designed and manufactured to comply with the limits for exposure to RF energy set by the Federal Communications Commission (FCC) of the United States, Industry Canada (IC) and the European Union and other countries.” - [Go Pro Karma](#)

RF Exposure Content

FCC Equipment Authorization ID P46-MXL655

This device is authorized for use in mobile and portable applications. This product has been evaluated for SAR and meets the FCC Guidelines for exposure to radio waves. For better signal reception, coverage range and data throughput, do not place the router near any physical obstruction, including in a pocket or in close proximity of any object. For RF Safety, a mandatory minimum of 10 mm (1 cm) should be maintained between the device and any part of a human body when using the device. Increasing the separation between the device and the body will result in better reception and reduced exposure to radio energy.- [KARMA GO MiFi MXL-655 Online Instructions](#)

“FCC Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.” [Mavic Pro Drone](#)

“This equipment complies with FCC/IC radiation exposure limits set forth for uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated with at least 20 cm (8 in) and more between the radiator and person’s body (excluding extremities: hands, wrists, feet and legs).” - [PlayStation 3](#)

“Radio Frequency (RF) Exposure and SAR:

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. The PS Vita system has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. The maximum SAR level tested for the PS Vita system has been shown to be 0.92 W/kg at 1 cm separation at Body and 1.58 W/kg at Hand.” - [PlayStation Vita](#)

“FCC Information...

Caution: To maintain compliance with the FCC’s RF exposure guidelines, place the product at least 8 inches from nearby persons...

Caution: The radiated output power of the Wi-Fi technology is below the FCC radio frequency exposure limits. Nevertheless, it is advised to use the wireless equipment in such a manner that the potential for human contact during normal operation is minimized.” - [Brookstone Wireless Mobile Projector](#)

“SAR compliance for body operation is based on a separation distance of 15 mm between the unit and the human body. Carry this device at least 15 mm away from your body to ensure RF exposure level compliant or lower to the reported level. To support body-worn operation, choose the belt clips or holsters, which do not 66 67 contain metallic components, to maintain a separation of 15 mm between this and your body. RF exposure compliance with any body-worn accessory, which contains metal, was not tested and certified, and use such body-worn accessory should be avoided...” [AT & T ZTE Spro™ 2 Smart Projector](#).

“To maintain the compliance with the FCC’s RF exposure guideline, place the base station at least 20 cm from nearby people.”

[Simplisafe Home Security Base Station](#)

“Information Regarding Exposure to Radio Frequency Energy... This device should be installed and operated with a minimum distance of 20cm between the radiator and your body. The remote control meets the RF exposure requirement of low power devices under portable operation. Nevertheless, it is advised to use the Products in such a manner that minimizes the potential for human contact during normal operation.” - [Amazon Echo](#)

Amazon Echo Virtual Assistant Safety and Compliance Information

[Amazon Echo \(1st Generation\) Safety & Compliance Information](#)

For Express Mail
7100 N Rachel Way
Unit 6 Eagles Rest
Teton Village WY 83025



For U.S. Mail
P.O. Box 58
Teton Village WY 83025
www.ehtrust.org

[Amazon Echo \(2nd Generation\) Safety & Compliance Information](#)

[Amazon Tap Safety & Compliance Information](#)

[Echo Connect Safety & Compliance Information](#)

[Echo Dot \(1st Generation\) Safety & Compliance Information](#)

[Echo Dot \(2nd Generation\) Safety & Compliance Information](#)

[Echo Plus Safety & Compliance Information](#)

[Echo Show Safety & Compliance Information](#)

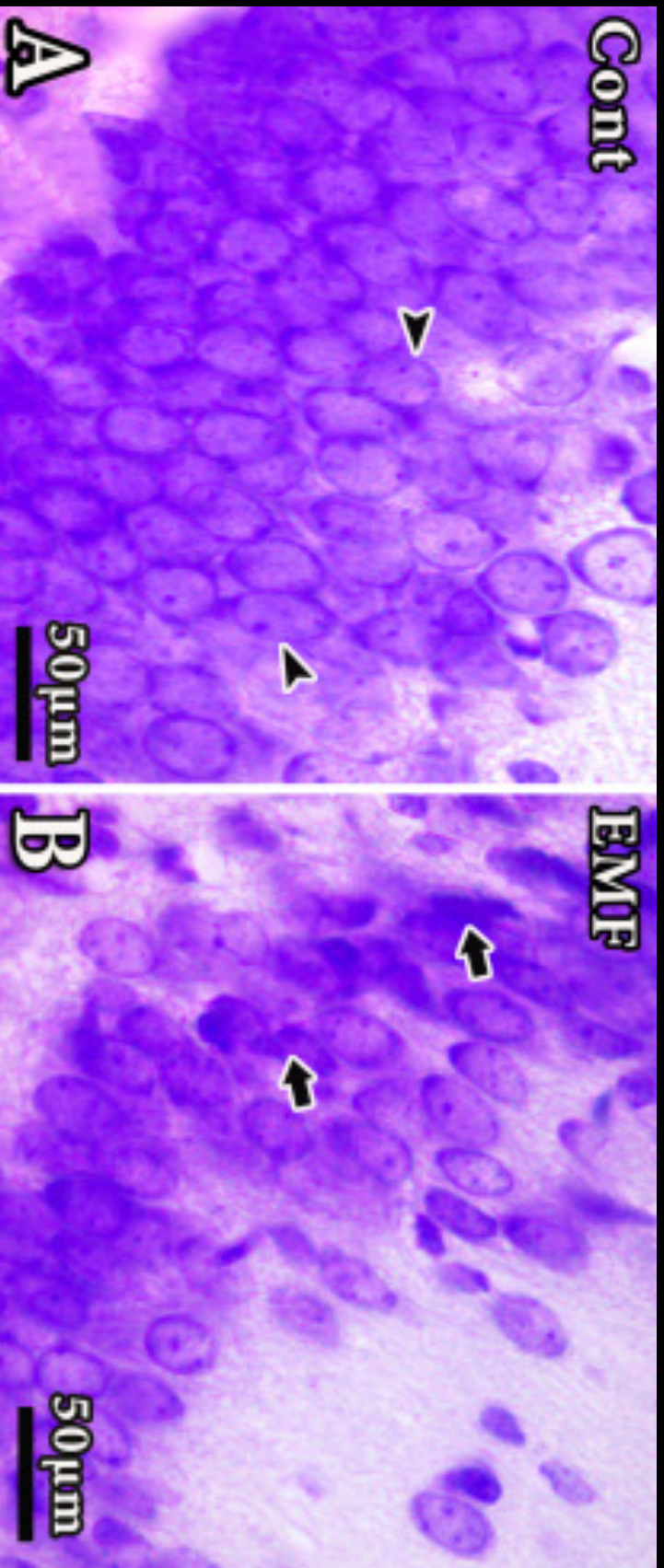
[Echo Spot Safety & Compliance Information](#)

“To satisfy FCC exposure requirements, a separation distance of at least 20 cm should be maintained between the antenna of this device and persons during device operation. Operations at closer than this distance are not recommended.” - [Google Home](#) Virtual Assistant

Prenatal Cell Phone Exposure Leads to Fewer Brain Cells in Offspring

Granular cells are condensed, show downsizing and deterioration

Granular cells show intact shape



Odaci, Bas, & Kaplan (2008) Kaplan and Davis, et al., 2016

Dentate gyrus in the control (A) and EMF (B) exposed group in photomicrographs

France Data on Cell Phone SAR Radiation at Body Contact Positions

Examples of Some Phones That Exceed Regulatory Limits When Tested at Body Contact

Cell Phone		SAR Radiation Measurement Test Results		
make/model	Manufacturer test separation distance	0 mm Distance body contact simulation European test 10 gram average	0 mm Distance body contact simulation Estimated for US FCC test 1 gram average	
Polaroid, PRO 881A	1.050 W/kg at 15 mm	7.42 W/kg	14.84 W/kg	
HTC, ONE SV	0.366 W/kg at 15 mm	7.18 W/kg	14.36 W/kg	
Blackberry Z10	0.934 W/kg at 15 mm	6.80 W/kg	13.60 W/kg	
NOKIA, Lumina 530	0.86 W/kg at 15 mm	6.57 W/kg	13.14 W/kg	
Apple, IPHONE 5	.825 W/kg at 10 mm	5.32 W/kg	10.64 W/kg	

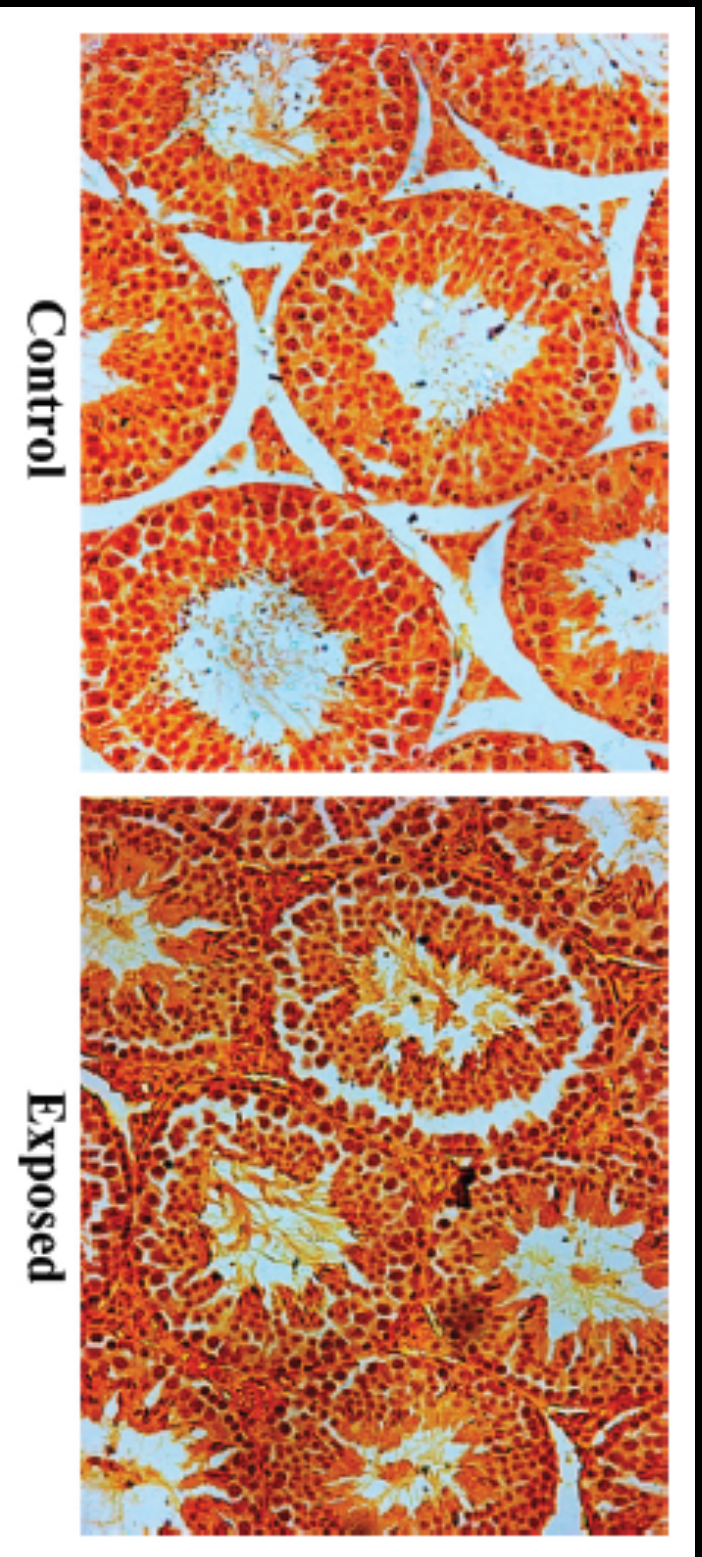
Most of the cell phones tested by France exceeded regulatory SAR limits

Compare cell phone SAR test results with government regulatory SAR limits.

1.6 W/kg
USA SAR
LIMIT

2.0 W/kg
Europe
SAR
LIMIT

Microwave Radiation Impairs Male Reproduction



Shahin et al. 2014

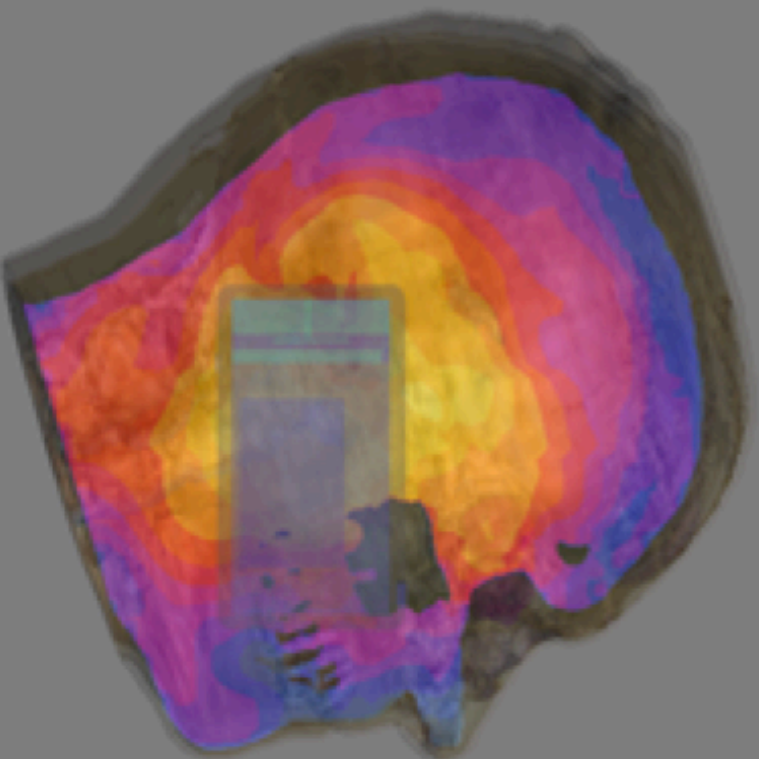
Mice exposed to non-thermal radiation (2.45-GHz 2h/d x 30 d)

↓ Testicular Cell Walls disrupted

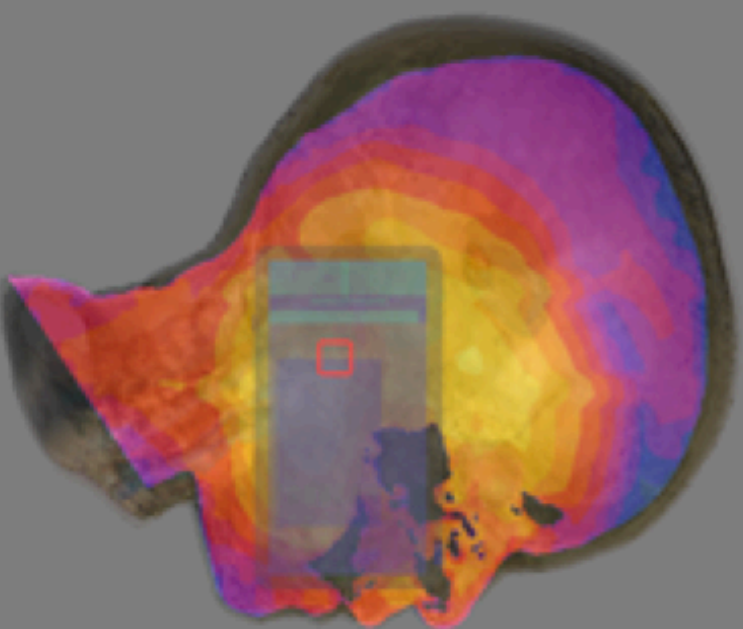
↓ Lowered viable sperm

Exposure to RF is proportionally greater and deeper in a child's brain vs. an adult brain

Adult



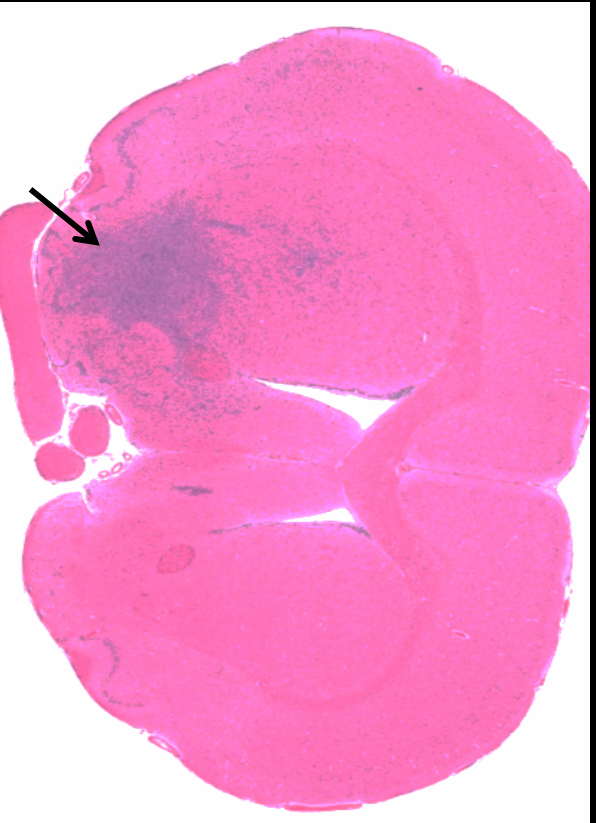
6 Year Old



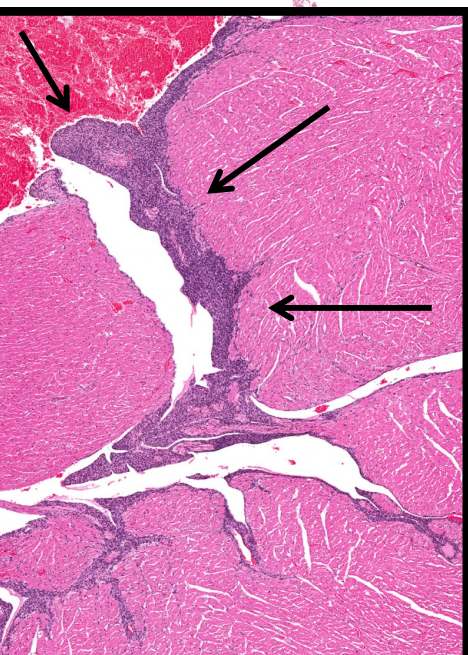
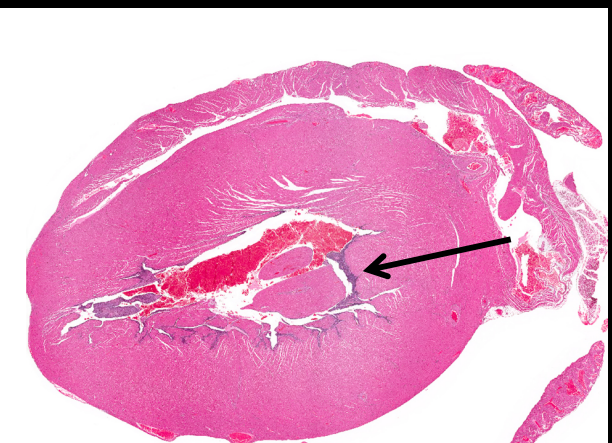
Fernandez, Personal Communication (2017)

Increased Brain and Other Cancers in Major U.S. Government study of cellphone radiation

Increased Gliomas in Brain



Increased Schwannomas



Images from Birnbaum NIEHS Presentation 2017

“These findings appear to support the International Agency for Research on Cancer (IARC) conclusions regarding the possible carcinogenic potential of RFR.”

- National Toxicology Program, June 2016



Maryland State Children's Environmental Health and Protection Advisory Council, 19 Members (pediatricians & public health)

“The Council recommends limiting exposures as much as feasibly practical.”

The Maryland State Department of Education

- “Should consider using wired devices in classrooms”
- “If a new classroom is to be built... network cables can be added at the same time, providing wired network access.”

“The Maryland Department of Health and Mental Hygiene should provide suggestions to the public on ways to reduce exposure.”

California Department of Health Recommendations since 2008

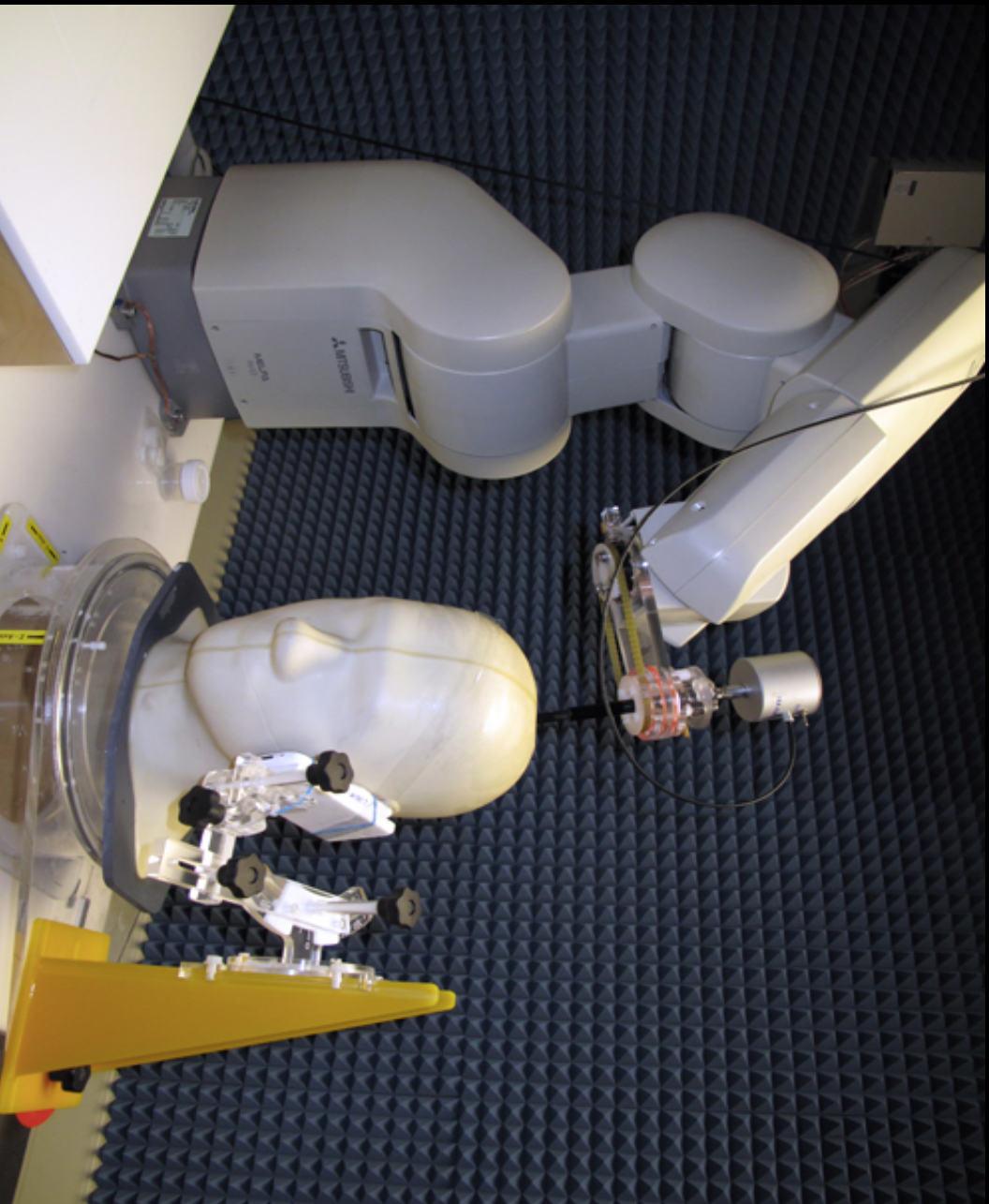
San Francisco & Burlingame, California

Connecticut Department of Health:

Massachusetts: 5 Bills on Electromagnetic Fields

[Maryland State Children's Environmental Health And Protection Advisory Council Recommendations To Reduce Wi-Fi](#)

FCC Standards for Testing Cell Phones Unchanged Since 1996





United States



Massachusetts: 7 Bills on EMF Radiation
ADA Court Case Child with EHS
Ashland Public Schools: Wi-Fi Off devices when not in use.
Worcester Public Schools "How to Reduce RF Exposure" Webpage



Maryland: Council on Children and Environmental Health
Recommendations on Reducing RF in Schools
Recommends Developing Medical Guidelines For Device Use in Classroom



California: Berkeley Cell Phone Right To Know
San Francisco Webpage Reducing Cell Phone Radiation
CA Department of Public Health Cell Phone Advice (Court ordered release)



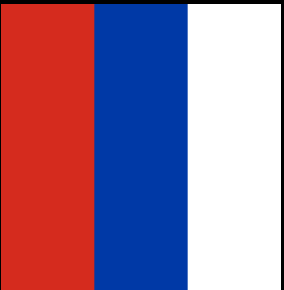
New York: Onteora Public Schools Wi-Fi Off devices when not in use.
NYSTU Teachers Union "Guidelines For Safer Use of Technology"
United Federation of Teachers Resources on How To Reduce Exposure

US Private Schools Removing/Reducing Wi-Fi in Classrooms
Public Schools: Device policies include keeping devices off laps, Wi-Fi OFF

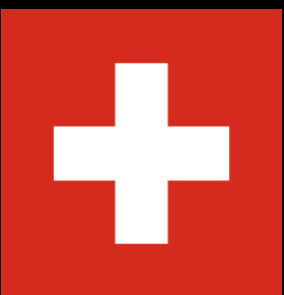
Governments Advise Reducing Cell Phone Radiation



United Kingdom



Russia



Switzerland



Finland



Ireland



Germany



Belgium



Greece



Israel



Turkey



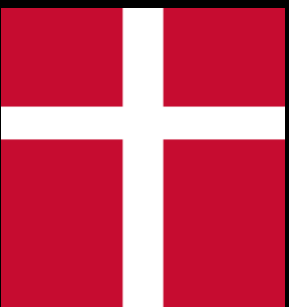
Austria



Singapore



France



Denmark



India



Australia

World Wide Action



France: Cell Phone Radiation Labeling, No advertising to children, Wi-Fi Banned in Kindergarten. Elementary : Wi-Fi off when not in use.



Belgium: **Ban on sale of** cell phones for children. Wi-Fi banned in Chent nursery schools.



Israel: Wi-Fi banned in nurseries. Wi-fi removed/ minimized Haifa schools as of April 2016, Cell phones banned for classwork in schools.



India: Phone Radiation labeling, Recommendations to reduce cell phone exposure, Exposure limits lowered to 1/10 of the ICNIRP level, some municipalities ban towers near schools.



Cyprus: Wi-Fi removed from elementary classrooms in 2017



French Polynesia: Banned advertising cell phones to children under 14. Children should not use phones under 14. Awareness Campaign. And Im going to show you

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Homer Building, Suite 400 N
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Fax: 202/393-6137
E-mail: kids1st@aap.org

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Fayetteville, GA

December 12, 2012

The Honorable Dennis Kucinich
2445 Rayburn House Office Building
Washington, DC 20515

Dear Representative Kucinich:

On behalf of the American Academy of Pediatrics (AAP), a non-profit professional organization of 60,000 primary care pediatricians, pediatric medical subspecialists, and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents, and young adults, I would like to share our support of H.R. 6358, the *Cell Phone Right to Know Act*.

The AAP strongly supports H.R. 6358's emphasis on examining the effects of radiofrequency (RF) energy on vulnerable populations, including children and pregnant women. In addition, we are pleased that the bill would require the consideration of those effects when developing maximum exposure standards. Children are disproportionately affected by environmental exposures, including cell phone radiation. The differences in bone density and the amount of fluid in a child's brain compared to an adult's brain could allow children to absorb greater quantities of RF energy deeper into their brains than adults. It is essential that any new standards for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded through their lifetimes.

In addition, the AAP supports the product labeling requirements in H.R. 6358. These standards will ensure consumers can make informed choices in selecting mobile phone purchases. They will also enable parents to better understand the potential dangers of RF energy exposure and protect their children.

On July 24, the U.S. Government Accountability Office (GAO) published a report on federal cell phone radiation exposure limits and testing requirements. The GAO noted that the Federal Communications Commission's (FCC) most recent data indicates that the number of estimated mobile phone subscribers has grown from approximately 3.5 million in 1989 to approximately 289 million at the end of 2009. Cell phone use behaviors have also changed during that time. The quantity and duration of cell phone calls has increased, as has the amount of time people use mobile phones, while cell phone and wireless technology has undergone substantial changes. Many more people, especially adolescents and young adults, now use cell phones as their only phone line, and they begin using wireless phones at much younger ages.

Despite these dramatic changes in mobile phone technology and behavior, the FCC has not revisited the standard for cell phone radiation exposure since 1996. The current FCC standard for maximum radiation exposure levels is based on the heat emitted by mobile phones. These guidelines specify exposure limits for hand-held wireless devices in terms of the Specific Absorption Rate (SAR), which measures the rate the body absorbs radiofrequency (RF). The current allowable SAR limit is 1.6 watts per kilogram (W/kg), as averaged over one gram of tissue. Although wireless devices sold in the United States must ensure that they do not exceed the maximum allowable SAR limit when operating at the device's highest possible power level, concerns have been raised that long-term RF energy exposure at this level affects the brain and other tissues and may be connected to types of brain cancer, including glioma and meningioma.

In May 2011, the International Agency for Research on Cancer (IARC), the United Nations' World Health Organization's (WHO) agency promoting international cancer research collaboration, classified RF energy as "possibly carcinogenic to humans." In addition, the National Cancer Institute has stated that although studies have not definitively linked RF energy exposure from cell phones to cancer, more research is required to address rapidly changing cell phone technology and use patterns.

This and other research identified by the GAO demonstrates the need for further research on this issue, and makes clear that exposure standards should be reexamined.

The GAO concluded that the current exposure limits may not reflect the latest research on RF energy, and that current mobile phone testing requirements may not identify maximum RF energy exposure. The GAO proposed that the FCC formally reassess its limit and testing requirements to determine whether they are effective. The AAP commends the activities proposed under H.R. 6358, as they would address this research gap and improve consumer knowledge and safety. Establishing an expanded federal research program as the basis for exposure standards will ensure that consumer protections incorporate the latest research. Currently, the National Institute of Health (NIH), the only federal agency the GAO identified as directly funding research on this topic, provided approximately \$35 million from 2001 to 2011. Given this previous funding level, the AAP supports the \$50 million per fiscal year for seven years that H.R. 6358 would authorize.

The AAP appreciates your recognition of the need for new research and standards for mobile phone radiation, and is pleased to support H.R. 6358. For further assistance, please do not hesitate to contact Sonya Clay, Assistant Director, Department of Federal Affairs, at 202-347-8600 or sclay@aap.org.

Sincerely,

A handwritten signature in dark ink, reading "Thomas K. McInerney". The signature is written in a cursive, flowing style.

Thomas K. McInerney, MD, FAAP
President



AAP Headquarters

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August 29, 2013

The Honorable Mignon L. Clyburn
Acting Commissioner
Federal Communications Commission
445 12th Street SW
Washington, DC 20054

The Honorable Dr. Margaret A. Hamburg
Commissioner
U.S. Food and Drug Administration
10903 New Hampshire Avenue
Silver Spring, MD 20993

Dear Acting Chairwoman Clyburn and Commissioner Hamburg:

The American Academy of Pediatrics (AAP), a non-profit professional organization of 60,000 primary care pediatricians, pediatric medical subspecialists, and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents, and young adults appreciates this opportunity to comment on the Proposed Rule "Reassessment of Exposure to Radiofrequency Electromagnetic Fields Limits and Policies" published in the Federal Register on June 4, 2013.

In the past few years, a number of American and international health and scientific bodies have contributed to the debate over cell phone radiation and its possible link to cancer. The International Agency for Research on Cancer (IARC), part of the United Nations' World Health Organization, said in June 2011 that a family of frequencies that includes mobile-phone emissions is "possibly carcinogenic to humans." The National Cancer Institute has stated that although studies have not demonstrated that RF energy from cell phones definitively causes cancer, more research is needed because cell phone technology and cell phone use are changing rapidly. These studies and others clearly demonstrate the need for further research into this area and highlight the importance of reassessing current policy to determine if it is adequately protective of human health.

As radiation standards are reassessed, the AAP urges the FCC to adopt radiation standards that:

- **Protect children's health and well-being.** Children are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation. Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children. It is essential that any new standard for cell phones or other wireless devices be based on

protecting the youngest and most vulnerable populations to ensure they are safeguarded throughout their lifetimes.

- **Reflect current use patterns.** The FCC has not assessed the standard for cell phone radiation since 1996. Approximately 44 million people had mobile phones when the standard was set; today, there are more than 300 million mobile phones in use in the United States. While the prevalence of wireless phones and other devices has skyrocketed, the behaviors around cell phone uses have changed as well. The number of mobile phone calls per day, the length of each call, and the amount of time people use mobile phones has increased, while cell phone and wireless technology has undergone substantial changes. Many children, adolescents and young adults, now use cell phones as their only phone line and they begin using wireless phones at much younger ages. Pregnant women may carry their phones for many hours per day in a pocket that keeps the phone close to their uterus. Children born today will experience a longer period of exposure to radio-frequency fields from cellular phone use than will adults, because they start using cellular phones at earlier ages and will have longer lifetime exposures. FCC regulations should reflect how people are using their phones today.
- **Provide meaningful consumer disclosure.** The FCC has noted that it does not provide consumers with sufficient information about the RF exposure profile of individual phones to allow consumers to make informed purchasing decisions. The current metric of RF exposure available to consumers, the Specific Absorption Rate, is not an accurate predictor of actual exposure. AAP is supportive of FCC developing standards that provide consumers with the information they need to make informed choices in selecting mobile phone purchases, and to help parents to better understand any potential risks for their children. To that end, we support the use of metrics that are specific to the exposure children will experience.

The AAP supports the reassessment of radiation standards for cell phones and other wireless products and the adoption of standards that are protective of children and reflect current use patterns. If you have questions, please contact Clara Filice in the AAP's Washington Office at 202/347-8600.

Sincerely,

A handwritten signature in cursive script that reads "Thomas K. McInerney".

Thomas K. McInerney, MD FAAP
President

TKM/cf

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

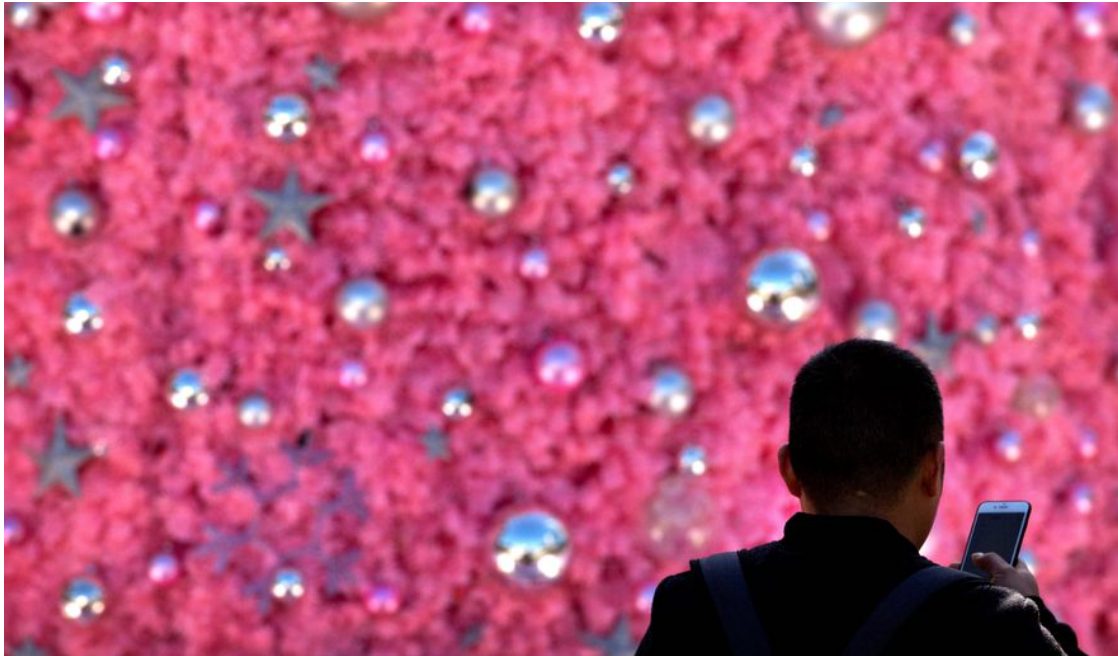


The BabySafe Project
www.BabySafeProject.org
#KnowYourExposure

What's Your
Exposure?
Take the Quiz!



Tips for avoiding cellphone radiation



By Laura Kelly - *The Washington Times* - Tuesday, December 19, 2017

California health officials are offering guidelines on limiting exposure to radiation from cellphones, updating recommendations from a previously secret report that a court order be made public earlier this year.

"This is a response to concerns that have been expressed to us, over and over again, by the general public," California Department of Public Health Director Dr. Karen Smith told the Huffington Post this week. "Our response is, if you have a concern, here are some very practical things you can do."

The recommendations generally advise limiting physical contact with mobile phones, especially for children and young adults. They include background information on the type of radiation cellphones emit and current research on possible health risks.

It's an expanded version of a 2014 draft that the Public Health Department was ordered to publish in March, following a lawsuit to make the guidelines public.

In its defense, the health department denied any conspiracy in keeping the draft private. Instead, it said it didn't want to cause unnecessary panic, noting that national guidelines by the Centers for Disease Control and Prevention at the time emphasized a lack of rigorous scientific data on a connection between cellphones and disease.

"Although the science is still evolving, there are concerns among some public health professionals and members of the public regarding long-term, high use exposure to the energy emitted by cellphones," Dr. Smith said in a statement issued last week alongside the updated report. "We know that simple steps, such as not keeping your phone in your pocket and moving it away from your bed at night, can help reduce exposure for both children and adults."

Cellphones emit radio frequency energy, the same type of radiation found in microwaves, televisions, phone towers, remote controllers, baby monitors and other everyday items.

These low-frequency electromagnetic waves are called "non-ionizing" radiation, which can increase heat. However, the

radiation hadn't been shown to cause cellular damage that can lead to cancer.

Last year, the National Institutes of Health Toxicology Program published preliminary results from a wide-ranging study on the effects of non-ionizing radiation, showing that prolonged exposure on mice and rats increased the risk of developing certain brain and heart tumors.

"There was a hypothesis out that non-ionizing radiation could not cause cancer," said Ronald Melnick, a retired researcher with the National Toxicology Program and a senior adviser to the medical advocacy group Environmental Health Trust.

Dr. Melnick helped lead the design of the Toxicology Program study.

"The animals were exposed and unfortunately we found that the radio frequency radiation did cause tumors so I think that hypothesis has now been disproven," he said.

California's guidelines join a growing body of warnings by health officials and researchers about the unchecked dangers of cellphone radiation, which in addition to cancer are believed to cause infertility, and memory and learning disabilities. Other drawbacks of increased cellphone use are behavioral, with recent research showing that teenagers who spend five or more hours on a smartphone report increased feelings of depression and thoughts of suicide.

Dr. Melnick said that the risk of radiation exposure decreases the farther someone is from the antenna in a cellphone.

"In fact it decreases at the square of the distance — so the exposure intensity, if you double the distance from the antenna, is fourfold lower than holding the antenna closer to the body," he said.

Children and young adults are at an increased risk because not only their bodies and brains are still developing but also their exposure begins at an earlier age than adults.

"Because children will have many more years of exposure, any studies that have been conducted in adults will underestimate that risk to a child who will have much longer years of exposure to radio frequency radiation," Dr. Melnick said.

To decrease the amount of exposure to cellphone radiation, the California Health Department recommends:

- Avoid holding a cellphone to your head; use a headset or speakerphone.
- Send text messages instead of talking on the phone.
- Avoid using a cellphone if it has only one or two bars of service.
- Avoid using a cellphone in a fast-moving car, bus or train because as the phones emit more radio frequency energy to make a connection.
- Don't sleep with a cellphone in your bed or near your head.



 ENVIRONMENTAL
HEALTH TRUST

Protect Yourself. 

CELL PHONES AND BREAST CANCER

Women are developing breast cancer in the exact same place they kept cell phones in their bras, according to an increasing number of medical reports.

Cell phones emit microwave radiation linked to brain cancer and damaged DNA.

Cell phone manuals contain fine print directing users to put some distance between the phone and the body.

Learn how to reduce your exposure. Do not carry your cell phone in your bra.

MORE AT EHTrust.org



DOCTORS' RECOMMENDATIONS

1. PROTECT YOUR BODY

Do not carry cell phones in your pockets or bra. No laptops or tablets on your lap.

2. PROTECT YOUR BRAIN

Prefer a corded landline phone. Hold cell phones away from the head and body by using speakerphone.

3. PROTECT YOUR FERTILITY & YOUR PREGNANCY

No wireless devices near reproductive organs or near a pregnant woman's abdomen.

4. REDUCE WIRELESS

Turn off Wi-Fi and use cords to connect routers, phones, computers and other devices. Airplane Mode ON with Wi-Fi OFF turns off wireless.

5. DO NOT SLEEP WITH YOUR CELL PHONE

Cell phones and Wi-Fi devices are radiating even when not in use. Power off all devices at night, and keep them out of the bedroom.

**Protect
the ones
you love.**♥

 **ENVIRONMENTAL
HEALTH TRUST**



American Academy of Pediatrics Recommends:

REDUCE CELL PHONE AND WIRELESS RADIATION

- Do not hold the cell phone up to your head. Use speaker mode or hands free to limit radiation exposure to the brain.
- Avoid carrying your phone against the body like in a pocket, sock, or bra. Cell phone manufacturers can't guarantee that the amount of radiation you're absorbing will be at a safe level.
- Make only short or essential calls on cell phones.
- If you plan to watch a movie on your device, download it first, then switch to airplane mode while you watch in order to avoid unnecessary radiation exposure.
- Keep an eye on your signal strength (i.e. how many bars you have). The weaker your signal, the harder your phone has to work and the more radiation it gives off.
- Avoid making calls in cars, elevators, trains, and buses. The cell phone works harder (and emits more radiation) to get a signal through metal.
- Remember that cell phones are not toys or teething items.

from AAP's HealthyChildren.org

RESEARCH SHOWS:

Cell phone/Wi-Fi radiation can damage the developing **brain**, **sperm**, and **sleep**. Research indicates **increased cancer risk**, **headaches**, **hyperactivity**, and **memory problems** from cell phone radiation.

All wireless devices emit the same type of radiation as cell phones.

AT HOME:

Easily reduce wireless radiation at home. Get a **corded landline phone** and forward cell phones to it.

100% SAFETY = CORDED ETHERNET CONNECTIONS

Use **non-wireless corded connections** for printers, mouse, computers, laptops, tablets, video game systems, e-readers, routers, keyboards, headphones, speakers, and other accessories—**with all wireless functions off**.

MORE AT **EHTrust.org**

