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Commonwealth of Massachusetts
Submitted To: Joint Committee on Education
24 Beacon St.
Room 111
Boston, MA 02133

Testimony in Strong Support of:

H.2030 An Act relative to best management practices for wireless in schools and public institutions of higher education

S.2079 An Act reducing non-ionizing radiation exposure in schools

Committee Members, Sponsor, Co-Sponsors, MA Department of Public Health, MA Department of Elementary and Secondary Education, MA Attorney General's Office and Governor Baker's Office:

Dear Honorable Legislators,

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 *H.2030 An Act relative to best management practices for wireless in schools and public institutions of higher education* and *S.2079 An Act reducing non-ionizing radiation exposure in schools*. For the past decade EHT has provided state of the art briefings 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.

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. EHT was founded in 2007 to provide basic research and education about environmental health hazards. Our scientific team is currently focusing on evaluating the health risks of radiofrequency radiation as an important public health issue, publishing peer-reviewed papers on this topic and advising local, state and national governments around the globe.

Children are most vulnerable to wireless radiation exposure, which is a rapidly growing widespread environmental exposure in schools nationwide. Students are now using cell phones, wireless laptops and tablets for educational use in classrooms unaware of the health and safety risks these wireless devices

pose. School administrators need to be informed of safe technological alternatives available for internet connectivity in classrooms.

We cannot ignore evidence of health risks that can impact our children's long-term future, when these risks are preventable. Enacting policy to create best practices and reduce children's wireless radiation exposure in schools is critically needed in order to protect their health, well-being and future.

In light of the growing experimental literature on electromagnetic fields (EMFs) and health, this letter provides an update of the recent policy advances protecting children and important new science that underlies this topic.

US and Worldwide Protective Policy and Legislation

In classrooms, students, teachers and staff are exposed to increasing levels of radiofrequency radiation due to the increasing educational and personal use of wireless devices such as cell phones, laptops, tablets and virtual reality goggles. Most recently, the Maryland State Children's Environmental Health and Protection Advisory Council (CEHPAC), a group of pediatricians, government representatives and environmental health experts, has issued a [Report](#) advising the Department of Education to recommend local school districts reduce classroom wireless radiation exposures as low as possible by providing wired—rather than wireless—internet connections. These recommendations are the first recommendations on radiofrequency by a state body to be issued in the United States. Read the full press release [here](#).

In addition to CEHPAC, several US policy initiatives and expert recommendations in the United States support reducing radiofrequency exposure to protect children. For example, the Connecticut Department of Health [issued specific recommendations to reduce exposure](#) stating, "It is wise to reduce your exposure to radiofrequency energy from cell phones whenever possible." Students are using cell phones to do research in class and they carry the devices around in pockets close to their bodies, unaware that this practice allows radiation absorption that surpasses our government limits—as documented by the release of [radiation measurements](#) by the French government in June 2017. Berkeley California passed a [Cell Phone Right To Know Ordinance](#) that informs users about the fine print FCC separation distances for cell phones.

In 2014, the US Collaborative for High Performance Schools (CHPS) developed [Best Practices for Low EMF classrooms](#) that details how schools can reduce electromagnetic exposures by replacing wireless networks with wired networks and replacing cordless phones with wired phones. In September 2016, the New Jersey Educational Review published an article entitled, "Minimize health risks from electronic devices" reiterating the CHPS criteria and adding additional measures including, "Hard wire all fixed devices such as printers, projectors and boards." [Read the article on the NJEA Review here](#).

Worldwide, over a dozen [governments](#), [medical organizations](#) and [physicians](#) recommend reducing radiofrequency radiation to children, and many countries are directly addressing school exposures. For

example, Cyprus has [removed Wi-Fi](#) from elementary classrooms and has a strong public awareness [campaign](#) educating parents. [France](#) has banned advertising cell phones to children and also has banned Wi-Fi in kindergarten. In French schools, Wi-Fi is turned OFF as the default setting. Belgium has banned cell phones for young children. Haifa, Israel has installed corded connections in all schools, and the country of Israel officially recommends wired connections in schools and does not permit the use of cellphones by students or teachers in schools..

This month, the Child and Youth Service of the Department of Public Instruction of Geneva, Switzerland issued [a letter on the health risks of digital technology](#) to be transmitted to all teachers at the start of the school year. Please note that Switzerland is the home of the World Health Organization and that nation has some of the world's more advanced policies on wireless devices. The official letter details how screens can affect sleep and eyesight, and the development of diseases such as type 2 diabetes, cardiovascular disease and obesity. The letter includes the recommendations of the Switzerland Office for Public Health to "Only switch your WLAN on when you need it. With laptops, in particular, it is a good idea to switch the WLAN off as otherwise the device will repeatedly try to connect to a network, leading to unnecessary radiation and a shorter battery life" and "Don't hold your laptop close to your body while it is connected to a WLAN."

In the United States and around the world, a growing number of [public and private schools](#) are removing the wireless. Please see the Appendix of this letter for a full list of these International Policy Actions.

Such examples show how solutions are available to schools to reduce children's radiofrequency exposure and still allow for internet connectivity.

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 radiofrequency radiation limits and inform consumers about cellular radiation. The AAP [recommends](#) that parents that exposure to children be reduced and has issued ten strategies to reduce families' exposures. The AAP is only one of many medical organizations recommending reducing exposures;, and we invite you to review the breadth of medical expert opinion [worldwide](#).

Scientific Recommendations

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.

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

Children and Pregnant Women are More Vulnerable

Addressing wireless exposures in the school setting is important to address children's cumulative exposures to wireless radiation. Research has shown that children absorb proportionately more radiation than adults and that they 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.

It is scientifically accepted that children are more vulnerable to the biological effects of radiofrequency radiation exposure than adults due to their rapidly developing body systems. Even small exposures during pregnancy and childhood development can have large, long-lasting effects. A Yale Medicine [study](#) found significant behavioral changes in the offspring of mice exposed to cell phone radiation during pregnancy: increased hyperactivity, lower memory scores and abnormal development of neurons in the part of the brain linked to ADHD. [Several](#) other experimental studies have found that *in utero* cell phone exposure leads to damaged brain development in mice and rats. [Research](#) shows that stem cells, which are active in children, are also highly sensitive to radiofrequency radiation exposure.

Yale University Chairman of Obstetrics/Gynecology Hugh Taylor, PhD, MPH, and more than 150 physicians, educators and health professionals have signed onto the [BabySafe Project](#) Statement, which urges pregnant women to reduce wireless exposures. The BabySafe Project [was recently recognized by the EPA](#) and has created educational materials for health professionals and pregnant women in order to promote awareness of the need to reduce exposures to emissions from cell phones and other sources of wireless radiation.

[Peer-reviewed research](#) has demonstrated a myriad of adverse biological effects from [wireless radiation](#) including reproductive damage, DNA breaks, creation of reactive oxygen species, immune dysfunction, stress protein synthesis in the brain, altered brain development, sleep disturbances, cognitive changes, behavioral issues and brain tumors. These effects have occurred at wireless radiation exposure levels hundreds to thousands of times lower than presently legal international limits. School children can be exposed to equivalent radiation levels when they use devices in the classroom. Since all wireless devices are in the microwave radiation segment of the [electromagnetic spectrum](#), this issue applies not to just cell phones, but all of today's devices emitting wireless radiation: tablets, wireless mice and printers, wearables, virtual reality goggles, routers, access points and more.

Recent Research on Cancer and Electromagnetic Fields

Since the [World Health Organization's International Agency for the Research on Cancer](#) classified radiofrequency radiation as a Class 2B possible carcinogen in 2011, the peer-reviewed scientific evidence linking radiofrequency electromagnetic fields to cancer has significantly increased.

A peer-reviewed [report from the National Toxicology Program \(NTP\)](#) on the largest animal study ever conducted on cell phone radiofrequency radiation and cancer was released in May 2016. Researchers report that radiofrequency-exposed male rats had statistically significant increased numbers of very rare tumors: malignant gliomas and schwannomas of the heart. These findings provide consistency with epidemiological reports of increases in gliomas (brain tumors) and acoustic neuromas (schwann cell tumors) among humans exposed to cell phone radiation. The cells that become cancerous in the rats were the same types of cells as those that have been reported to develop into tumors in human epidemiological studies. In addition to increased cancers, the NTP study also reported lower birth weights and [evidence of genotoxicity](#).

The Italian Ramazzini Institute, that nation's top toxicology research organization, is also engaged in similar research. Their current radiofrequency study involving over 2,000 rats employed radiation exposures that were 1,000 times less than the NTP exposures. The exposure levels were set to mimic cell tower radiation exposure levels rather than cell phone to the body exposures. The full results have not been released as the pathology review for cancer data is still in process and is due to be out by the end of 2017. However, partial findings of statistically significant low litter weights [were released](#) at the February 2017 expert forum on Wireless and Health at the Israel Institute for Advanced Study, Hebrew University of Jerusalem by Dr. Fiorella Belpoggi. This is critically important information because the NTP study also released similar findings of [effects on](#) weight in 2013, several years before the final findings of cancer were released in 2016. Findings of effects at such low levels is indication of the capability of low-level electromagnetic radiation exposure to result in biological effects.

A newly published [report](#) in the *American Journal of Epidemiology* (a re-analysis of the Canadian part of the 12 nation [INTERPHONE](#) study of brain cancer and cell phone risk) found that Canadians who have used cell phones for 558 hours or more had more than a doubled risk of the disease. Previous re-analysis of INTERPHONE data has found that those who used phones the longest and most frequently had the greatest significant risks of brain cancer ([Turner et al. 2016](#)) and a statistically significant association between the intracranial distribution of gliomas and the self-reported location of the phone ([Grell et al. 2016](#)). A [French national study](#) ([Coureau et al., 2014](#)) also linked higher cell phone exposure to increased glioma. In [2015 an animal study](#) was published replicating a 2010 [experiment](#) that found weak cell phone signals can promote the growth of tumors in mice.

A [2017 review](#) published by Hardell and Carlberg concludes that "RF radiation should be regarded as a human carcinogen causing glioma."

Cancer Is One of Many Health Concerns

Cancer is not the only health concern that radiation from wireless devices presents. Impacts on reproduction and brain development have also been repeatedly reported in the peer-reviewed literature. Epidemiological studies *in vitro* (cells) in laboratories and *in vivo* (animals) show that radiofrequency exposure at non-thermal levels and from using cell phones in common ways is associated with reduced sperm count, motility, and concentration, DNA damage, and altered cell structure. Several recently published research reviews document this body of research ([Adams et al., 2014](#); [Merhi, 2012](#); [Vignera et al., 2012](#); [Gye and Park, 2012](#); [Houston et al., 2016](#)).

Experimental research shows chronic exposure to wireless radiation reduces brain cells and causes brain cell death in the memory and learning centers of the brain ([Deniz et al., 2017](#); [Odaci, Bas and Kaplan, 2008](#); [Sonmez et al., 2010](#)). Cell phone radiation has also been shown to alter brain activity in humans ([Volkow et al., 2011](#)). In 2011, NIH research found just 50 minutes of a wireless transmitting device (cell phone) next to the brain increases glucose in the part of the brain most exposed. Preliminary [3G](#) and [4G](#) research has further shown that non-thermal levels of this radiation alter the brain's electrical activity.

To learn more about the health risks posed by wireless transmitting devices and read the peer-reviewed scientific studies please go to our [website page on Scientific Research](#). [Grassroots Environmental Education](#) and [Joel Moskowitz](#) also have amassed relevant studies.

FCC Human Exposure Limits Do Not Protect The Public

Current FCC federal exposure limits for radiofrequency 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 [US 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 radiofrequency 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 US government's reports on cell phone and wireless radiation on our webpages [“EPA Reports on EMFs”](#) and [“US 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.

Legislation Addressing Children's School Exposure Will Have Financial Benefits and Could Minimize Financial Risk To the State

Preventative measures are cost-effective. Reducing exposure now will reduce cumulative exposures, help mitigate risk and result in decreased health costs for the state. An economic review of the history of lead and asbestos in our country confirms the case for investing in human health and prevention rather than paying for the consequences of inaction.

In addition, because the health issues associated with wireless devices have resulted in numerous lawsuits, reducing exposure now can help avoid future lawsuits. In addition to the high-profile [lawsuits alleging brain cancer from cell phones](#), there is litigation involving school wireless exposures. For example, in Massachusetts a [lawsuit accuses the Fay School](#) of failing to accommodate a student's wireless radiation sensitivity, and in Rhode Island [a school teacher was fired](#) amidst raising health concerns about classroom wireless exposures. We anticipate numerous additional cases to be filed regarding wireless exposures and health, most of which could be avoided by eliminating and reducing exposures now.

Regarding financial risks from the liability from health risks from radiofrequency electromagnetic radiation, a number of corporations advise their shareholders that they face serious financial risks related to the electromagnetic radiation emitted from their products. For example, [Verizon Communications 2016 10-K ANNUAL REPORT](#) states;

"...our wireless business also faces personal injury and consumer class action lawsuits relating to alleged health effects of wireless phones or radio frequency transmitters, and class action lawsuits that challenge marketing practices and disclosures relating to alleged adverse health effects of handheld wireless phones. We may incur significant expenses in defending these lawsuits. In addition, we may be required to pay significant awards or settlements."

Most wireless companies—from [AT&T](#) to [Nokia](#) to [T Mobile](#)—have issued [similar warnings](#) to their shareholders. [Insurance industry reports](#) classify electromagnetic field exposure as "high risk" and in response most insurance companies have "[electromagnetic field exclusions](#)." In these [insurance coverage documents](#), EMFs are classified as a "pollutant" alongside smoke, chemicals and asbestos. Legislation that ensures due diligence in regards to wireless radiation exposures in classrooms with the development of best practices and legislation that reduces wireless radiation exposures helps protect the state from these financial liabilities.

As it has done on passive tobacco smoke and air bags for cars, Massachusetts now has an incredible opportunity to lead the nation in creating solutions for safe technology in classrooms. Environmental Health Trust advisors stand ready to answer any questions and provide additional information.

Sincerely,



Devra Davis, PhD, MPH
President and Founder, Environmental Health Trust
Visiting Professor, Hebrew University Hadassah Medical Center
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Appendix I: Recent Research Studies on Radiofrequency Radiation and Electromagnetic Fields

Appendix II: US Legislation & Policy

Appendix III: Schools That are Reducing RF to Children

Appendix IV: Medical Organizations Recommending Reducing RF Radiation

Appendix V: International Policy on Cell Phones and Radiofrequency Radiation

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

Appendix VII: Insurance Industry EMF Exclusions and Reports on Wireless and Health

Appendix VIII: Wireless Company Statements on Risk in Annual Reports

Appendix I: Recent Research Studies on Radiofrequency Radiation and Electromagnetic Fields

Glioma Epidemiology

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3. Prasad, M., et al. [“Mobile phone use and risk of brain tumours: a systematic review of association between study quality, source of funding, and research outcomes.”](#) *Neurological Sciences*, 2017.
4. 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.
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Absorbed Exposures to Anatomical Regions of the Brain and Increased Brain Cancer Incidence Rates

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Schwann Cell Cancers

1. Moon et al. [“Association between vestibular schwannomas and mobile phone use.”](#) Tumour Biology, vol. 35, no. 1, 2014, pp. 581-7 .
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Thyroid Cancer

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Cancer and Cancer Promotion - Epidemiology

1. 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.
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[Radiofrequency Electromagnetic Fields." IARC Monographs on the Evaluation of Carcinogenic Risks to Humans/World Health Organization, International Agency for Research on Cancer](#) vol. 102, 2013.

Breast Cancer Case Series Report

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Neurodevelopment and Neurological

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7. Morris, Robert D., Lloyd L. Morgan, and Devra L. Davis. ["Children Absorb Higher Doses of Radio Frequency Electromagnetic Radiation From Mobile Phones Than Adults."](#) *IEEE Access*, vol. 3, 2015, pp. 2379-87.

8. Verloock, Leen, et al. "[Assessment of Radio Frequency Exposures in Schools, Homes, and Public Places in Belgium.](#)" *Health Physics*, vol. 107, no. 6, 2014, pp. 503-13.

Appendix II: US Legislation & Policy

May 12, 2015 - Berkeley, California Adopted the Cell Phone “Right to Know” Ordinance on a Unanimous Vote. Berkeley is the first city in the nation to require cell phone retailers to provide those who purchase a new phone an informational fact sheet which informs buyers to read the user manual to learn the cell phone’s minimum separation distance from the body. The text states:

"The City of Berkeley requires that you be provided the following notice: To assure safety, the Federal Government requires that cell phones meet radio frequency (RF) exposure guidelines. 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. Refer to the instructions in your phone or user manual for information about how to use your phone safely."

- ["Right to Know" Ordinance](#) Dr. Moskowitz blog on the Ordinance
- [Berkeley's Right To Know Ordinance](#): Environmental Health Trust's Page on the Ordinance
- [Video of the historic vote](#) featuring Harvard Law professor Lawrence Lessig.
- [Video of testimony to Berkeley](#) from November 8, 2011 on the need for cell phone guidelines.
- [Video of the September 2016 Federal Appeals Court Hearing oral arguments CTIA vs. Berkeley as the CTIA tries to strike down the Ordinance.](#) -- This the hearing considering whether to overturn the district court's decision that denied the CTIA's request for an injunction to block Berkeley's cellphone ordinance.

NEWS RESOURCES

- [March 2017 video of CBC's coverage of the Berkeley Ordinance](#) with an investigation finding cell phones tested against the body violate current safety standards.
- [News One: Video on Ordinance](#)

2014 - Wireless Router Labeling in all Suffolk, NY Public buildings: Legislation requires all county buildings to post notices that wireless routers are in use such as, "Notice: Wireless technology in use." The resolution, sponsored by Legis. William Spencer (a physician), warns that every wireless device emits radio frequency radiation or microwave radiation. It notes that studies "that have looked at the effects of low-level RFR radiation on human cells and DNA have been inconclusive."

- ["Press Release: Suffolk County Passes Legislation to Warn Visitors of Wireless Radiation Exposure"](#)
- Newsday News Article - ["Wireless routers to get warning signs at Suffolk county buildings"](#)

2011 - A Passed Ordinance by the City of San Francisco, California required cell phone retailers to distribute an educational sheet: Educational sheet created by the San Francisco Department of Environment that explains radiofrequency emissions from cell phones and details how consumers can minimize their exposure. However implementation was blocked after a [three year court battle. The CTIA sued the city](#) and settled with the City to block implementation of the Ordinance in exchange for a waiver of attorney's fees.

- Although implementation was halted, the [City Cell Phone Radiation Webpage](#) remains online.
- [Open Letter to San Francisco Mayor and Board of Supervisors](#)

- Press Release: "[San Francisco's Cell Phone Fact Sheet is Factual](#)"
- [Video from testimony to the City of San Francisco](#)
- [Video of San Francisco Supervisor discussing the Ordinance here.](#)
- [Press conference with survivors speaking on cellphone health risks](#) at the San Francisco Commonwealth Club. Cellphone cancer victims tell their personal stories and those of their lost loved ones.
- San Francisco developed the following public health information resources:
- City Webpage - "[Cellphones](#)"
- Answers on [How to reduce exposures](#) to cell phone radiation.
- A [Poster](#) on Cell Phones and RF Radiation
- A [Factsheet](#) for the Public
- [Display stickers](#) for Cell Phone packaging.

2017 - Maryland State Children's Environmental Health And Protection Advisory Council Recommendations For Wired Internet In Schools and Minimizing RF Classrooms:

- [The Maryland State Children's Environmental Health and Protection Advisory Council](#) (CEHPAC) issued a Report advising the Department of Education to recommend local school districts reduce classroom wireless radiation exposures by providing wired—rather than wireless—internet connections.
- The Children's Environmental Health and Protection Advisory Council recommendations:
- "The Maryland State Department of Education should recommend that local school systems consider using wired devices" "WiFi can be turned off" and instead "a wired local area network (LAN) can provide a reliable and secure form of networking...without any microwave electromagnetic field exposure."
- "New school construction and renovations to include wired cabled connections: "If a new classroom is to be built, or electrical work is to be carried out in an existing classroom, network cables can be added at the same time, providing wired (not wireless) network access with minimal extra cost and time."
- "The Maryland State Department of Education should recommend that local school systems use strategies to minimize exposures: "Have children place devices on desks to serve as barrier between the device and children's bodies; Locate laptops in the classroom in a way that keeps pupil heads as far away from the laptop screens (where the antennas are) as practicable; Consider using screens designed to reduce eyestrain; Consider using a switch to shut down the router when it is not in use."
- "The Maryland Department of Health and Mental Hygiene should provide suggestions to the public on ways to reduce exposure: Sit away from WiFi routers, especially when people are using it to access the internet. Turn off the wireless on your laptop when you are not using it. Turn off WiFi on smartphones and tablets when not surfing the web. Switch tablets to airplane mode to play games or watch videos stored on the device."
- "The General Assembly should consider funding education and research on electromagnetic radiation and health as schools add WiFi to classrooms."
- The Maryland Department of Health and Mental Hygiene should "ask the United States Department of Health and Human Services to formally petition the FCC to revisit the exposure limit to ensure it is protective of children's health and that it relies on current science."

- “The Report should be shared with the United States Department of Health and Human Services, Federal Communications Commission, Maryland State Department of Education and Maryland General Assembly.”
- CEHPAC’s health experts include Governor appointed pediatricians, Maryland State House/Senate appointees and representatives of the Department of Education and Department of Health.

LINKS

- [Wifi Radiation in Schools in Maryland Final Report](#)
- [Letters from Physicians CEHPAC’s Public Comments](#)
- [Testimony to the Maryland State Children’s Environmental Health and Protection Advisory](#)
- [Baltimore Sun article by Devra Davis on the Report Recommendations](#)
- [Baltimore Sun response by Dr. Cindy Russell](#)
- Public News Service article on CEHPAC Recommendations
- [Green Gazette Article on CEHPAC Recommendations](#)

2017 - Montgomery County, Maryland Chromebook Policy states that laptops should stay on tables and not on laps.

- [Montgomery County Maryland ChromeBook Guidelines for students.](#)

2017 - Worcester, Massachusetts, School Committee voted to approve “precautionary options” to be posted on the Worcester District Website

[Read the Document entitled “Radiofrequency Radiation Exposure” now posted on Worcester’s School District’s website.](#)

“It is the Administration’s view that existing government regulating agencies should be setting proper exposure levels and offering best practices, such as the EPA and FCC”.

“Based on the guidance from these agencies, the Administration proposes the following:

If you are concerned about radiation or heat from electronic devices, follow these guidelines:

- Consider increasing the distance between electronic devices and your body
- Consider keeping your cellphone, tablet, or laptop in your purse, backpack, or briefcase case instead of keeping it on or close to your body
- If talking on a cellphone, consider using speakerphone or a hands free headset or reduce the number or length of calls
- When not using wireless or Bluetooth, consider shutting off these services on the device or put the device in Airplane mode
- Consider not placing the device directly on your lap. Instead consider placing it on a hard surface such as a desk or bo

Note: This initiative was supported by a local community organization called Worcester Info Team for Health whose Mission Statement was “... to support Worcester decision makers and others in learning about and mitigating the public health risks posed by the rapid roll-out of wireless devices and infrastructure, emphasizing the Precautionary Principle and seeking collaboration on creative solutions.”

[Watch video testimony with excerpts from Worcester School Committee deliberations and vote here.](#)

News Articles about the Worcester School Committees Actions on Wi-Fi

- [“The Education Beat: Cell phones: protecting yourself and your children”](#) Worcester Magazine May 18, 20

- [“Worcester school board hesitant but curious about possible WiFi health risk”](#) Telegram.com October 2016
- [Monfredo: How Safe are the Electromagnetic Fields Emitted by Wireless Technology?](#) Go Local Worcester, September 3, 2016

2016 - Petaluma Public Schools, California, USA: Public school district adopts “Digital Device Practices”

- [Digital Device Practices PDF](#)
- Parents raised the issue of wireless health risks with the district for years and this new policy was put in place in 2016. However- as this policy still does not protect the students health as wireless is still radiating from access points. Parents continue to advocate for a safe school environment and signed a petition which can be found at <http://responsibleipad.com/petition.html>
- The Petaluma 2016 iPad Practices state: “Keep it on the Desk: The best place for your iPad to sit during use is on a desk, table or other flat surface.”
- [Videos of Parent Testimony to District](#)
- [Child Testimony](#)
- [Doctors Letters to District](#)

2016 - Onteora School District in New York State Adopts “Best Practices with Wi-Fi”

- [April 20, 2016 Meeting Minutes Page 2.](#)
- “Turn off the device when not in use and at the end of each day. If device is to stay on, turn Wi-Fi off when not in use. Always place device on a solid surface. Viewing distance should be a minimum of 12 inches from the screen. Staff was asked by the Principals to post this in areas that contain computers and devices. They are reminding staff to follow it.”

2015 - Ashland Public Schools, Massachusetts Institutes “Best Practices”

- Ashland was the first US school District to institute "Best Practices" to turn the Wi-Fi off when not in use and keep devices away from the body
- [Download powerpoint slides](#) used for teacher/staff training.
- [Video of parent who initiated this](#), [Video of school board member](#) discussing the process.
- [Magazine article on Ashland’s Decision Here](#), [Newspaper Coverage](#)
- [TV Program of parent advocate CeCe Doucette and Keith Marciniak discussing the policy changes.](#)

Los Angeles, California Public Schools Recommends Cautionary Exposure Levels

- [RADIOFREQUENCY \(RF\) EVALUATION REPORT Use of Wireless Devices in Educational Settings](#)
- The LA School District Uses a RF-EMF Exposure Threshold 10,000 Less Than the FCC Limits:
- [2009 adopted resolution](#) - LA School board wrote a resolution banning cell towers from schools and recommending against WiFi.
- [2009 Resolution Condemning Cell towers NEAR Schools as was this T-Mobile Cell Tower across the street from an elementary school.](#)
[Motion by Supervisors Zev Yaroslavsky and Michael Antonovich](#)

- [2000 LA School Board Resolution Opposing Cell Tower Placement on Schools](#) -- Calls for precautions with wireless. 'Whereas, Recent studies suggest there is evidence that radio-frequency radiation may produce "health effects" at "very low field" intensities'

Note: **Digital Device "Best Practices"** that still allow Wi-Fi access points in classrooms *still allow* radiofrequency radiation exposures to the children and such practices are not adequately protective to children. These District actions seem to be *acknowledgment that wireless device expose the body to radiation*. However, such "Best Practices" still allow access points to be powered on and thus are always exposing the students and staff to continuous microwave radiation regardless of the devices being in use or not. In addition, devices are also continuously transmitting during student use of the internet and no procedure is in place to ensure that Best Practices are followed so that the transmissions are turned off when the internet is not needed. Therefore these "Best Practices" *do not* mitigate the risk nor protect students from School District created wireless exposures.

HEALTH ADVICE TO THE PUBLIC

2017 - California Department of Public Health releases Cell Phone and Health Document.

- The California document recommends people keep the phone away from the brain and body especially for children stating, "EMFs can pass deeper into a child's brain than an adult's. Also, the brain is still developing through the teen years, which may make children and teens more sensitive to EMF exposures."
- [California Department of Health Cell Phone and Health 2017 Released Document](#)
- [Guidelines were drafted starting in 2009](#) . Please [read the 27 Versions of the cell phone radiation safety fact sheet](#) prepared by the California Department of Public Health (CDPH) initially in 2009 and revised multiple times through January, 2015 released by the California Attorney General's Office to Joel M. Moskowitz, Ph.D. of the School of Public Health University of California, Berkeley who sued the CDPH for the release of these guidelines. Dr. Moskowitz states that California State has never adopted this fact sheet nor released it to the public due to what Dr. Moskowitz refers to as suppression by "political appointees".
- [SUPERIOR COURT OF CALIFORNIA COUNTY OF SACRAMENTO RULING on Petition](#)
- [Dr. Moskowitz webpage detailing the release and court case.](#)
- [Read Press Release California Department Of Health Releases Cell Phone Warning Same As Issued A Decade Ago](#)
- San Francisco Chronicle News Article - [Long-overdue release of information about cell phone risks](#)
- San Francisco Examiner News Article - ["California Health Officials release report on cell phone radiation"](#)
- NBC Bay Area News Article - ["Cell Phone Cancer Debate Heats up With Document Release"](#)
- San Francisco Chronicle News Article - ["New records show how state reworked secret cell phone warning" May 19, 2017](#)
- [All Guidelines \(2009 -2017\) and Full Details of CDPH Cell Phone Document](#)

2016 - American Academy of Pediatrics Issues Recommendations to Reduce Exposure

- [Healthy Children Webpage on Cell Phones](#)
- The webpage reiterated children's unique vulnerability to cell phone radiation stating, *"Another problem is that the cell phone radiation test used by the FCC is based on the devices' possible*

effect on large adults—not children. Children's skulls are thinner and can absorb more radiation.”

- The AAP issued the following cell phone safety tips specifically to reduce exposure to wireless radiation:
- Use text messaging when possible, and use cell phones in speaker mode or with the use of hands-free kits.
- When talking on the cell phone, try holding it an inch or more away from your head.
- Make only short or essential calls on cell phones.
- 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.
- Do not talk on the phone or text while driving. This increases the risk of automobile crashes.
- Exercise caution when using a phone or texting while walking or performing other activities. “Distracted walking” injuries are also on the rise.
- 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 cell signal, the harder your phone has to work and the more radiation it gives off. It's better to wait until you have a stronger signal before using your device.
- Avoid making calls in cars, elevators, trains, and buses. The cell phone works harder to get a signal through metal, so the power level increases.
- Remember that cell phones are not toys or teething items.
- [Press Release: The AAP responds to study showing link between cell phone radiation, tumors in rats May 27, 2016](#)

2015 - AAP Healthy Child Web Page on Electromagnetic Fields: A Hazard to Your Health?

- This webpage states: “Cell Phones: In recent years, concern has increased about exposure to radio frequency electromagnetic radiation emitted from cell phones and phone station antennae. An Egyptian study confirmed concerns that living nearby mobile phone base stations increased the risk for developing: *Headaches, Memory problems, Dizziness, Depression, Sleep problems.*”
- “Short-term exposure to these fields in experimental studies have not always shown negative effects, but this does not rule out cumulative damage from these fields, so larger studies over longer periods are needed to help understand who is at risk. In large studies, an association has been observed between symptoms and exposure to these fields in the everyday environment.”

2013 - AAP Letter to FCC

- [2013 Letter to Commissioner Mignon Clyburn and FDA Commissioner Margaret Hamburg calling for a review of RF guidelines](#)

2012 - AAP Letter to US Representative Dennis Kucinich in Support of the Cell Phone Right to Know Act

- [Original Letter](#)
- [Time Magazine News Article - “Pediatricians Say Cell Phone Radiation Standards Need Another Look”](#)

2012 - AAP published Pediatric Environmental Health, Textbook of Children's Environmental Health

- [Chapter 41: Electromagnetic Fields](#)
- [Oxford Medicine Chapter 41](#)

2001 - AAP News Article - [More study needed on risk of brain tumors from cell phone use](#)

2014 - The California Medical Association Passed a Wireless Resolution

- [Full CMA Resolution](#)
- “Whereas scientists are increasingly identifying EMF from wireless devices as a new form of environmental pollution ... Whereas peer reviewed research has demonstrated adverse biological effects of wireless EMF including single and double stranded DNA breaks, creation of reactive oxygen species, immune dysfunction, cognitive processing effects, stress protein synthesis in the brain, altered brain development, sleep and memory disturbances, ADHD, abnormal behavior, sperm dysfunction, and brain tumors; and...Resolved, That CMA support efforts to implement new safety exposure limits for wireless devices to levels that do not cause human or environmental harm based on scientific research.”
- [Santa Clara Medical Bulletin article that explains the CMA resolution and gives recommendations for schools.](#)

2014 - The Connecticut Department of Public Health issued specific recommendations to reduce exposure to cellphone radiation.

- [Connecticut Department of Public Health Cell Phone Q and A about Cell phones](#)
- It is notable that the Department has provided information more in depth than the CDC, EPA and FDA in detailing 7 steps on *how* people can reduce exposure. Furthermore, the Department states “*It is wise to reduce your exposure to radiofrequency energy from cell phones whenever possible.*”

2014 - Greenbelt, Maryland City Council voted unanimously for the following policy actions:

- [Original letter to the FCC](#)
- Alert citizens about the fine print warnings and possible health risks of cell phones and wireless devices By sharing the Environmental Health Trusts 10 Steps to Safe Tech and Doctors Advice on Cell Phones Brochure in City health fairs and city centers.
- Send the FCC Chairman a letter urging the adoption of “radiation standards that will protect human health and safety.”
- Oppose cell towers on school grounds and write a letter to the local school board and County Executive.
- Press Release - [“Maryland City Votes Unanimously to Alert Citizens to the Health Risks of Cell Phone/Wireless Radiation and to Oppose Cell Towers on School Grounds”](#)

2011 - San Francisco, California; Cell Phone Radiation (How to Reduce Exposures) Webpages launched

- Webpage - [“Cellphones”](#)
- San Francisco developed the following public health information resources:
- Answers on [How to reduce exposures](#) to cell phone radiation.
- A [Poster](#) on Cell Phones and RF Radiation
- A [Factsheet](#) for the Public
- [Display stickers](#) for Cell Phone packaging.

2012 - Jackson Hole, Wyoming issued a Proclamation of Cell Phone Awareness

- [Original Proclamation](#)
- The proclamation cites concern over long term health effects as well as the increased risk that the radiation poses to children.

2012 - Pembroke Pines, Florida passed Resolution

- [Resolution 3362](#)
- Resolution expresses the City's "Urgent Concerns" about Wireless Radiation and Health and which encourages citizens to read their manuals and presents information on how to reduce exposure by using a headset or speakerphone. Jimmy Gonzalez, an attorney who had developed brain cancer after heavy cell use, initially petitioned the Commission.
- [Video of Jimmy Gonzalez's powerful testimony](#)

2010 - 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” (Read the [Original Guidelines.](#))

2010 - Portland, Maine, Mayor Mavodenes, Jr. declared October “Cell Phone Awareness Month”

2009 - Governor of Colorado issued a Proclamation on Electrical Hypersensitivity.

- [Original Proclamation](#)
- *"Electromagnetic Sensitivity is a painful chronic illness of hypersensitive reactions to electromagnetic radiations.*
- *WHEREAS, the symptoms of EMS include, dermal changes, acute numbness and tingling, dermatitis, flashing, headaches, arrhythmia, muscular weakness, tinnitus, malaise, gastric problems, nausea, visual disturbances, severe neurological, respiratory, speech problems, and numerous other physiological symptoms.*
- *WHEREAS, Electromagnetic Sensitivity is recognized by the Americans with Disabilities Act, the US Access Board and numerous commissions;"*

2009 - Governor of Connecticut issued a Proclamation on Electrical Hypersensitivity.

- [Original Proclamation](#)
- *"WHEREAS, the health of the general population is at risk from electromagnetic exposures that can lead to illness indicted by electromagnetic radiations; and, WHEREAS, this illness may be preventable through the reduction or avoidance of electromagnetic radiations, in both outdoor and indoor environments and by conducting further scientific research..."*

2009 - Broward County, Florida; The Mayor issued a Proclamation on Electrical Hypersensitivity.

- [Original Proclamation](#)

- *"WHEREAS, as a result of global electromagnetic pollution, people of all ages in Broward County and throughout the world have developed an illness known as Electromagnetic Sensitivity..."*

Appendix III: Schools That are Reducing RF to Children

2017: Worcester, Massachusetts, School Committee voted to approve “precautionary options” to be posted on the Worcester District Website. [Read Press Release.](#)

2017: San Diego, California, USA Waldorf School: Adopted CHPS guidelines wired internet/electronic free zones/and hardwired phones per article published in Renewal Magazine.

2017: Sacramento, California, USA Waldorf School: WiFi will be turned off when not in use starting in Fall 2017.

2017: Wi-fi OFF Switches Installed in the Fiskars primary school. [Read press release.](#)

2017: Cyprus Bans Wi-Fi from kindergartens, removes Wi-Fi from elementary classrooms and halts deployment. [Original Translated Directive from the Cyprus Minister of Culture and Education;](#)
[Read Press release on Cyprus Wi-Fi removal from elementary classrooms](#)

2016: Haifa, Israel: Haifa Mayor Yona Yahav (of Israel’s 3rd largest city) ordered all schools to have wireless removed and replaced with wired connections. [Watch Haifa School IT Chief describe how they removed/reduced wireless.](#)

- [Read Krayot news article:](#) Haifa Cuts off Wi-Fi in Schools
- [Hamodia article:](#) Haifa to Shut School Wireless Networks
- [Reshet TV Report](#)
- [News Report Israel CH2 Documentary - "How do we kill our self - Radiation" with unofficial English translation](#)
- [News Report “Parents Fight Wireless Radiation in Schools” on Supreme Court Case in Israel](#)

2016: Lowell School, Washington, DC

- In the kindergarten wing in 2016, the Wi-Fi hotspots were removed and the teachers are given ethernet and adapters so that computers and class technology can be ethernet connected (corded) to reduce RF-EMF exposure.

2016: Italy: Turin Mayor Chiara Appendino laid out plans “to cut back on Wi-Fi in state schools and government buildings over concerns that radiation might damage people's health”.

- News Report [Turin could slash Wi-Fi over 'radiation' concerns](#)

2016: Onteora School District in New York State, USA

- [April 20, 2016 Meeting Minutes Page 2.](#)
- District adopts “Best Practices with Wi-Fi stating:
- “Turn off the device when not in use and at the end of each day. If device is to stay on, turn Wi-Fi off when not in use. Always place device on a solid surface. Viewing distance should be a minimum of 12 inches from the screen. Staff was asked by the Principals to post this in areas that contain computers and devices. They are reminding staff to follow it.”

2016: Italy: [Mayor of Borgofranco d'Ivrea \(Italy\) orders Wi-Fi to be turned off in schools.](#)

- “Mayor Livio Tola told the town's high school and elementary school to return to using cables to connect to the internet after reading that the electromagnetic waves given off by wireless routers were especially harmful to young children.”
- The Local Newspaper article - [“Italian town shuts down wifi over health fears”](#)
- Torino News Article - [“Ivrea, The Mayor Removes WiFi as it Could Be Dangerous”](#).

2016: [Rotokawa School New Zealand, implemented steps to minimize RF Exposure](#)

- Children use ipads in flight mode on desk and parents may request that their child use an Ethernet cord. Children are taught about the health precautions as part of their cyber citizenship.

Denmark Schools that have removed or reduced wireless exposure

Bjedstrup elementary School og Børnehus, (school and kindergarten) Student must hand over cell phones before classes + no wifi in school premises

[Hammer Free Private School](#) - all internet connections are hard wired

Vejlernes private school - no wifi

Kastanjely kindergarten - no wifi

2016: [Istituto Comprensivo Alighieri- Diaz in Lecce Italy Banned Wifi](#)

- [Official resolutions number 1](#) and [Resolution 2](#)
- Their two resolutions decided: a) to ban wifi in school and install a wired system for the use of internet and b) Reject the request of the local government (Municipality) to install an antenna on the school roof for the wireless signal providing for the "Wireless city" program. The resolution also asks the Municipality to install the antenna at a reasonable distance from school.

2016: The Piemonte Region has adopted a resolution to limit EMF exposure

- [Original Resolution](#)
- Resolution limits the use of wifi in schools and is considerate to the problem of EHS people.

2015: Ashland Public Schools, MA, USA

Ashland is the first school district to vote to enact “Best Practices” in classrooms and publicly post these instructions which include turning off Wi-Fi when not in use and keeping devices in a table, not a lap

News article on these ["Best Practices" to turn the WiFi off when not in use.](#)

- [Download teacher training PPT slides](#). [Video of parent who initiated this](#)
- [Video of school board member](#) discussing the process
- [Magazine article on Ashland's Decision](#)

2016: [Shearwater The Mullumbimby Steiner School](#), Australia, 100% Wi-Fi Free School

2016: [Yallingup Steiner School](#) Australia , WiFi Free Classrooms

2016: Linuwel School , Australia ,WiFi in some classrooms, Can accommodate children with EHS.

2016: Cairns Hinterland Steiner School , Australia, WiFi Free Classrooms (may be available in other areas)

2016: Wild Cherry School, Australia , 100% Wi-Fi Free

2015: St. Cajetan School, Belgium: Wired Internet installed and wireless removed.

2015: Washington Waldorf School, Maryland, USA: Removed Wi-Fi Routers from Buildings, Ethernet installed.

2015: Freshwater Creek School, Australia, 100% Wi-Fi Free
2015: London, Acorn School: Screen Free. [Read News article](#)
2015: Lorien Novalis School, Australia, 100% Wi-Fi Free School Preschool to 12th grade.
2015: Cairns Hinterland School, Australia, WiFi Free Classrooms for EHS
2014: Acorn Hill School, Maryland: Reducing exposure to Wi-Fi. In process.
2014: Friends Community School: Wi-Fi turned off in wing for lower elementary school students. WiFi routers moved OUT of classrooms into hallways for older grades to reduce EMF exposure. Ethernet wires made available in classrooms for families who want children on corded (not wireless) computers.
2014: [DearCroft Montessori](#): Hardwired internet to younger grades, limited Wi-Fi Router exposure to older grades.
2014: [Portland Waldorf School](#), Portland Oregon, USA, WiFi removed.
2014: [Meeting House Montessori](#), Braintree Massachusetts, USA, WiFi replaced with ethernet.
2014: Ghent, Belgium, [Wi-fi banned from pre-schools and day care](#).
2014: [UPPER Sturt Primary School](#), Australia. [Read article](#). [Read "No WIFI" LOW EMF School Policy](#).
2014: The [St. Augustine School](#) in Italy turned off Wifi and goes back to Wires.
2013: [Winlaw Elementary School](#), B.C. Canada turned off WiFi.
2013: [Te Horo Primary School](#) New Zealand Replaced WIFI with cable-based internet.
2013: [Kootenay Lakes District](#) School Board BC (One school without Wi-Fi)
2013: [Blaise-Cendrars High School](#), Switzerland. Teachers vote to remove WiFi.
2012: [Kivioja primary school](#) in Ylivieska Finland bans phones and minimizes Wireless.
2012: [Halton Waldorf](#), in Burlington Vermont: Remaining free of Wireless Radiation
2011: [City of Lakes Waldorf School](#), WiFi taken out. Minneapolis, Minnesota USA
2011: Aurora School in Ontario removed Wifi and replaced with hardwired.
2011: [North Cariboo Christian School](#) in Quesnel, B.C., removed Wi-fi .
2011: [Pretty River Academy](#) in Ontario no WiFi.
2011: Wayside Academy, Peterborough, Ontario no Wi Fi.
2010: Surrey, [BC Roots and Wings Montessori](#) removed Wi-Fi.
2010: Ontario St. Vincent Euphrasia elementary school: Parents voted to turn off Wi-Fi.
2009: Herouville-Saint-Clair wi-fi networks removed.

Appendix IV: Medical Organization Recommendations on Wireless and EMFs

American Academy of Pediatrics

- [American Academy of Pediatrics Letter to FCC Commissioner Mignon Clyburn and FDA Commissioner Margaret Hamburg calling for a review of RF guidelines \(2013\)](#)
- [American Academy of Pediatrics Letter to US Representative Dennis Kucinich in Support of the Cell Phone Right to Know Act \(2012\)](#)
- [American Academy of Pediatrics Webpage: "Cell Phone Radiation & Children's Health: What Parents Need to Know"](#)
- [American Academy Of Pediatrics Webpage on Cell Towers and Electromagnetic Fields: "Electromagnetic Fields: A Hazard to Your Health?"](#)
- [American Academy of Pediatrics Publication: "Textbook of Children's Environmental Health, Chapter 41: Electromagnetic Fields." \(2012\)](#)

- [September 25, 2011 American Academy of Pediatrics Article: "More study needed on risk of brain tumors from cell phone use."](#)

[The BabySafe Project](#)

As of August 2016, over 200 physicians, scientists and public health professionals from around the world have signed onto this Project “to express their concern about the risk that wireless radiation poses to pregnancy and to urge pregnant women to limit their exposures.”

The California Medical Association

[Read the full CMA Resolution here.](#)

The Vienna Medical Association

[Ten Medical Rules for Cell Phones](#)

The Connecticut Department of Public Health

[Read the Connecticut Department of Public Health Cell Phone Q and A about Cell phones here.](#)

The French National Agency of Health Security of Food, Environment and Labour

2016 Report “[Radiofrequency Exposure and the Health of Children](#)” recommends reducing exposures to young children and strengthening regulations to ensure “sufficiently large safety margins” to adequately protect the health of young children.

Letters by Medical Doctors to Schools about Wireless Installations in Schools

- [Letter from Dr. Carpenter to Petaluma Public Schools 8/3/2016](#)
- [Letter from Dr. Anthony Miller to Petaluma Public Schools 8/4/2016](#)
- [Letter from Dr. Martha Herbert to Petaluma Public Schools 9/2016](#)
- [Letter from Dr. Lennart Hardell to Petaluma Public Schools 8/4/2016](#)
- [Dr. Olle Johansson, Karolinska Institute to Montgomery County Schools 12/8/2015](#)
- [Dr. David O. Carpenter, M.D. University of Albany to Montgomery County Schools](#)
- [Dr. Martin L. Pall, Professor Emeritus, Biochemistry and Basic Medical Sciences, Washington State University to Montgomery County Schools](#)
- [Devra Davis, PhD MPH, President and Founder Environmental Health Trust to Montgomery County Schools](#)
- [Mikko Ahonen, PhD, Finland, Institute of Environmental Health and Safety, Mrs. Lena Hedendahl, MD Practitioner, Luleå, Sweden, Mr. Tarmo Koppel, MSc., PhD to Montgomery County Schools December 13, 2015](#)
- [Cindy Sage, MA, Sage Associates, Co-Editor, BioInitiative 2007 and 2012 Reports and Prof. Trevor Marshall, PhD, Director, Autoimmunity Research Foundation, Senior Member IEEE, Founding chair \(retired\) IEEE EMBS \(Buenaventura Chapter\) Fellow, European Association for Predictive, Preventive and Personalised Medicine \(Brussels\) International Expert Council, Community of Practice: Preventative Medicine \(Moscow\) to Montgomery County Schools](#)
- [Dr. Ronald Powell, retired U.S. Government scientist \(Ph.D., Applied Physics, Harvard University\) to Montgomery County Schools](#)

- [Cris Rowan, BScBi, BScOT, SIPT, to Montgomery County Schools](#)
- [Lloyd Morgan, Engineer, Scientific Advisor, Environmental Health Trust to Montgomery County](#)

[For a full list of Medical Doctors Consensus Statements And Recommendations On Cell Phones/Wireless Click Here](#)

Appendix V: International Policy on Cell Phones and Radiofrequency Radiation

FRANCE

French Agency for Food, Environmental and Occupational Health & Safety (ANSES) [2016 Report](#)

“Radiofrequency Exposure and the Health of Children” recommends regulatory changes to ensure “sufficiently large safety margins” to protect the health of young children stating:

“ALL wireless devices, including tablets, cordless phones, remote controlled toys, wireless toys, baby monitors and surveillance bracelets, should be subjected to the same regulatory obligations as cell phones.”

[Recommendations of the Agency](#): ANSES recommends to “reconsider the regulatory exposure limits” to ensure “sufficiently large safety margins” to [protect](#) the health of young children:

- All wireless devices, including tablets, cordless phones, remote controlled toys, wireless toys, baby monitors and surveillance bracelets, should be subjected to the same regulatory obligations as cell phones.
- Compliance with regulatory exposure limits should be insured for the ways that devices are customarily used, such as positioned in contact with the body.
- Exposure limits for radiofrequency electromagnetic fields should be tightened to ensure sufficiently large safety margins to protect the health and safety of the general population, particularly the health and safety of children.
- Reliance on the specific absorption rate (SAR) to set human exposure limits should be re-evaluated and replaced through the development of an indicator to assess real exposures for mobile phone users that applies to various conditions: signal type, good or bad reception, mode of use (call, data loading, etc.), location device is used on the body.
- ANSES reiterated its recommendation, as previously stated, to reduce exposure to children: minimize use and prefer a hands-free kit.

The new report has made [headlines](#) across the country.

- ANSES Article: [“Radio Frequencies, Mobile Telephony and Wireless Technologies”](#)
- [Press Release on Report](#) (translate into English)
- [Full 2016 Report](#) (French)
- [EHT Press Release on Report](#)

2016 National Decree No. 2016-1074 on the protection of workers against the risks arising from electromagnetic fields

- It is forbidden to place workers under age 18 in posts where EMF is apt to exceed limit values
- each employer has to evaluate EMF risks.
- When exposure exceeding limit values is detected or when an undesirable or unexpected health effect from exposure to EMF is reported, the worker will benefit from a medical visit.
- The employer must provide information and training to his employees regarding the characteristics of EMF emissions, the direct and indirect biophysical effects that could result from exposure to EMF, etc.
- The employer must adapt as much as possible the post in order to limit exposure to EMF.
- Specific precautions will be taken regarding pregnant women.
- Next Impact News Article: [“As early as 2017, employers will have to protect their employees against electromagnetic waves”](#)
- Inter France News Article: [“Companies will have to protect employees from electromagnetic waves”](#)
- [Decree No. 2016-1074](#)

2015 National Legislation - “Law on sobriety, transparency, information and consultation for exposure to electromagnetic waves.” Original Report

- **WiFi Banned in Nursery Schools:** WIFI and Wireless devices will be banned in “the spaces dedicated to home, to rest and activities of children under 3 years”.
- **WiFi on “OFF” as Default to Minimize Exposures in Schools:** In elementary schools, WIFI routers should be turned off when not in use.
- **Schools Will be Informed:** The school board should be informed when new tech equipment is being installed.
- **Cell Tower Emission Compliance Will Be Verified:** A decree will define the limits of emission of equipments for electronic communications or transmission to which the public is exposed. These values can be verified by accredited organizations and results will be made accessible to the public through a National Radiofrequency Agency.
- **Citizens Will Have Access to Environmental/Cell Tower Radiation Measurements** Near homes: Every resident may get access to the results of measurements for their living space.
- **Cell Antennae Maps For the Country:** A description and map of the places with atypical (higher than the limits) places will be conducted at regular intervals with follow up of the actions being taken to limit the exposure. A map of all antennas will be produced for each town.
- **Continued Evaluation of Health Effects:** The National Radiofrequency Agency will be in charge of surveillance and vigilance, evaluating potential risks and setting up scientific research, including information on health effects.
- **SAR Radiation Labeling Mandated:** The SAR of cell phones must be clearly indicated on the package.
- **Information on Reducing Exposures Mandatory:** Information on ways to reduce exposure will be detailed in the contents of the cell phone package. .
- **WiFi Hotspots will be Labeled:** Places where WIFI is provided should be clearly marked with a pictogram.
- **Advertisements Must Recommend Devices That Reduce Radiation Exposure to the Brain:** Advertising for cell phones should clearly indicate the recommendation of hand free kits for protection of the head of the user and it will be included in the package. Advertising for cell

phone not accompanied by such a kit is forbidden. Companies in violation will be fined 75,000 Euros.

- **Children Must Be Provided Protections:** At the request of the buyer, equipment reducing cell phone radiation exposures to the head for children less than 14 years should be provided.
- **The Public Will Be Informed:** Within a year, a policy of information on awareness and information on a responsible and reasonable use of cell phones and other apparatus emitting radiofrequencies will be set up.
- **Electrohyper-sensitivity Report To Be Submitted:** Within a year, a report on electrohyper-sensitivity must be given to the Parliament *according to the law*.
- Le Monde.fr News Article: [“A law to frame exposure to the airwaves”](#)

French Agency for Food, Environmental and Occupational Health & Safety (ANSES) 2013 recommendations for limiting exposure to radio frequencies

- [Original opinion and report on the Update of the “Radiofrequencies and health” expert appraisal](#)
- Recommends hands free phones, SAR labeling, and “limiting the population's exposure to radiofrequencies... especially for children and intensive users, and controlling the overall exposure that results from relay antennas.”
- ANSES news article: [“ANSES issues recommendations for limiting exposure to radiofrequencies”](#)

French National Website Informs the Public About How To Reduce Exposure

The Website hosts [infographics on 8 Ways To Reduce Exposure](#) which include

- 1. Protect children and youth the most.** It is recommended that parents advise their children or teenagers to use their phone only for essential calls. The use of the SMS and the use of the earpiece should also be encouraged by the parents. In addition to these specific tips, other good gestures should also be adopted.
- 2. Telephone with a headset:** By phoning with a headset (wired or bluetooth, wireless), the phone is moved away from the head. It is an effective way of reducing exposure to head waves. (EHT Note: Bluetooth still exposes the brain to RF so we do not recommend this.)
- 3. Prefer SMS (Texting):** By using SMS to communicate, one reduces the emission of waves of his telephone. Indeed, to send an SMS, the phone "connects" to the nearest relay antenna only the time to send the message. During a conversation, the phone connects to the nearest relay antenna and renews the connection regularly, especially on the go. The level of emission of waves is therefore more important. Also when sending an SMS, the notebook is away from the head.
- 4. Keep the phone away from electronic implants:** If you wear an electronic implant (pacemaker, insulin pump, neurostimulator ...), keep your mobile phone away from the equipped area. It can disrupt the functioning of your medical device.
- 5. Do not call in areas of poor reception:** The less the network coverage is good, the more your phone emits waves to keep the conversation going. It is therefore recommended not to call in areas where reception is not good: underground car parks, elevators, confined spaces ... Check the number of bars on your phone, it indicates the quality of coverage of the network.
It is also generally prohibited to call in hospitals and airplanes because of the presence of radio-frequency devices. Your phone may cause interference and interfere with the operation of electronic devices.

6. Move the phone away just after dialing: To limit exposure to waves at the head, you can get into the habit of not approaching the phone in your ear within seconds of dialing. Indeed, it is during these first seconds that the transmission of waves is strongest to find the nearest relay antenna. The level of wave emission then stabilizes.

7. Avoid calling while traveling at high speeds (car, train, bus). When moving at high speed, the phone must successively connect to different relay antennas to maintain the conversation. With each search for a relay antenna, the telephone transmits at full power, the level of emission of waves is therefore regularly higher. It is therefore recommended to avoid calling by train, for example. Telephoning while driving is also prohibited and liable to a fine. The danger comes more from the distraction created by the conversation than from the immobilization of a hand.

8. Read the information in your cell phone manual: You can find out about the level of exposure to the waves of your mobile phone: this is the DAS, whose display becomes mandatory at the points of sale in April 2011. The DAS (Specific Absorption Rate (SAR)) phones Mobile device quantifies the user's maximum exposure level to electromagnetic waves, for use at the ear. The French regulations require that the DAS does not exceed 2 W / kg. The devices described as "anti-waves" have not proved their effectiveness.

Go to French Government Website which hosts these [8 Ways To Reduce Exposure](#)

French National Agency on Frequencies Maintains Information On Cell Tower Radiation:

The Agence Nationale des Fréquences holds public information on the measurements from base stations. Their website has information on their measurements of electromagnetic fields around base stations and other radio frequency emitters.

Over 150 Cities in France have refused Smartmeters

Additional Official Recommendations to Reduce Exposure

French Ministry of Solidarity and Health [website on electromagnetic waves](#). Prior to the 2013 and 2016 recommendations, in 2012 a [Brochure Téléphones mobiles, santé et sécurité](#) (Official Recommendations to reduce exposure: Mobile phones, health and safety) was created to inform public about how to reduce exposure to cell phone radiation. In 2010 [Recommendations were issued on the government website here](#).

2010 French Law on National Commitment to the Environment Cell Phone Statute

- For all mobile telephones offered for sale in the national territory, the specific absorption rate shall be clearly indicated in French. Mention should also be made of the recommendation to use the accessory to limit the exposure of the head to radio transmissions during communications
- [Article 183](#): Cell phone advertising aimed at children younger than 14 is banned. In nursery schools, elementary schools and colleges, the use of a mobile telephone during a teaching activity and in the places provided by the rules of procedure, by a pupil is prohibited. Cell phones made for children under 6 are banned "to limit exposure to children".
- EWG Blog Post: ["French law informs, protects cell phone users"](#)
- [Law No. 2010-788, Article 184](#) [2010 Decree No. 2010-1207 relating to the display of the specific absorption rate of radio terminal equipment](#)

The City of Lyon France's Cell Phone Campaign ["Poster: No Cell Phone Before 12 Years old"](#)

Removal of Wifi From French Cities and Buildings

- The Dacsupap Blog Press Release: ["BNF Renounces WiFi"](#)
- The French National Library along with other libraries in Paris, and a number of universities have removed all Wi-Fi networks.
- ["Removing Wifi from Schools"](#) - Herouville-Saint-Clair has removed all Wi-Fi equipment installed in municipalities.

BELGIUM

2014: Ghent, Belgium bans wi-fi from pre-schools and day care. Read the Flanders Today article: ["Ghent bans wi-fi from pre-schools and day care"](#)

2013 Federal Public Health Regulations Bans Cell Phones and Advertising Cell Phones for Young Children

- Original Legislation: ["New rules for selling mobile phones: Practical guide for sellers and distributors"](#)
- Phones designed for children under 7 years old are prohibited from sale.
- Total Advertising Ban on cell phones aimed at children.
- Mandatory Radiation SAR levels must be available for consumers at point of sale.
- Warning label on phones: "Think about your health – use your mobile phone moderately, make your calls wearing an earpiece and choose a set with a lower SAR value."
- Recommendations include use of hands-free methods to keep the phone away from the body such as text messaging and not making calls when the signal is weak, such as in elevator/vehicle.
- Flanders Today News article: ["Belgium bans sale of mobile phones designed for children"](#)
- 2014 Presentation on the ["Implementation of the Council Recommendations in Belgium"](#) by the [Ministry of Public Health of Belgium](#).
- Belgium Governments's [frequently asked questions](#) about the new law.
- Press Release by Dr. Moskowitz: ["Belgium Adopts New Regulations To Promote Cell Phone Radiation Safety"](#)
- Lower RF Limits are Precautionary in accordance with advice of the Belgium Health Council.

2009 Resolution of the Belgian Parliament - "Introduction of new rules for mobile phone sales"

[Belgian Health Food and Safety Brochure on Wireless Devices](#): This document discusses everything from DECT home phones to baby monitors to Bluetooth to SAR.

"Considering that baby monitors can differ so greatly, it is advisable to carefully follow the instruction manual, to place the baby set at a sufficient distance from the crib (at least 1 m) and to use the 'voice activation' setting, among other things."

The Belgian Foundation Against Cancer warns that intensive use of a mobile phone can increase the risk of contracting cancer. They suggest that children younger than 12 should not use a mobile phone, and that using a mobile phone as an alarm clock is not desirable because the phone is in close proximity to the

head the entire night. The Cancer Foundation also strongly advises people not to use a mobile phone in the car or a train. Read details in the [Mobile Phones Section 7: UK & International regulations](#) by Alasdair and Jean Philips.

WHO International EMF Project Report on national activities in Belgium for 2010-2016

- Details the research and legislation activities of Belgium

The Government of the Brussels Capital Region Has Maps of Cellular Antennae: A map of all the locations of antennas is [accessible online](#) with the technical data of each installation.

Flanders Belgium Department of the Environment Website Section on “Radiation: transmitting antennas, WiFi, mobile ...”

- [Radiation is unhealthy or not?](#)
- [FAQ on transmitting antennas and health](#)

Belgian Federal Public Service: Health, Food Chain Safety and Environment Recommends Reducing Exposure

- [“Wireless Devices”](#) - Document describing regulation for wireless telecommunication equipment, wireless home telephones, baby monitors, wireless on the Internet, bluetooth, and comparison of SAR values
- Specific tips for Wi-Fi installations: “In order to limit the exposure, the following simple measures can be taken: Only switch on your wireless network connection when it is needed. This concerns the wifi adapter in your laptop in particular. Otherwise, your laptop tries to continually connect to the network, and that leads to unnecessary exposure and decreases the life expectancy of the batteries. Place the access point away from places where you spend lots of time.”
- [Tips for prudents use](#) - “So far, it has not been proven that the radiation from mobile phones is harmful to their users. But on the foundation of current scientific knowledge, health risks relating to long-term, frequent mobile phone use cannot be ruled out. Experts – including those on the Superior Health Council – advise everyone to limit their exposure to mobile phone radiation.”
- [Mobile phones and children](#) - “The use of the mobile phone by children is a special point of attention. Children may be more sensitive to radio waves. Children absorb twice as much radiation in the brain than adults do, and 10 times more in the bone marrow of the skull. In addition, due to the popularity of the mobile phone, the cumulative exposure of the current generation of children will be much higher by the time they reach their adulthood than that of the current adults.”
- [Electromagnetic hypersensitivity](#): This webpage contains information about complaints, the state of affairs of the scientific research and advice about what can be done in this situation.
- [Wireless on the Internet](#) “Only switch on your wireless network connection when it is needed. This concerns the wifi adapter in your laptop in particular. Otherwise, your laptop tries to continually connect to the network, and that leads to unnecessary exposure and decreases the life expectancy of the batteries. Place the access point away from places where you spend lots of time.”
- [Brochure electromagnetic fields in Dutch, French and German](#)

SPAIN

Several autonomous parliaments and numerous municipalities have adopted resolutions that urge the application of the precautionary principle in the field of electromagnetic pollution, e.g. by eliminating/limiting wireless networks for children, conducting health education and public awareness campaigns, avoiding the implementation of smart meters, and claiming support measures for people affected by central sensitization syndromes.

Institutional statements of some regional parliaments of the Autonomous Communities (Basque Country and Navarre) adhering to [Council of Europe Parliamentary Assembly Resolution 1815](#) (PACE) of 2011 to apply the precautionary principle in relation to EMF exposure.

More and more Spanish schools requests a cable internet connection, and the case of the School Solokoetxe in Bilbao has been significantly discussed in the [Basque Parliament](#) itself in 2015 with scientific advisors provided by the parents' association.

The [Basque Parliament](#)

In October 2011, the [Basque Parliament](#) in a Non-Law Motion adheres to PACE Resolution 1815 to "act accordingly ... in favor of health protection" in the field of electromagnetic waves, in particular the conducting of information and awareness campaigns "against the immoderate use of mobile phones among children".

In April 2013, a [Resolution of the Ombudsman of the Basque Country](#) recommends that the Basque Department of Education implement measures to reduce the levels of radiofrequency emission in schools.

The Parliament of Navarra

In September 2014 the [Parliament of Navarra](#) voted to adhere to PACE Resolution 1815 [The potential dangers of electromagnetic fields and their effect on the environment](#), with a resolution urging the Spanish Government and the Navarre Autonomous Community Government to implement the recommendations to apply the precautionary principle in relation to EMF exposure. News Article: ["The Parliament of Navarra urges to remove the WIFI in schools by precaution"](#)

Since 2012, various institutional declarations have been approved by municipalities and other local entities requesting the implementation of the recommendations of PACE Resolution 1815:

[Barakaldo](#), [Erreñería](#), [Espartinas](#), [Hospitalet](#), [Jerez de la Frontera](#), [San Sebastián](#), [Vitoria](#), [Villa de Plentzia](#), [Cornellá de Llobregat](#), [Torrox](#), [Mula](#), [Villa de Buenavista del Norte](#), [Poio](#), [Arganda del Rey](#), [Cenizate](#), [Hospitalet](#), [Juntas generales de Guipúzcoa](#), [Villava](#),

Hospitalet City Council deactivated Wi-Fi:

In April 2014, the Hospitalet City Council [deactivated the Wi-Fi network](#) of municipal nursery schools, reducing levels in these centers below the limits required by PACE Resolution 1815. In December 2014, the head of the Hospitalet department of education [asked](#) the Department of Education of the Catalonia Autonomous Community to follow the precautionary principle to reduce EMF exposure in Catalan educational establishments.

The Vitoria-Gasteiz City Council at its plenary session in September 2015 unanimously [approved a precautionary approach with wireless](#): Citizens will be informed of the location of wireless transmitters are in civic centers and municipal buildings. It is recommended that children's spaces such as playgrounds and family libraries, will be free of Wi-Fi or have decreased Wi-Fi and Wi-Fi free zones will be established in playgrounds and building entrances.

- El Mundo News Article: [“Victoria ‘cures in health’ against the wifi”](#)

Institutional motions regarding people affected by environmental pathologies

Since 2012, municipal institutional motions have been approved in support of people affected by central sensitization syndromes and / or in favor of prevention and action measures in environmental pathologies: [Vitoria-Gasteiz \(May 2012\)](#), [Pinto \(January 2014\)](#), [Jaén \(December 2014\)](#), [Sant Cugat del Vallès \(September 2014\)](#), [Tarragona \(November 2015\)](#), [Barcelona \(December 2015\)](#), [Vilanova i la Geltrú \(December 2015\)](#), [Terrassa \(January 2016\)](#), [Hospitalet de Llobregat \(March 2016\)](#), [Vilassar de Mar \(March 2016\)](#), [Montcada i Reixac \(March 2016\)](#), [Castellbisbal \(May 2016\)](#), [Badia del Vallès \(April 2016\)](#), [Arenys de Munt \(June 2016\)](#), [Durango \(February 2017\)](#).

The Tarragona City Council (Tarragona is a major city 100 kilometres south of Barcelona) at its plenary session in November 2015 unanimously approved the “Institutional Declaration of support for people with Central Sensitivity Syndromes”:

1. Carry out (with a yearly update) a diagnosis and census of those affected by CSS in the City of Tarragona, showing what is the actual situation and the specific needs of these patients and their families.
2. An intervention protocol for the staff of the Area of Services to Citizens of the Tarragona City Government to look after those with CSS- including a list of economic subsidies for food, first necessity elements, reduced water bill, and home help specific to the needs of these patients.
3. Housing protocol for people with CSS, especially those who have MCS and/or EHS, those threatened by eviction or those who are forced to leave their home. This protocol has to include a series of safe social housing (green/white spaces: free of xenobiotics and electromagnetic waves).
4. Create green/white spaces in all municipal buildings (free of xenobiotics and electromagnetic waves).
5. Eliminate, as much as possible, the use of pesticides in the whole of the municipality. In the case when this is not possible, establish a communication protocol to contact those affected and the press regarding the places and dates of the interventions with preventive advice.
6. Training for social workers and educators about CSS, its social, health and economic reality. Elaboration of information and education to increase the knowledge about these illnesses amongst the general population and of the city workers in particular, with the objective of diminishing the stigma that is now present regarding these illnesses.
7. Protocol for adapting working conditions of the municipal workers who have CSS with specific measures of support when having a flare up. These would be the measures: work schedule flexibility, encourage work from home through internet (teleworking), reserved parking spaces and include in the collective agreement not deduct the salary of the first 20 days of sick leave.
8. [Read the full article in Catalan, Spanish and English detailing the actions here.](#)
9. Blog Post: [“GOOD NEWS: FIRST RESCUE PLAN FOR PEOPLE WITH CSS”](#)

In May 2012, the Galician Association of Biologists [asks the government of the Autonomous Community of Galicia](#) to apply the precautionary principle to exposure to electromagnetic fields, specifically to protect children: Information on health EMF risks, the ban of the use of mobile phones and Wi-Fi devices in the schools and mobile phone antennas near the schools.

In May 2016, the Guipuzcoan Association of Pharmacists of (COFG) and the Guipuzcoan Association of Fibromyalgia and Chronic Fatigue Syndrome Bizi Bide signed [a collaboration agreement](#) of 284 pharmacies in Guipúzcoa to disseminate information and to raise awareness on Central Sensitization Syndromes (Fibromyalgia, Chronic Fatigue Syndrome, Multiple Chemical Sensitivity and Electrohypersensitivity).

Smartmeters

- During 2016 and 2017 motions were approved at municipal or provincial level, in Catalonia and Andalusia, against the installation of “Smart meters” (1 and 2): [Sta. Perpetua de Mogada](#) (June 2016), [Diputació de Barcelona](#) (June 2016), [Barcelona](#) (July 2016), [Masnou](#) (September 2016), Hostalet de Pierola (September 2016), [Sta. Coloma de Grallanet](#) (September 2016), [Vallirana](#) (September 2016), Sant Feliu de Guíxols (September 2016), [Celrà](#) (October 2016), [Hostalric](#) (October 2016), Sant Adrià de Besòs (October 2016), Cerdanyola del Vallès (October 2016), Diputació de Girona (November 2016), [Torrelles de Llobregat](#) (November 2016), [San Cugat del Vallés](#) (November 2016), [Hospitalet de Llobregat](#) (November 2016), [Cornellà de Llobregat](#) (November 2016), [La Llagosta](#) (November 2016), Pallejà (November 2016), Polinyà (November 2016), [Monistrol](#) (December 2016), [Rupià](#) (December 2016), [Balaguer](#) (December 2016), [Cervelló](#) (December 2016), [Vendrell](#) (December 2016), [Esplugues de Llobregat](#) (January 2017), Molins de Rei (January 2017), Cunit (January 2017), [Sant Cebrià de Vallata](#) (January 2017), Caldes de Malavella (January 2017), Prat de Llobregat (February 2017), [Fuente Vaqueros](#) (Granada, February 2017), [Sant Boi de Llobregat](#) (February 2017), [Sant Andreu de la Barca](#) (February 2017), [Sant Quirze del Vallès](#) (February 2017), [Mollet del Vallès](#) (March 2017), [Abrera](#) (March 2017), [Diputación de Granada](#) (March 2017)

Since 2011, several court judgments have been approved recognizing the disability to different people affected by electrosensitivity.

- In May 2011, a judgment of the [Madrid Labour Court nº 19](#) to declare permanent incapacity (100% of his base salary) of a worker Complutense University of Madrid who suffered from chronic fatigue and environmental and electromagnetic hypersensitivity (the EHS is mentioned for the first time in Spain as cause of disability).
- In July 2016, a judgment [Nº 588/2016 of the High Court of Madrid](#) has recognized for the first time a situation of total permanent disability for the exercise of the profession of a telecommunications engineer as result of "electrosensitivity syndrome (EHS)". For the first time in Spain, the EHS condition is considered as the main cause of disability involved. "This is the first we have achieved total disability due exclusively to this syndrome," says attorney Jaime Cortés, the Col·lectiu Ronda. Lavanguardia News Article: [“A 'teleco' with electrosensitivity achieves the inability to work between wifes: The TSJ of Madrid recognizes the right to a benefit denied by the INSS”](#)

- In February 2017, the [Social Court, number 4, of Castellón](#) has issued a ruling that recognizes, for the first time, a permanent disability in the degree of great disability to a patient who suffers as a clinical picture residual multiple chemical sensitivity and electrosensitivity.
- During the last decades, Regional and municipal regulations were approved to reduce the legal exposure in their territories. Unfortunately, now, the last General Telecommunications Law (2014) eliminated the regional and municipal competences in that area.

CANADA

Health Canada offers Practical Advice on reducing exposure to wireless radiation

1. Limit the length of cell phone calls
2. Replace cell phone calls with text, use "hands-free" devices
3. Encourage children under the age of 18 to limit their cell phone usage.

2015 Canadian Parliament Standing Committee on Health of the House of Commons Report: "Radiofrequency Electromagnetic Radiation and the Health of Canadians"

- [Original Report](#)
- They made 12 recommendations including an awareness campaign on reducing exposures, improved information collecting and policy measures regarding the marketing of radiation emitting devices to children under the age of 14, "in order to ensure they are aware of the health risks and how they can be avoided."

Toronto "Prudent Avoidance Policy for Cell Towers"

- Toronto's current PA policy was adopted by the Board of Health and City Council in 2008. The Policy was first recommended by the Medical Officer of Health and adopted by the Board of Health in 1999 as a precautionary approach.
- This policy recommended that levels of exposures to radiofrequency (RF) for the general public be kept 100 times below Health Canada's guidelines. [Read Factsheet on Policy](#)

2015 National Bill C-648 was Introduced into the House Of Commons

- An Act Respecting the Prevention of Potential Health Risks From Radiofrequency Electromagnetic Radiation" would require manufacturers of all wireless devices to place specific health warning labels clearly on packaging, or face daily penalties /fines and/or imprisonment. Although the Bill did *not pass*, it made headlines.Press Conference for
- [Bill C-648 Video.](#)
- [Canadians For Safe Technology Press Section Website](#)

Canadian Pediatric Association issued a Position Statement Recommending no Screen-based Activities for Children under Two

- Original Position Statement: [Healthy active living: Physical activity guidelines for children and adolescents](#)
- For healthy growth and development: screen time (eg, TV, computer, electronic games) is not recommended for children under 2 years old. For children 2-4 years, screen time should be limited to <1 h/day; less is better.

EUROPEAN PARLIAMENT

2011 The Parliamentary Assembly of the Council of Europe - Resolution 1815:

- [**Resolution 1815: “The Potential Dangers of Electromagnetic Fields and Their Effect on the Environment.”**](#)
- A call to European governments to “take all reasonable measures” to reduce exposure to electromagnetic fields “particularly the exposure to children and young people who seem to be most at risk from head tumours.” The Resolution calls for member states to:
- Implement “information campaigns about the risk of biological effects on the environment and human health, especially targeting children and young people of reproductive age.”
- “Reconsider the scientific basis for the present standards on exposure to electromagnetic fields set by the International Commission on Non-Ionising Radiation Protection, which have serious limitations, and apply ALARA principles, covering both thermal effects and the athermic or biological effects of electromagnetic emissions or radiation.”
- “For children in general, and particularly in schools and classrooms, give preference to wired Internet connections, and strictly regulate the use of mobile phones by schoolchildren on school premises.”

2009 European Parliament Resolution: Health concerns associated with electromagnetic fields

- [**Original Resolution**](#)
- Urges the Commission to review the scientific basis and adequacy of the EMF limits as laid down in Recommendation 1999/519/EC and calls for the review to be undertaken by the Scientific Committee on Emerging and Newly Identified Health Risks
- Calls for particular consideration of biological effects when assessing the potential health impact of electromagnetic radiation, especially given that some studies have found the most harmful effects at lowest levels
- Calls for active research to address potential health problems by developing solutions that negate or reduce the pulsating and amplitude modulation of the frequencies used for transmission

AUSTRALIA

The Australian Radiation Protection and Nuclear Safety Agency 2015 Fact Sheet: [“How to Reduce exposure from mobile phones and other wireless devices.”](#)

- Reduce the risk from WiFi devices by “keeping them at a distance, for example placing the wireless router away from where people spend time”, and “reducing the amount of time you use them”.
- ARPANSA recommends that parents encourage their children to limit their exposure stating that “It is recommended that, due to the lack of sufficient data relating to children and their long term use of mobile phones, parents encourage their children to limit their exposure by reducing call time, by making calls where reception is good, by using hands-free devices or speaker options, or by texting.”

Queensland Department of Education, Training and Employment - 2015 [“Guide to Safe Technology”](#)

- It’s not only physical hazards you need to consider when thinking about health and safety issues at work or home — you should also think about how you use technology. When using a computer, you need to think about: ergonomics and posture, radiation, vision impacts and harmful

lack of exercise (DVT).

- “Wireless devices — smart/mobile phones, tablets, slates, monitors etc — all emit low levels of electromagnetic radiation and should be used correctly. When using electronic devices, the department recommends you follow WiFi/3G/4G best practice:
- Follow the manufacturer’s usage guideline operate from a table or bench — not on your lap
- Use ‘hands-free’ devices to keep smart/mobile phones away from your head and body during phone calls limit the number and length of calls
- Position the device antenna away from your body
- Do not sit within 0.5 m of a wireless router use smart/mobile phone in areas of good reception to reduce exposure.”
- [Safe use of technology by WFi in Schools Australia - Video](#)

NEW ZEALAND

2016 - [Rotokawa School Takes Steps to Minimize RF Exposure](#): After concerns were raised about e-learning by a small group of parents from the school, the principal has put some positive procedures in place as follows:

- Children will use ipads in flight mode
- Children using laptops and Chromebooks will work on the desk top
- Parents may request that their child use an Ethernet cord to access the internet
- Children are taught about the health precautions as part of their cyber citizenship
- Digital learning in the one to one Year 5 & 6 environment is kept to less than 2 hours per school day.
- The principal has also stated there are no plans to increase the existing Wi-Fi coverage at this stage.

ITALY

2017 Decree of the Environment Minister has recommendations on reducing EMF.

Section 2.3.5.4 of the Decree recommends reducing exposure to indoor electromagnetic pollution

- **Reduce low frequency magnetic fields:** "In order to reduce as far as possible the indoor exposure to low frequency magnetic fields (ELFs) induced by electrical panels, uprights, conductor dorsals, etc." the design of the plants must provide that meters and electric panels are outside the building and take measures to reduce levels.
- **Reduce Radio frequency radiation:** Reduce as much as possible the indoor exposure to high-frequency magnetic fields (RF) equip with alternative data transfer systems to wi-fi, eg. cable connection or Powerline communication (PLC) technology.
- This was started by a Communication by ECC ([COM\(2003\) 302](#)), to European Parliament about: Integrated Product Policy: Develop the concept of "environmental lifecycle.
- [Read the 2017 Decree of the Environment Minister page 20-21.](#)

News on the Directive: ["Replace The WiFi Dangerous With Safer Wiring: It Is Law But No One Knows!" Di Maurizio Martucci, July 11, 2017](#)

2017: The Italian Court of Ivrea ruling recognizes causal link between cellphone use and brain

tumor.

- Italian court is the first in the world to recognize this causal link in an April 11, 2017 ruling which awarded a Telecom employee, Roberto Romeo, lifetime damages of 500 euros a month after he developed a brain tumor from fifteen years of cellphone use.
- [Original Ruling](#)
- [Press Release](#) EHT
- The Guardian News Article: [“Italian court rules mobile phone use caused brain tumour”](#)
- NY Daily News Article: [“Italian Court Finds Link Between Cell Phone Use and Tumor”](#)
- Courthouse News Service Article: [“Italian Court Finds Link Between Cell Phone Use and Tumor”](#)

2016: Mayor of Borgofranco d'Ivrea ordered Wi-Fi to be turned off in schools. “Mayor Livio Tola told the town's high school and elementary school to return to using cables to connect to the internet after reading that the electromagnetic waves given off by wireless routers were especially harmful to young children.”

- The Local News Article: [“Italian town shuts down wifi over health fears.”](#)
- Torino News Article: [“Ivrea, The Mayor Removes WiFi as it Could Be Dangerous”](#).

2015: State Parliament of South Tyrol voted to reconfirm the precautionary principle: The State Government was mandated:

- To replace existing wireless networks whenever possible with networks that emit less radiation at schools, preschools, hospitals, nursing homes, and other public facilities.
- Establish a working group whose mandate it is to assess these new technologies and their exposure levels. With regard to wireless communication technologies, mobile Internet access, and public health, the working group shall clarify which technologies emit less radiation and provide sustainable technology options and
- To start an education and awareness campaign that informs about possible health risks, especially regarding the unborn, infants, children, and adolescents and that develops guidelines for a safer use of cell phones, smartphones, and Wi-Fi.
- Previous Hearing at the Parliament of South Tyrol, 29 April 2015 - [“hearing on the effects of mobile radio”](#)
- Discussion at the Plenary Session: [“Mobile Communications, Refugees”](#)
- Kompetenzzinitiative News Article: [“Parliament of South Tyrol Reconfirms Precautionary Principle”](#)
- [Official Resolution - “WLAN, mobile radio, radiation exposure: does the precautionary principle apply”](#)

2012 Italian Supreme Court Ruling: Man’s brain tumor was caused by his cell phone use.

- The National Institute for Workmen’s Compensation must compensate a worker with head tumor due to cell use.
- Reuters News Article - [“Italy court ruling links mobile phone use to tumor”](#)
- RT News Article - [“Cancer cells: Italian court rules ‘mobile phones can cause brain tumors’”](#)
- Daily Mail News Article - [“Mobile phones CAN cause brain tumours, court rules in landmark case.”](#)

Lecce, Italy, "Istituto Comprensivo Alighieri- Diaz" School banned wifi: Their two resolutions

decided:

- To ban wifi in school and install a wired system for the use of internet and reject the request of the local government (Municipality) to install an antenna on the school roof for the wireless signal providing for the "Wireless city" program.
- The resolution also asks the Municipality to install the antenna at a reasonable distance from school.

The Piemonte Region Council adopted a resolution to limit EMF exposure by limiting the use of wifi in schools and be considerate to the problem of EHS people.

- Original Resolution - [“Adoption of the Precautionary Principle exposition Installations in Wireless Environments in School”](#)

The Italian Society for Preventive and Social Pediatrics has officially called to prohibit cell phones for children under 10 years old.

- Giuseppe Di Mauro, president of the Italian Society of social and preventive pediatrics [Società italiana di pediatria preventiva e sociale (www.sipps.it)] “We do not know all the consequences associated with cell phone use, but excessive use could lead to concentration and memory loss, increase in aggressiveness and sleep disturbances.” and he cites electromagnetic fields stating “The damage to health are increasingly evident”
- Il Tirreno Tuscany News Article - [“Pediatricians: Phone Alarm for Kids”](#)

2016 - Turin Mayor Chiara Appendino laid out plans “to cut back on Wi-Fi in state schools and government buildings over concerns that radiation might damage people's health”.

- The Local News Report ["Turin could slash Wi-Fi over 'radiation' concerns"](#)

FINLAND

2015: Radiation and Nuclear Safety Authority (STUK) recommend reduced exposure to children

- [“Exposure can be reduced by simple means”](#) webpage recommends:
- Use a hands free device, don't use phones reception is poor, the phone should be kept on a table or similar location instead of in the user's pocket.
- “STUK recommends that unnecessary exposure to radiation from mobile phones be avoided. In particular, children's unnecessary exposure should be avoided as their life-long exposure will be longer than that of those who begin using mobile phone as adults and as only scant research exists on health effects to children.”
- ["Mobile phones are a major source of radio frequency radiation"](#) webpage states:
- “The level of exposure to radiation from a mobile phone held next to user's ear can approach the exposure limits. *Never before have humans been exposed to equally strong sources of radiation in their living environments.* Identifying any health impacts is highly important because practically everybody uses a mobile phone today.”

2009: Radiation and Nuclear Safety Authority (STUK) initially issued recommendations to reduce exposure with more explicit cautionary language.

- Information posted on the STUK website in 2009, now removed. - [“Radiation and Nuclear Safety Authority: Children's mobile phone use should be limited”](#)
- 2009 Policy position paper by STUK detailing why “It would be good to restrict children's use of

mobile phones.” - [“Statement of Finnish Radiation and Nuclear Safety Authority \(STUK\) concerning mobile phones and health on 7th January 2009”](#)

- 2009 Yle Uutiset News article - [“Authority Recommends Restricting Childrens' Use of Mobiles”](#)

Finland Schools

- 2012 [Kivioja primary school](#) in Ylivieska Finland bans phones and minimizes Wireless.
- 2017: Wi-fi OFF Switches Installed in the Fiskars primary school. [Read press release.](#)

ISRAEL

2017: Ministry of Education banned personal use of cell phones for teaching and educational staff during teaching hours. [Read english translated memorandum.](#) [Read original Memo in Hebrew](#)

2016: Ministry of Education banned cell phones during the school day.

- [Original Summary of the Directive](#)
- A computer or tablet are approved for Pedagogical activities and smartphones are not approved until examination of the issue by the Ministry with published Instructions.
- CH10 News Report - [“NEW CEO memorandum - No use of cellphones for learning in class”](#)

2016: The Mayor of Haifa calls for the removal of Wi-fi from all schools. Haifa Mayor Yona Yahav, said that “When there is a doubt, when it comes to our children, there is no doubt”.

- “The roots of the decision go back to a 2013 petition by parents in four schools who claim that such networks are harmful. The case eventually made its way to the High Court, which has postponed a final decision on the matter...The movement has spread from Haifa to other cities as well, and petitions have been signed by parents in dozens of cities demanding the removal of the networks. Haifa is the first city to take action on the matter. Haifa Mayor Yona Yahav said that the city would replace the wireless network with a wired connection that will provide safer options to students.”
- The school system has developed in house ability to ethernet connect computers in schools, however *in practice*, a few schools are choosing to continue to use wireless despite the ability to be fully hardwired but access is limited.
- [Video of Lecture by Reuven Kurman, BSc, MBA](#), Chief Information Officer, Education Department of Haifa, Israel “*What Can be Done*” - *Reducing Exposure to Children in Schools and at City Level* [PDF of Kurman January 2017 IIAS Presentation](#)
- Haifa & Haifa News Report - [“The Wi-Fi in kindergartens and schools in Haifa severed.”](#)
- Hamodia News Report - [“Haifa to Shut School Wireless Networks.”](#)

2016 Israel National Activity Report on EMF’s

- The Ministries of Health and Environmental Protection **advise to use, where possible, wired internet** and smart meter monitors connections and to present the consumers with information as to the pros and cons for the chosen technology.
- In 2016, the Ministry of Environmental Protection and Hadassah Academic College conducted research work based on field measurements regarding how to adequately measure Wi-Fi exposures. The main conclusion was that it is advisable to measure both the peak and the average exposure and to use a high rate response measuring probe. Determination of guidelines concerning Wi-Fi measurement is in process.

- A report on Non-Ionizing Electromagnetic Radiation (EMF) was published by the Israel Institute for Occupational Safety and Health in 2016. The report mapped occupational exposures to EMF and suggested regulations to minimize the risk in workplaces.

2015 Israel National Activity Report details actions being taken to reduce ELF and RF EMF.

- Cellular operators must inform consumers about radiation safety instructions.
- According to a settlement agreement accepted by the Tel Aviv-Yafo District Court in February 2014, cellular operators have to inform buyers of new mobile phone about the radiation safety instructions, including the minimum distances from the head and the body. Hand-free kits must be provided with every new mobile phone and each cellular operator has to provide information on the safe use of mobile phones on its website.

The Ministry of Health - "Environmental Health in Israel 2014" details EMF Policy, Science and Need For More Protections. [Original Publication](#)

- "Precautions should be strictly enforced with regard to children, who are more sensitive to developing cancer." and that "wireless communication networks in schools be reduced." The Health Ministry recommends "sensible use of cellular and wireless technology, including: considering alternatives like landline telephones, use of a speaker while talking on a cellphone, and refraining from installing the base of wireless phones in a bedroom, work room, or children's room." The Report states that "Findings in Israel clearly indicated a link between cellphone use for more than 10 years and the development of tumors in the salivary glands, particularly among people who held the telephone on the same side where the tumor developed and individuals in the highest category of exposure (heavy use in rural areas)."
- Linda S. Birnbaum, Director, USA National Institute of Environmental Health Sciences and National Toxicology Program wrote in the Israeli Report final chapter that, "*If some of the studies turn out to be harbingers of things to come, we may have major health consequences from the nearly ubiquitous presence of wireless equipment.*"

2013 Ministry of Environmental Protection Publication on recommendations for ELF-EMF: The recommendations of the Ministry of Environment and the Ministry of Health maximum permissible level of exposure to ELF in places of prolonged chronic exposure such as schools and residences is 4 mG. This is signed by Prof. Stelian Galberg and states that this protection should apply to those under 15 years old.

Israeli Ministry of Health Recommends Reducing Exposure to Cell Phone Radiation

- "These expert committees determined that there are indeed gaps in the knowledge concerning the implications of exposure to this radiation, and therefore they called for further studies on the subjects and recommended to adopt the "**precautionary principle**". This principle adopts simple and relatively cheap means to reduce exposure to the minimum radiation levels possible with existing technology."
- "In particular, it is recommended to follow precautionary rules in the children population who are typically more sensitive to cancer development due to exposure to cancerous agents...the Ministry of Health advises parents to reduce children's exposure to mobile phones as much as possible, consider the age they start using them, reduce the amount of time mobile phones are used, and in any event, make sure they use earphones (not wireless) or a speaker when using the mobile phone."
- TNUDA - ["Recommendations for prudents use of cellphones in Israel"](#) Include:

- Using the speakerphone/headset during conversation.
- Keep the phone away from the body.
- Reduce the amount and duration of calls made on a cell phone.
- Areas of low reception equals higher radiation (low cell tower reception, elevator, car, train)
Reduce call time in these low reception areas.
- While driving, it is best to talk as little as possible on the mobile phone, and follow the law which bans handheld phones. Inside vehicles, it is advisable to install an antenna outside the vehicle and not inside it, and to prefer wire connections between the phone and the speaker- rather than bluetooth.

2013 - Israeli Ministry Of Education has issued guidelines limiting WiFi radiation in schools.

- Wireless networks banned in preschool and kindergartens.
- 1st. & 2nd. grade internet is limited to max. 3 hr. per week of internet.
- 3rd grade maximum 8 hours a week.
- A hard wired direct cable connection is required if the teacher has a computer in the class.
- Recommendations for reducing magnetic fields to below 4 mG for children under 15 in schools representing the government's position that international guidelines are NOT protective of children.

Note: Despite the precautionary recommendations of the Health Ministry and the statements in Education Ministry regulations for the preference of wired (not wireless) networks- the reality is that wireless is still being deployed in schools. ICNIRP limits are presented as the limit for comparison at the same time that it is stated that non-thermal effects and effects from long term exposure are possible. The *actual practice* in Israel is different than *the official stance* and this has prompted strong outcry from doctors, parents and citizens for the government to be accountable to children's health.

- [A 2016 News Report shows the complex picture](#) whereby no agency is assuming responsibility for ensuring protections. Although smartphones are banned as an educational classroom tool, the Education Ministry is still [promoting the use of digital tools](#) that are used for Smartphones, such as [Kahoot](#).

2002 Israel Consumer Protection Regulations (information on non-ionizing radiation from a mobile phone)

- Compulsory cell phone labeling, radiation information provided to consumers. A mobile phone may not be sold unless they comply with the following:
- A clearly visible sticker on cell phone packaging that says, ""This mobile phone emits non-ionizing radiation; details and information about the radiation levels of this mobile phone model and the maximum permissible level of radiation are included in the attached leaflet."
- The packaging must include an information leaflet in Hebrew, Arabic and Russian with SAR information.
- The information must be clearly displayed to the public at points of sale of mobile phones, service provision centers, websites of manufacturers, suppliers and service providers of mobile phones.
- Israel Environment and Health Fund - ["Non-Ionizing Radiation"](#)
- TNUDA - [Compulsory Marking/Provision of Information on Non-Ionizing Radiation](#)
- Israel Ministry of Environmental Protection - ["Radiation from Cellphones"](#) Webpage

Notable Israeli News Stories/Videos

- 2016: [TV CH 2 Documentary – “HOW WE ARE KILLING OURSELVES – WIRELESS RADIATION”](#)
- [2016 TV Report on Israeli government on WiFi Health Concerns: For english subtitles click CC.](#)
- ["Health Ministry: Limit Kids' Use of Cell Phones"](#) - 2009 News article on cell phone guidelines in Israel

Notable History

- [“Stop Wi-Fi in schools, deputy health minister implores”](#) - In 2012 Israel's deputy Minister of Health Rabi Litzman stated that he supports a ban on Wi-Fi in schools. Currently the Health Minister is relying on scientific recommendations of Dr. Sadetsky.
- ["2012 Israeli National Activity Report"](#) - States that a joint ministerial committee of the Education & Health & Environmental Protection Ministries gave advice to the Education Minister for ethernet connections in schools- not wireless. The Environmental Protection Ministry asked to limit the use of cell phones in buses and to prohibit the use of cell phones in elevators.
- [“The Israeli Supreme Court Ordered the Israeli Government to Investigate the Number of Children Currently Suffering From EHS.”](#) - In 2013 a court case moved through the the Israeli Supreme Court on Wi-Fi radiation in classrooms. The 2015 Israeli Supreme court decision was that that the court sees no reason to intervene with the (Israeli) Education Ministry deployments of wireless network at schools.

Israeli Government Links

[Ministry of Environmental Protection Webpage on Non-ionizing Radiation](#), [Interactive Map of Cell Tower Locations](#)
[Israeli National Information Center for Non-Ionizing Radiation TNUDA](#)
[Ministry of Health Webpage on Cell Phone Radiation](#)

SWITZERLAND

The Switzerland Federal Office for the Environment Webpage Informs Public on EMF

- [“Mobile as an electrosmog source”](#)
- [“How strong is mobile radiation?”](#) - Webpage that contains a PDF of tips for mobile phone use from the Federal Office of Public Health and which states “caution should be exercised primarily when using devices held close to the body, such as laptops, PDAs and Internet telephones..” and gives recommendations on how to reduce exposure including turning the Wi-Fi off when not in use, installing the access point one metre away from places where you work, sit or rest for long periods of time and keeping laptops off laps.
- [Publications on Electrosmog in the environment](#) - Precautionary protection provided by the installation limit values is limited to locations where people regularly spend lengthy periods of time. Here, long-term exposure shall be kept as low as possible. Places of sensitive use include apart- ments, schools, hospitals, offices and playgrounds, but do not include balconies and roof terraces, stairways, garages, storage and archive rooms, temporary workplaces, churches, concert halls and theatres, camp sites, sports and leisure-time facilities, passenger areas in railways, observation decks.
- [2015 Environmental Report](#) - Chapter 17 on Electrosmog states “Effects can also be detected for weak radiation intensity. For example, weak high-frequency radiation can alter electric brain

activity and influence brain metabolism and blood flow. Whether these effects have an impact on health is still unclear” and recommends the precautionary principle to reduce risk “Because major gaps still exist in our knowledge about the health impacts of long-term exposure to weak non-ionising radiation, the adopted protective strategy should be pursued consistently.”

- [2012 Radiation of radio transmitters and Health](#) - *“In view of the fact that there are gaps in the available data, the absence of proof of health risks does not automatically also mean proof of their absence. From the scientific point of view, a cautious approach in dealing with non-ionising radiation is still called for. There remains a need for extensive research into the potential long-term effects”*

Swiss expert group on electromagnetic fields and non-ionising radiation (BERENIS)

- In Switzerland, the Federal Office for the Environment (FOEN) is the responsible government body for monitoring and assessing research on health effects of non-ionising radiation (NIR) from stationary sources in the environment. The FOEN has nominated *BERENIS - Swiss expert group on electromagnetic fields and non-ionising radiation*- a consultative group of Swiss experts from various disciplines with scientific expertise regarding electromagnetic fields. The BERENIS experts regularly screen the scientific literature, and assess the publications which they consider relevant for the protection of humans from potentially adverse effects. [Regular BERENIS Newsletter and Scientific Updates](#)

2008: The Governing Council of Thurgau Canton Recommends Hard-Wired Schools

- ["Parliamentary Inquiry on Wireless LAN at Elementary, Junior and Secondary High Schools"](#)
- “The Governing Council recommends for schools to forgo the use of wireless networks when the structural makeup of a given school building allows for a wired network.”
- 2007 [“Decision of the Bavarian Parliament - Protecting Children at School from Radiation Exposures Final Report”](#)

Swiss Physicians Association of Doctors for Environmental Protection

- [2012 Swiss Physicians Letter](#) stating, "the risk of cancer for this type of [wireless] radiation is similar to that of the insecticide DDT, rightfully banned... From the medical point of view, it is urgent to apply the precautionary principle for mobile telephony, WiFi, power lines, etc.”
- [2014: Preliminary draft for a federal law on the protection against dangers](#): Non-ionizing radiation (NIS) is growing steadily. Especially the everyday stress in the area of low-frequency and high-frequency.
- [2016: Press Release on the NTP Study and Policy Implications](#): “There are increasingly clear indications that mobile radio is a health hazard. From a medical point of view it is clear: the scientific results so far show it is clear that prudent avoidance of unnecessary exposures is necessary.”
- Report on [Smartphones- \(OEKOSKOP 1/16\)](#)
- [AefU-News about Electrosmog](#)

GERMANY

The Federal Office for Radiation Protection (FORP) Website provides precautionary advice and tips for reducing radiation exposure to smartphones, tablets and wireless devices stating, “Since long

term effects could not be sufficiently examined up to now the Federal Office for Radiation Protection (BfS) recommends to keep exposures to these fields as low as reasonably achievable.”

- [“Electromagnetic Fields” FORP Website](#) ”
- “There are uncertainties in the risk assessment that the German mobile communications research programme has not been able to remove completely. These include in particular: possible health risks of the long-term exposure of adults to high [frequency](#) electromagnetic fields when making mobile telephone calls (intensive mobile use over more than 10 years) & the question of whether the use of mobile phones by children could have an effect on health. For these reasons, the BfS continues to consider that precautionary measures are necessary: exposure to electromagnetic fields should be as low as possible.”
- [“Smartphones and tablets – tips to reduce radiation exposure”](#) Website - which recommends: “It is particularly important to minimise children’s exposure to radiation. They are still developing and could therefore react more sensitively in terms of health.”
- [“Bundesamt warns schools against WLAN networks”](#) - The FORP recommends landline phone instead of mobile phone base stations and that schools should not connect wirelessly to the internet.
- [FORP Public Education Poster “Less radiation when Telephoning”](#)

[The German Federal Ministry](#) for Radiation Protection: Read the [German Parliament 2007 document](#) which states, “supplementary precautionary measures such as wired cable alternatives are to be preferred to the WLAN system.”

Bavaria - The State Ministry of Education and Cultural Affairs

- [2007 Decision of the Bavarian Parliament - Protecting Children at School from Radiation Exposures Final Report](#)
- “For precautionary reasons the Federal Office for Radiation Protection recommends for schools that if a wireless network is used to place its components in suitable locations and to prefer the use of wired network solutions whenever possible.” In 2007 Parliament recommendation to all schools to not install wireless LAN networks.

Frankfurt’s Schools Banish Wireless Networks

- The Local Education Authority did not wish to conduct a “large scale human experiment,” said Michael Damian, spokesperson of the Head of the School Department Jutta Ebeling. “In Frankfurt’s schools there will be no wireless networks in the short or mid term.
- Omega News Article - [“WLAN is to be banished from the school sphere”](#)

2013: Four German Federal Agencies issued a guidebook recommending reducing cell phones and Wi-Fi to young children

- [“Parenting Guide: Environmental and Child Health”](#) by the Federal Office for Radiation Protection (BfS), the Federal Institute for Risk Assessment (BfR), the Robert Koch Institute (RKI) and the Federal Environmental Agency (UBA). It contains practical information including reducing electromagnetic radiation from baby monitors and telephones: Baby monitors should be as far as possible away from the crib. Phones should be banished from the nursery. They are not suitable toys for infants and toddlers. Use of cabled landline phones is preferable. Wi-Fi routers are not suitable in children's bedrooms, and should be switched off when not in use, especially at night.

- Umwelt Bundesamt News Article - [“Nothing for children's sorts: Thick air in school and home: Federal authorities publish comprehensive advice on children's health”](#)

AUSTRIA

Information on How to Reduce Exposure Health Effects of Electromagnetic Fields at the Homepage of the Federal Ministry of Health and Women’s Affairs.

- [Brochure on How to Reduce Exposure](#)
- [Report and Recommendations of the Supreme Medical Council](#)

Austria’s Highest Health Council of the Ministry of Health Advices to Reduce Exposure to Cell Phone Radiation: Brochure states that since the long term research is still not completed, it is advisable to take simple precautions to reduce exposure.

- [Original Brochure](#)
- [WHO Report on Austria’s EMF activities and research studies](#)

Salzburg Public Health Department Advises Against Wi-Fi in Schools

- [Original Letter](#)
- “The official advice of the Public Health Department of the Salzburg Region is not to use WLAN and DECT in Schools or Kindergartens.” - Gerd Oberfeld, MD.
- The public health department of Salzburg (Landessanitätsdirektion) also recommends to evaluate mobile phone base station exposures based on the [EUROPAEM EMF Guideline 2016](#)
- [Lists Electrosmog studies](#) highlighting the EUROPAEM EMF guideline 2016 as representing the current state of medical science that it is used by the Landessanitätsdirektion Salzburg for the health assessment of EMF.

[The Vienna Medical Association issued cell phone safety guidelines](#)

- Guidelines state that cell phones should be used for as short of a time as possible and that children under 16 should not use cell phones at all. They also state that “wireless LAN leads to high microwave exposure”.
- Ten Cell Phone Guidelines:
 1. Make calls as short and little as possible - use a landline or write SMS. Children and teenagers under 16 years old should carry cell phones *only for emergencies!*
 2. Distance is your friend- Keep the phone away from body during connection of Phone. Pay attention to the manufacturer's safer distance recommendation in the manual, keep a distance during the call set-up from the head and body. Take advantage of the built-in speakerphone or a headset!
 3. When using headsets or integrated hands-free, do not position mobile phones directly on the body - special caution applies here for pregnant women. For men, mobile phones are a risk to fertility if Mobile is stowed in Trouser pockets. Persons with electronic implants (pacemakers, insulin pumps et cetera) must pay attention to distance. Unless otherwise possible, use coat pocket, backpack or purse.
 4. Not in vehicles (car, bus, train) calls - without an external antenna, the radiation in the vehicle is higher. In addition, you will be distracted and you bother in public transport the other passengers!
 5. During the car when driving should be an absolute ban on SMS and internetworking - the distraction leads to self-endangerment and endangering other road users!

6. Make calls at home and at work via the fixed corded (not wireless) network - Internet access via LAN cable (eg via ADSL, VDSL, fiber optic) no Radiation, is fast and secure data transfer. Constant radiation emitters like DECT cordless telephones, WLAN access points, data sticks and LTE Home base stations (Box, Cube etc.) should be avoided!
 7. Go offline more often or use Airplane mode - Remember that for functions such as listening to music, camera, alarm clock, calculator or offline games an internet connection is not always required!
 8. Fewer apps means less radiation - Minimize the number of apps and disable the most unnecessary background services on your smartphone. Disabling "Mobile services" / "data network mode" turns the smartphone again into a cell phone. You can still be reached, but avoid a lot of unnecessary radiation by background traffic!
 9. Avoid Mobile phone calls in places with poor reception (basement, elevator etc) as it increases transmission power. Use in poor reception Area a headset or the speakerphone!
 10. For buyers of mobile phones, Look out for a very low SAR value and an external antenna connection!
- [Press Release - "EMF guideline propagates precautionary principle for electromagnetic fields"](#)
 - [Translated Poster with Tips](#)

Guideline of the Austrian Medical Association for the diagnosis and treatment of EMF related health problems and illnesses (EMF syndrome)

- [Original Guidelines](#)
- The Austrian Medical Association has developed a guideline for differential diagnosis and treatment of health problems associated with outdoor and indoor electrosmog.

INDIA

2012: The Ministry of Communications and Information Technology issued new EMF guidelines with new Exposure Limits *lowered to 1/10 of the ICNIRP level, and SAR labeling on phones.*

“Keeping the precautionary EMF safe exposure limits for the Radio Frequency Field (Base Station Emissions) as 1/10th of the safe limits prescribed by ICNIRP for all areas in India, eliminates the need for fixing lower limits for specific areas like schools, hospitals, residential premises, children playgrounds; a segregation of which is impractical in densely populated localities.” <http://www.dot.gov.in/journey-emf>

- [Official Guidelines](#)
- India Government Precautionary Guidelines for mobile users:
 1. Keep distance – Hold the cell phone away from body to the extent possible.
 2. Use a headset (wired or Bluetooth) to keep the handset away from your head.
 3. Do not press the phone handset against your head. Radio Frequency (RF) energy is inversely proportional to the square of the distance from the source -- being very close increases energy absorption much more.
 4. Limit the length of mobile calls.
 5. Use text as compared to voice wherever possible.
 6. Put the cell phone on speaker mode.
 7. If the radio signal is weak, a mobile phone will increase its transmission power. Find a strong signal and avoid movement – Use your phone where reception is good.
 8. Metal &

water are good conductors of radio waves so avoid using a mobile phone while wearing metal-framed glasses or having wet hair.

9. Let the call connect before putting the handset on your ear or start speaking and listening – A mobile phone first makes the communication at higher power and then reduces power to an adequate level. More power is radiated during call connecting time.

10. If you have a choice, use a landline (wired) phone, not a mobile phone.

11. When your phone is ON, don't carry it in chest/breast or pants pocket. When a mobile phone is ON, it automatically transmits at high power every one or two minutes to check (poll) the network.

12. Reduce mobile phone use by children as a younger person will likely have a longer lifetime exposure to radiation from cell phones.

13. People having active medical implants should preferably keep the cell phone at least 15 cm away from the implant.

The India Ministry of Communications and Information Technology has an [EMF webpage](#) with EMF information.

Public Information on Environmental Levels from Base Stations: The India Department of Telecom has a web portal for mobile tower compliance called Tarang Sanchar.

- The site contains data from 12.5 lakh base transceiver stations (BTS), and allows users to view tower-specific details such as the operator, the supporting technology (2G/3G/4G) and radiation compliance.
- [Tarang Sanchar website](#)

Cell Towers

2013: Supreme Court of India upheld the High Court of the State of Rajasthan decision to remove all cell towers from the vicinity of schools, hospitals and playgrounds because of radiation “hazardous to life.”

- Two hundred and four mobile towers installed on the school premises of Rajasthan have been removed in compliance.

[Zilla Parishad orders removal of all cellphone towers](#) near schools citing exposure to “harmful radiation”.

- Economic Times News Article - [“Rajasthan HC orders relocation of mobile towers from schools, hospitals”](#)
- Hindustan Times News Article - [“Brihanmumbai Municipal Corporation \(BMC\) bans mobile towers at parks, playgrounds”](#)

Indian Council of Medical Research Continues research on EMFs:

[“Short Report on the Indian Studies”](#) - Document prepared by Dr. Sharma, Sr. Deputy Director of the Indian Council of Medical Research on Indian Research Studies.

2014 Report : [Information paper On Effects of Electromagnetic Field Radiation from Mobile Towers and Handsets 30th by the Telecom Regulatory Authority of India.](#)

- This paper contains a write-up on sources of exposure, effects of Electro-magnetic (EM) exposure on humans, absorption of energy from EM fields and International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines, information on various studies published on effects of EMF radiations and stands taken by various individuals/ bodies.

Department of Telecom, Government of India

- ["Ensuring □ Safety □ from □ Radiations□: □ Mobile □ Towers □ and □ Handsets"](#) - Graphic including precautionary guidelines for mobile phones [In English](#) [In Hindi](#)

2011 Ministry of Environment and Forest Study on the Impact of Communication Towers

- ["Report on Possible Impacts of Communication Towers on Wildlife Including Birds and Bees"](#)
- *"The review of existing literature shows that the Electro Magnetic Radiations (EMRs) are interfering with the biological systems in more ways than one. There had already been some warning bells sounded in the case of bees and birds, which probably heralds the seriousness of this issue and indicates the vulnerability of other species as well."*

Celebrity Advocates Raising Awareness

- Juhi Chawla - who has won multiple awards for her work has taken on the issue of EMF's and recieved the Indira Gandhi Award for her efforts in raising awareness: [Global Awards 2016](#), [Indira Gandhi Memorial Awards](#), [Full Speech at Gandhi Awards](#), [2011 Lecture](#), [Do's and don'ts for using cellphone safely by Juhi Chawla](#)

Video Lecture: A Review of epidemiology and toxicology: Dr. R.S Sharma, Dr. Devra Davis and special guest Dr. George Carlo at George Washington University – The Milken Institute School of Public Health

In a 2015 lecture at George Washington University, Dr. R.S. Sharma, Indian government Senior Deputy Director General & Scientist of the Indian Council of Medical Research, reviewed the research showing genetic damage and health effects from wireless exposures which are informing India's new telecommunications policy. He describes how the government is supporting efforts to reduce exposures.

Slides from Dr Sharma's presentation can be found [here](#).

News Stories

[Government sets up laboratory at TEC for testing radiation level of mobile phone](#)

FRENCH POLYNESIA

2016 Legislation To Protect The Public and Reduce Exposure

Legislation the country adopted in 2016 prohibits advertising of cell phones to children under 14, prohibits advertising cell phones without showing how to minimize radiation exposure to the head, prohibits wireless in nursery schools, limits wireless in primary schools and reduces exposures to workers.

Summary of the [Law 2016-41 / APF December 8, 2016 on Electromagnetic Radiation](#)

- Prohibition of advertising that promotes the sale or use of a cell phone to children under fourteen years old. Advertising should clearly and legibly show the limiting of exposure to the head. An offender is liable to a fine not exceeding 8,900,000 F CFP.
- Cell phones may not be marketed without an accessory that limits exposure to the head.
- Recommendations to limit head exposure and SAR levels should be readable and intelligible.
- Wireless is prohibited in nursery schools and spaces dedicated to “reception, rest and activities of children under three years of age.”
- Wireless should be turned to OFF in primary school unless specifically in use for digital activities.
- The government is implementing measurement and monitoring of levels of public exposure to electromagnetic fields throughout the country of French Polynesia.

2017 Public Awareness Campaign

French Polynesia has launched a major public awareness campaign to raise awareness about how to reduce exposure to the electromagnetic radiation from electronics, cell phones, and wireless devices as part of the country’s new law to reduce citizens’ exposures to electromagnetic radiation exposure.

The multimedia campaign of the French Polynesia Directorate-General for the Digital Economy (DGEN) includes video and graphics promoted on television, radio, and social networking platforms.

A “Best Practices Guide” provides specific recommendations to reduce electromagnetic radiation in order to “protect children and youth.”

Summary of Recommendations to Reduce Wireless Radiofrequency Electromagnetic Radiation ([Best Practices Guide](#))

- Children under 15 are advised to not use cell phones.
- Distance the phone away from the head.
- Make voice calls with a headset to reduce exposure to the brain.
- Move the mobile device away from electronic implants (pacemaker, Insulin pump, neuro-stimulator, etc.). A mobile device near the implantation area may interfere with the operation of a medical device.
- Do not call in areas of bad reception.
- Avoid carrying your phone in your pants pocket.
- Prefer texting SMS instead of voice calls.
- The base of the home cordless phone emits radiation constantly, so keep it at a distance and use loudspeaker.
- When indoors, prefer to connect to networks outside the building by using your device near a window.
- Distance the phone away from the head after dialing, as wave emission can be the strongest at that time.
- Avoid calling during high-speed travel (in cars or other vehicles) as the phone must emit at full-power to connect successively with different antennas to maintain the connection.
- Place yourself at least 1.50 m from your Wi-Fi box or router, and turn it off overnight. If you are ready to part with it, opt for cable (ethernet) connections (with Wi-Fi capability turned off) or very high-speed fiber optic if possible.

Summary of French Polynesia Recommendations to Reduce ELF Electromagnetic Radiation

- Do not charge your mobile phone near the bed, distance it as far away as possible.
- Maximize distance from the front of the television or computer monitor.
- Have a professional check home electrical wiring.
- Turn off electricity where no device or appliance is in use.
- Place the wireless baby monitor at least 2 meters (about 6.5 feet) distance from the baby and never in the crib or bed.
- Buy a new microwave oven every five years. Always distance yourself and others at least 1 meter away from the oven and unplug the oven when not using it.
- Distance yourself and others at least 1 to 1.5 meters (3 to 4.5 feet) away from induction stovetop or any appliance capable of generating electromagnetic waves such as your refrigerator.
- Install the electrical panel and large electrical equipment away from rooms and living areas.
- Turn off electrical appliances (by switching off power) when they are not in use, rather than putting them to sleep. This is also a gesture in favor of the environment and your budget.

Workplace Environment

- Suppression or reduction of risk:
Select equipment or processes that emit less intense electromagnetic fields, taking account of the work to be carried out. Use other working methods leading to less exposure to electromagnetic fields.
- Collective protection:
Establish technical or organizational measures to reduce the emission of electromagnetic fields (shielding, distance, locking, etc.).
- Access control:
Places where the electromagnetic field exceeds regulatory thresholds must be marked, labeled, barred, or marked on the ground in order to limit or control access.

DGEN's video "Electromagnetic Waves: Good Practices" visually depicts how common household electronics – such as a Wi-Fi router, video game console, and wireless baby monitor – emit microwave electromagnetic radiation like cell phone emissions. The campaign also addresses the electromagnetic radiation from electricity-powered alarm clocks and appliances.

All multimedia resources are officially provided in both French and Tahitian.

Public Education Video "Good Practices with Electromagnetic Waves"

[DGEN Website on Best Practices For Electromagnetic Waves French](#)

[DGEN Website on Best Practices For Electromagnetic Wave Tahitian](#)

[Watch Public Education Video in French](#)

[Watch Public Education Video in Tahitian](#)

[Watch Public Education Video English Translated by Environmental Health Trust](#)

[Download Best Practices Brochure in French.pdf](#)

[Download Best Practices Brochure in Tahitian Te rará 'ume uira, nāhea e ārai.pdf](#)

[Download the Campaign Poster in French.pdf](#)

[Download the Campaign Poster in Tahitian.pdf](#)

[Download the Law of Country 2016-41 / APF of December 8, 2016 on Electromagnetic Radiation.pdf](#)

News Articles on French Polynesia Law on Electromagnetic Radiation

[“Government puts electromagnetic waves under control”](#) Tahiti Infos, August 3, 2017

[“Electromagnetic waves: the CESC supports the precautionary principle”](#) Tahiti Infos, July 19, 2016

[“Antonio Perez: "Protection of the population and digital development must be compatible"”](#) Tahiti Infos July 5, 2016

SLOVENIA

Slovenia has public exposure limits much stricter than ICNIRP.

Government RF Measurement Campaign informs Public on Radiation Levels

[Slovenia Institute for Non-ionizing Radiation webpage](#)

[Electromagnetic radiation, MOBILE PHONES, AND HEALTH Brochure](#): Although this brochure states that evidence does not conclude a proven health risk, it does recommend the prudent use of cell phones and provides a long list of measures to reduce radiation exposure including:

- Limit the number and duration of calls.
- Choose a low-SAR mobile phone. Recommendation is that SAR Less than 0,6 W / kg. Data on SAR values of mobile phones are collected At www.inis.si.
- If possible, use a handsfree kit
- Avoid conversation when the signal is weak (in basements, garages, elevators ...). Move to a place where the signal is strong.

[Webpage with Government Brochures on various issues related to EMFs](#) such as [Metal Implants](#), Base Stations and more

- [Brochure on Electromagnetic radiation](#) 2014
- This is a report that reviews the issue, shows how Slovenia has RF public exposure limits much stricter than ICNIRP.
- [Brochure on WiMAX](#)
- [3819. Regulation on electromagnetic radiation in the natural and living environment, page 5925.](#)

RUSSIA

Russian National Committee on Non-Ionizing Radiation Protection Issued Resolutions to Protect Individuals from Wireless Radiation

- 2011 Original Resolution - [“ELECTROMAGNETIC FIELDS FROM MOBILE PHONES: HEALTH EFFECT ON CHILDREN AND TEENAGERS”](#)
- Official Recommendations: The Russian Federation specifically advises that those under the age of 18 should not use a mobile phone at all, recommends low- emission phones; and requires the following: on-device labelling notifying users that it is a source of RF-EMF, user guide information advising that “it is a source of harmful RF-EMF exposure” and the inclusion of courses in schools regarding mobile phones use and RF-EMF exposure issues. “Thus, for the first time in the human history, children using mobile telecommunications along with the adult population are included into the health risk group due to the RF EMF exposure....In children, the amount of so-called stem cells is larger than in adults and the stem cells were shown to be the most sensitive to RF EMF exposure....It is reasonable to set limits on mobile telecommunications use by children and adolescents, including ban on all types of advertisement of mobile

telecommunications for children.”

- 2008 Original Decision - ["Children and Mobile Phones: The Health of the Following Generations is in Danger"](#)
- 2012 - [Video of Russian National Committee](#) Meeting in which they repeatedly warn about electromagnetic radiation impacts on children and recommended WiFi not be used in schools.
- 2010 - [Video](#) of Yuri Grigoriev, President of the Russian National Committee, giving a lecture

EUROPEAN ENVIRONMENT AGENCY

2013: EEA Issues [“Late Lessons From Early Warnings: Chapter 12: Mobile phone use and brain tumour risk: early warnings, early actions?”](#)

- The chapter concludes that “Precautionary actions now to reduce head exposures, as pointed out by the EEA in 2007, and many others since, would limit the size and seriousness of any brain tumour risk that may exist. Reducing exposures may also help to reduce the other possible harms...”

2011: Precautions Recommended by David Gee, EEA Senior Advisor on Science, Policy and Emerging Issues

- Original document - [“Health risks from mobile phone radiation – why the experts disagree”](#)
- Gee stated in a press release that “We recommend using the precautionary principle to guide policy decisions in cases like this. This means that although our understanding is incomplete, this should not prevent policymakers from taking preventative action.”

2009: EEA Issues Recommendations Based on Current Evidence

- [Original Statement](#)
- “The evidence is now strong enough, using the precautionary principle, to justify the following steps: 1. For governments, the mobile phone industry, and the public to take all reasonable measures to reduce exposures to EMF, especially to radio frequencies from mobile phones, and particularly the exposures to children and young adults who seem to be most at risk from head tumours.”

2007: Professor Jacqueline McGlade, the EEA's executive director issued recommendations

- McGlade stated that "Recent research and reviews on the long-term effects of radiations from mobile telecommunications suggest that it would be prudent for health authorities to recommend actions to reduce exposures, especially to vulnerable groups, such as children."
- Independent News Article - [“EU watchdog calls for urgent action on Wi-Fi radiation”](#)

SINGAPORE

Singapore's National Environmental Agency Advises Specific Precautions.

- [Frequently asked Questions About Radiation Protection](#)
- NEA's advice to the public on cell phone use on their webpage on radiation protection: “While further research is being carried out to study the long-term health effects of RF field, individuals could take precautionary measures to reduce RF exposure to themselves or their children by limiting the length of calls, or using 'hands-free' devices to keep the mobile phones away from the head and body.”

Singapore's [Nanyang Technological University](#) Advice to Limit Cell Phone radiation

The University website page called "[Mobile Phone and Health](#)" which states:

Cell phones do have effects on people. Some people feel headache after talking too long and some hypersensitive people fell sick when the cellphone is turned on. These effects are mainly non-thermal effects and we do have a new explanation. We believe that non-thermal effects are due to the waveforms (causing mechanical vibration) that are determined by the frequency of carrier wave and the modulation that is way to put the information riding on the carrier wave. The principle and effect of modulation may be explained using a very close example, music or sound. Different music and sound have different waveforms, assuming the same small volume one may feel comfortable when listening some music or sound but fell uncomfortable or even sick when listening to some other music or (noise) sound (like scratching glass using something). It has been reported that certain waveforms can be used to cure some mental illnesses such as depression, sleepless, etc. This shows that the nerve system of people could be affected by the waveforms.

"Suggestions" include:

- Shorter conversations.
- Avoid speaking for long periods on the cell phone. Try to plan your calls in such a way that you use ordinary phones for long conversations.
- Speak as little as possible inside the car:
- because the reflection from the car cavity may amplifies the radiation. If you have to speak a lot from the car - get a roof antenna.
- To use plug-in earpiece:
- Plug-in earpiece will separate the antenna further away from your head/body.
- Try a CDMA phone if you are hypersensitive to a GSM one:
- If you fell headache or uncomfortable when using a GSM phone, you may be hypersensitive to the modulation of electromagnetic waves. People are less sensitive to CDMA phones.
- Newer CDMA system works differently than GSM system and doesn't emit the sharp-edged lower frequency pulses. The digital RF signal more resembles a noisy analogue signal and is also likely to be less bio-active. This may also be one reason to push industry to replace GSM systems with CDMA systems.
- [Read Singapore's Nanyang Technological University Webpage on Cell Phones here](#)

POLAND

In April 2016, the Polish government announced they were preparing an Act on protection of the population from the radiation emitted by mobile base stations.

According to the [Telecom News article](#):

"The Polish Ministry of Digitalisation has announced its preparation of an act on the control of the effects of electromagnetic radiation from radiocommunications devices on human life and health, reports Telko.in. The first consultations are planned for the beginning of May. Discussions on public concerns related to electromagnetic radiation are conducted under the patronage of the President's Office.

After the first round of the discussions, the ministry decided to withdraw the controversial provision on facilitating the placement of radiocommunications devices from the draft amendment of the act to support telecommunications services and network development. The task of the new consultation group will be discussing the assumptions of the draft act with experts and the public and subsequent preparation of the draft. The group will include representatives of the public sector, the public, telecommunications operators and experts in the field of radio-communications and medicine, namely the Institute of Communications and Collegium Medicum of the University Jagiellonski.

The new acts will enforce supervision of emissions standards, tightening sanctions and increase the influence of the local community on the process of placing new radio communications devices.”

[Read the April 2016 Telecom Article on Poland’s Developing Action](#)

On December 2016, a conference was organized by the [National Institute of Telecommunications](#) on “Medical, Biological, Technical and Legal Aspects of Electromagnetic Field Influence on Environment” (see [warsaw-conference-on-emf](#)) and speakers from Poland, Finland and Japan presented the latest research and opinions about EMF technology and health.

[Video’s of the lectures are available at the Polish Government website here](#)

Slides from Dariusz Leszczynski’s lecture “[Cell Phone Radiation, Health Hazard and Precaution](#)” are available [on his blog](#).

The first mayor of Kraków to be elected by popular ballot, law professor Jacek [Majchrowski](#) initiated forums for citizens to discuss the growing ‘smog’ of electro-magnetic fields.

New Public Education Project of the City of Krakow, Poland ”Let’s Be EcoDigital”

- The 2017 events of the “ Let’s Be EcoDigital” project included contests for Children and Youth: A Photography Contest “A Day Without My Smartphone” and Literary Contest “A Day Without My Smartphone.
- An eminent Polish artist [Paweł Kuczyński](#) created a series of illustrations presenting satirical view of some difficult aspects of digital reality.
- The “International Day of Protection from Electromagnetic Environmental Pollution” includes a “Family Picnic without Smartphone.” The City also organized an International Forum on Protection from Electromagnetic Environmental Pollution.

Resources on Krakow’s EMF Policy and Educational Program

[Protective Policy Webpage:](#)This includes [City Council](#) issued resolutions and visual images of radiation from cellular antennas

["Let's be EcoDigital" - a new project of the City of Krakow News Update](#)

[Protection against electromagnetic fields webpage: Includes Recommendations and Leaflets.](#)

UNITED KINGDOM

The UK National Health Service recommends reducing exposure since 2002.

- [2002 Steward Report commissioned by the UK Government - "Phones and Mobile Health - AUK Perspective"](#). The report found that exposure to RF radiation below guidelines has not been "proven" to cause adverse health effects but it is not possible to say "that exposure to RF radiation, even at levels below national guidelines, is totally without potential adverse health effects" as "there is some scientific evidence which suggests that there may be biological effects and gaps in knowledge justify a precautionary approach to the use of mobile phone technologies until much more detailed and scientifically robust information on any health effects becomes available."
- [UK Department of Health - 2005 "Mobile Phones and Health" brochure](#) which reads: *"The expert group has therefore recommended that in line with a precautionary approach, the widespread use of mobile phones by children (under the age of 16) should be discouraged for non-essential calls. In the light of this recommendation the UK Chief Medical Officers strongly advise that where children and young people do use mobile phones, they should be encouraged to: • use mobile phones for essential purposes only • keep all calls short - talking for long periods prolongs exposure and should be discouraged The UK CMOs recommend that if parents want to avoid their children being subject to any possible risk that might be identified in the future, the way to do so is to exercise their choice not to let their children use mobile phones."*
- [NHS 2009 slide presentation - "Radio Waves"](#)
- [2015 Webpage "Risks of mobile phone use"](#) with recommendations that state, *"Children are thought to be at higher risk of health implications from the use of mobile phones. This is because their skulls and cells are still growing and tend to absorb radiation more easily. It is recommended that children use mobile phones only if absolutely necessary."*
- [National Health Service - 2011 "Mobile Phones and Base Stations"](#) which reads, *"Therefore, as a precaution, the UK Chief Medical Officers advise that children and young people under 16 should be encouraged to use mobile phones for essential purposes only, and to keep calls short. If you are concerned, you can take steps to reduce your exposure such as using hands free kits or texting."*
- [2011 NHS Brochure - "Mobile phones and base stations: Health advice on using mobile phones"](#), which states: *"The body and nervous system are still developing into the teenage years. Therefore, as a precaution, the UK Chief Medical Officers advise that children and young people under 16 should be encouraged to use mobile phones for essential purposes only, and to keep calls short."*
- Prior to 2015, the NHS also had additional website sections on health effects, including ["Mobiles and mums-to-be" web page](#), which summarized the research showing cell phones had been linked to behavioral issues in children. NHS also had a ["Mobile effect on sleep" webpage](#) which detailed research which concluded RF "is associated with adverse effects on sleep quality within certain sleep stages". For the public, the NHS had "recommendations to help lower any potential long-term risks" which included keeping calls short, keeping the phone away from the body on standby mode, only use the phone when the reception is strong and using a phone with an external antenna. These web pages were deleted from the current site.
- In 2011, the National Health Service offered specific recommendations to reduce cell phone radiation exposure to children. Precautions are still recommended, however by 2015 this original advice was no longer present on the site. **The UK National Health service changed the public advice text. Everything noted *above* was reworded. Now the website states:**

- [2015 Mobile Phone Safety - Risks Webpage](#) - “If there are any health risks from the use of mobile phones, children might be more vulnerable because their bodies and nervous systems are still developing. Research carried out to date hasn't supported a link between mobile phone use and childhood cancers such as leukaemia. However, if you have any concerns, you can lower your child's exposure to radio waves by only allowing them to use mobile phones for essential purposes and keeping calls short.”
- The newly edited section called [“Mobile phone safety - FAQs”](#) states: *“Do scientists know everything about mobile phones and health? No, and research is continuing. Mobile phones have only been widely used for about 20 to 30 years, so it's not possible to be so certain about the safety of long-term use. More research on the effects of mobile phones on children is also needed, as they're known to be more sensitive than adults to many environmental agents, such as lead pollution and sunlight. Government advice is to be on the safe side and limit mobile phone use by children.”*
- [2015 Webpage "Risks of mobile phone use"](#) contains recommendations that state, *“Children are thought to be at higher risk of health implications from the use of mobile phones. This is because their skulls and cells are still growing and tend to absorb radiation more easily. It is recommended that children use mobile phones only if absolutely necessary.”*

2016 Regulation No. 588 - “Control of Electromagnetic Fields at Work”

- [Original Legislation](#)
- The regulation requires employers to assess the levels of EMFs their employees may be exposed to, ensure compliance, provide information on risks and take action if necessary.
- *“You must ensure you take workers at particular risk, such as expectant mothers and workers with active or passive implanted or body worn medical devices, into account when appropriate, devise and implement an action plan to ensure compliance with the exposure limits.”*
- Safety and Health Practitioner News Article - [“Explained: CEFAW Regulations, which come into force today”](#)

CYPRUS

2017 Directive of the Minister of Culture and Education to Ban Wi-Fi from kindergartens, Remove Wi-Fi from Elementary Classrooms and Halt Deployment.

- [Original Translated Directive from the Cyprus Minister of Culture and Education](#)
- Wireless is recommended only to be used if needed in the administrative areas of elementary schools, not by the students. However, if the use of Wi-Fi is required, “ necessary measures to protect children should be taken, and wireless access points should remain inactive when not in use for teaching purposes.” Furthermore before installation of any wireless program involving teachers or students “the consent of parents should be ensured in advance” the directive reads stating that the director of the school should send a letter to the parents of children who will participate in programs involving wireless technology informing them for the reason and duration of WiFi usage.
- [Read Press release on Cyprus Wi-Fi removal from elementary classrooms](#)

Cyprus National Committee on Environment and Child Health

- ["Protecting children from radiation emitted by Wi-Fi, mobile phones and wireless" Webpage](#)

- [EMF brochure](#) on reducing the risks to children from exposure to the Non Ionizing Radiation (mobile phones, Wi-Fi, tablets, etc.).
- [The Cyprus National Committee on Environment and Child Health](#) is supported by the Nation of Cyprus and “has as its basic aim the prevention of illnesses, which also are related with the exposure of children in environmental dangers.” The activities of the National Committee are supported by the State of Cyprus.
- The National Committee recommends, “Be Precautionary and reduce exposure to phones, Wi-Fi and other wireless devices,” states the Cyprus National Committee on Environment and Child Health (ECH). Dr. Stella Michaelidou, President of the ECH, states that society should respond by taking precautions because “Documentation of other potential and more serious biological side effects are on the tip of an emerging iceberg.”
- An In-Cyprus news article quoted Michaelidou as saying that “multiple and frequent exposure to this kind of radiation, which falls below the acceptable levels of thermal effects, pose a health risk to a developing embryo.” Children who use their mobile phone more frequently face a higher risk at having a weaker memory, attention deficit disorder, and similar issues.
- In-Cyprus News Article - [“Mobile devices could harm kids”](#)

Public Awareness Videos on How to Reduce Exposures

- **PSA Video on Children’s Health and Wi-Fi:** Original Video in [Greek](#) & [English](#)
- **PSA Video on Pregnant Women and Wireless:** Original Video in [Greek](#) & [English](#)
- [Youtube channel of the Cyprus Committee](#)

Public Awareness Educational Brochures

[Brochure on How to Reduce Exposure in English](#)
[Brochure on How to Reduce Exposure in Greek](#)

Scientific Presentations:

- [2015 Powerpoint Slide Presentation by the President of the Commission, Dr. Stella Kanna Michaelides on EMFs \(in Greek\)](#)
- [Dr Michalis Tornaritis on media use \(in Greek\)](#)
- Dr. Michaelidou of the National Committee gives presentation to Ioannina University: [“Neurological and behavioral effects of Non Ionizing Radiation emitted from mobile devices on children: Steps to be taken ASAP for the protection of children and future generation](#)
- **Stella Canna-Michaelidou, PhD**, President of the National Committee on Environment and Children's Health of Cyprus, [Multi-Media Public Health Tools to Promote Public and Health Professional Understanding of Wireless Radiation](#) PDF of January 2017 IIAS Presentation

News Reports from Cyprus

- April 2016 - Dr. Michaelidou, President of the Cyprus National Committee, gives presentation: ["Environment and Health of the Child"](#), presenting on the issue of Electromagnetic radiation and its effects on children's health.
- Sigma TV News Report - [“Children and Wi-fi”](#)
- President of the National Committee "Environment and Child Health" with Professor Loukas Margaritis speaking in a news piece. <https://www.youtube.com/watch?v=WumF2qOUKrU>
- 2015 In-Cyprus News Report: [Mobile devices could harm kids](#)
- 9/2015 News Report Cyprus Mail: [‘Technology harming our children’ MPs say](#)

ARGENTINA

2016 Proposed National Law on Electromagnetic Pollution

- The law proposes a regulatory framework to "radio infrastructure with radiant systems, antennas and all installations capable of generating electromagnetic radiation" in order to "ensure the protection of public health" considering "both thermal effects and biological. " In education and health facilities only wired connections to data networks and Internet access may be used.
- [Electrosensibili News Article](#)

TAIWAN

2015: Government Updated their Protection of Children and Youths Welfare and Rights Act to Ban Cell Phones for Young Children.

- Complete ban on children under the age of two from using electronic devices such as iPads, televisions and smartphones.
- Parents can be fined NT\$50,000 (about \$1600 US Dollars)
- The new law also states that parents must ensure that under-18s only use electronic products for a 'reasonable' length of time.
- Daily Mail News Article - "[Taiwan makes it ILLEGAL for parents to let children under two use electronic gadgets... and under-18s must limit use to 'reasonable' lengths](#)"
- Teen Safe News Article - "[Fined For NOT Monitoring: Taiwan's New Parenting Penalty](#)"

NAMIBIA

2011/2012: Namibia's atomic energy review report states that current so called "safety" standards DO NOT protect citizens from long term health effects.

- [Atomic Energy Annual Review](#)
- "ICNIRP guidelines do not guarantee adequate protection against the long term effects of exposure, such as increased risk of cancer. " - Republic of Namibia: Atomic Energy Board

TURKEY

The Ministry of Health has issued public information brochures that recommend limiting exposure especially for pregnant women and children.

- [Ministry of Health Brochure Mobile Phones and Health Effects:](#)
- The Brochure starts by saying the research on cell phone radiation shows low levels of electromagnetic frequencies "may cause cancer". 13 Recommendations to Reduce Exposure *which include:* Pregnant women and children (under 16) are more vulnerable and they should use the phone only when necessary, Prefer speaker or headset, Decrease time on phones, Use low SAR phone, Keep phone away from the body, Keep phones out of baby and children's bedroom, Turn phone off when you sleep or keep it one meter away from bedside, using phones in cars increases your EMF exposure so it is not recommended.

Education on Safer Phone Use Project

- The project is mentioned in the following document: [“Annual Report from Turkey: National Activities on Health Effects of Electromagnetic Fields.”](#)
- Turkey has begun an educational project funded by Ministry of Internal Affairs, accomplished by Temkoder (Prevention, Measurement of Electromagnetic Pollution and Training Organization), which has resulted in secondary school student training in the safer usage of cellular phones.

Development of regulations prohibiting children’s cell phone use. In 2014, the Ministry of Health started working on new regulations to prohibit cellphone usage for children under 14 year-old children.

- [2014 WHO Report - “Annual Report from Turkey: National Activities on Health Effects of Electromagnetic Fields.”](#)
- However by 2016 the regulation was weakened and in 2016 Turkey stated that they are developing regulations that only would pertain to children under 7 years old.
- [2016 WHO EMF Report - “Short Report Related to National Activities on Health Effects of Electromagnetic Fields”](#)

The Ministry of Communications and Maritime Affairs monitors Electromagnetic fields around the schools and homes.

- [Ministry Website](#)
- The EMF in schools is monitored and the public can get measurements on EMF levels from cell towers and schools at a national site.

GREECE

Greek law mandates lower RF exposures near schools, nurseries and hospitals

- The exposure limits in Greece are at 70% of the official European limits. In areas less than 300 m from schools, hospitals and nurseries the exposure limit is lower at 60% of the official European limits. Cell antennae are prohibited from being on top of schools and nurseries.

2012: The Greek government website materials recommend reducing cell phone radiation to children under 16 and they inform citizens of non-ionizing radiation power levels in their community.

- [The National Observatory of Electromagnetic Fields](#) - Interactive web portal linked to a network of 500 fixed measurement stations throughout Greece that continuously monitor the EMF levels from all kinds of antenna stations in the frequency range 100 kHz – 7 GHz.
- ELF and EMF Site Measurements can be looked up for various locations at [EEAE](#).
- The Greek government funds research as detailed on the [WHO EMF report](#).
- [The Q and A on RF radiation states the following text about children:](#)

“Even though it hasn’t been proven conclusively that children are more sensitive/reactive than adults to exposure to radiation, nevertheless, the direct/pointed recommendation of international organizations is that children be discouraged from [literally translated, learn not to trust] using cell phones. The above statement is supported by the following:

1. *Up to about the age of 16, the nervous system of the human body is in the process of development. Consequently, it’s totally possible (although not conclusively proven by*

relevant scientific research) that up until this age, human being are more sensitive to any number of factors/elements/determinants.

2. Younger people have more years ahead of them than older persons during which the long –term effects of mobile phones can be manifested.

3. Environmental factors/elements have a greater general impact on the health of children than on the health of adults.”

Athens Medical Association

2017: the Athens Medical Association voted to issue 16 recommendations to reduce human exposure to wireless radiation. [Read the press release here.](#)

16 RULES FOR SAFER USE OF WIRELESS COMMUNICATION

- Use your cell phone with caution and make brief calls as necessary
- Children under the age of 14 should make limited use of cell phones
- Do not put your cell phone in contact with your head
- Do not use your cell phone inside a car, train, aeroplane, or elevator
- Restrict cell phone use when children or pregnant women are near
- Keep mobile phones away from your body
- When using your cell phone keep a safe distance from others
- Do not carry or keep your cell phone inside your pockets
- At bedtime, disable WiFi on your router and switch off your mobile phone
- Do not play games on-line; and if you will, first switch to airplane mode
- Hands-Free option is always preferable though may not be completely safe
- Wireless connections may increase your exposure to microwave radiation
- Limit WiFi connectivity and use hard-wired connection whenever possible
- When signal strength is weak do not attempt to make a call
- If a corded landline is available make use of this as a preferred option
- Disable WiFi, Bluetooth & Data options from your cell phone and other mobile device(s) when not needed.

[Athens Medical Association website page on Electromagnetic Radiation and Health Conference](#) whereby doctors voted to issue these recommendations.

CHILE

2012: “Antennae Law” prohibiting cell antennae/towers in “sensitive areas”

- [International Bar Association Legal Practice Division Newsletter: “New communications antennae law in Chile”](#)
- ‘Regulates the installation of antennas used for the emission and transmission of telecommunications services’ This law limits the power of antennas, reduces urban impact of towers through ‘infrastructure sharing’ opens up a process for citizen participation in the approval or denial process, establishes mitigation measures in areas that are saturated with antennas and prohibits towers near “sensitive areas” institutions serving children, the elderly and medically compromised.
- Sensitive areas are those areas that demand special protection due to the presence of educational institutions, nurseries, kindergartens, hospitals, clinics, nursing homes or other institutions of similar nature.
- Chile’s Minister of Transportation and Telecommunications Pedro Pablo Kuczynski stated, “...in

addition to protecting the urban landscape and the goodwill of the neighborhoods, the new law takes care of the most important: the health of people in a precautionary manner as recommended by the World Health Organization, setting strict limits on the powers of the antennas. Chile is setting standards in this regard.”

- [Press release](#)
- RCRWireless News Article - “[Chilean telecom companies need to comply with new antenna law](#)”

IRELAND

Department of the Environment, Community and Local Government Gives Advice to Reduce Exposure

The department has a webpage on Electromagnetic fields which directs people to the advice of the Chief Medical Officer.

- [Advice of the Chief Medical Officer of Ireland.](#)
- “Advice from the Chief Medical Officer on mobile phone use: We may not truly understand the health affects of mobile phones for many years. However, research does show that using mobile phones affects brain activity. There is general consensus that children are more vulnerable to radiation from mobile phones than adults. Therefore the sensible thing to do is to adopt a precautionary approach rather than wait to have the risks confirmed. In the light of these findings, the Chief Medical Officer of the Department of Health and Children strongly advises that children and young people who do use mobile phones, should be encouraged to use mobile phones for “essential purposes only” All calls should be kept short as talking for long periods prolongs exposure to radiofrequency electromagnetic fields. All mobile phone users can reduce their exposure to radiofrequency energy by making fewer calls, reducing the length of calls, sending text messages instead of calling, using cell phones only when landline phones are unavailable, using a wired “hands free” device so that the phone need not be held against the head and refraining from keeping an active phone clipped to the belt or in the pocket”.

Irish Doctors Environmental Association Recommends Wired Connections

- [2013 Letter](#)
- The Irish Doctors Environmental Association wrote a statement in 2013 concerning health concerns with Wi-Fi in school: “We urge you to use wired technologies for your own safety and that of your pupils and staff.”

DENMARK

Denmark Board of Health Provides Recommendations to Reduce Exposure

- [Denmark Board of Health Recommendations on Reducing Cell Phone Radiation](#)
- “As a precautionary measure, the Board of Health recommends a series of simple steps you should follow to reduce exposure from mobile phones:
 - Use the headset or handsfree with earbud, conversation, or use the speakerphone feature*
 - When possible, use text instead of call*
 - Limit the duration of calls*
 - Did not sleep with the phone close to the head*
 - Limit conversations during low reception and while in transport.*
 - Do not cover the phone with aluminum foil, special covers, etc.*

Compare phones' SAR value. Lower SAR require less exposure

Denmark Schools that have removed or reduced wireless exposure; Bjedstrup elementary School og Børnehus, (school and kindergarten) Student must hand over cell phones before classes + no wifi in school premises; [Hammer Free Private School](#) - all internet connections are hard wired; Vejlerne private school - no wifi; Kastanjely kindergarten - no wifi

TANZANIA

2014: Director General of Tanzania Atomic Energy Commission (TAEC), Mr Idy Mkilaha publicly endorses precaution.

- "Mr Mkilaha says that when weighing up this convenient tool with the questionable health impact control, caution and measures must be taken to reduce one's exposure from radio frequency (RF) emissions from the cell phone to prevent health hazards."
- "According to TAEC, we should use hands-free devices or wireless headset to increase the distance between the phone and our heads. This is the best approach because it creates distance between us and the radiating phone... We should also keep phone away from us when dialling. Phones use more radiation during connection time, says TAEC."

News Reports

- AllAfrica News Article: "[Tanzania: We Should Manage Our Cell Phones Properly Otherwise...](#)"
- AllAfrica News Article: [Tanzania: Need to Protect Oneself When Using Cell Phone](#)

Tanzania Commission for Science and Technology Newsletter Details how to reduce cell phone exposure

- [Original Newsletter \(pg. 11\)](#)
- After complaints were raised by residents about health effects the Commission co-authored a published paper that reviews national RF level profiles of the radiation emitted from base stations.
- [Review on Measured and Calculated Radio Frequency Radiation Emission From The Base Stations](#)
- The paper states: "In 2016, [Director General of Tanzania Atomic Energy Commission \(TAEC\), Mr Idy Mkilaha died under investigated circumstances](#) and at this time EHT is unable to find the Reports or official warnings as mentioned in the news reports on the current [Atomic Commission](#) webpage."

ROMANIA

Recommendations Of The Consumers Protection Association Of Romania On Cell Phones And Wireless

- [Recommendations to reduce exposure](#)
- The Association for Consumer Protection in Romania launched a national campaign of information and awareness of consumers entitled "SOS electromagnetic pollution."
- "Do not allow children younger than 12 years how to use a cell phone, except for emergencies. Developing bodies are more susceptible to negative influences from exposure to electromagnetic fields".

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

The Fine Print Manufacturer Warnings

All manufacturers of wireless devices have warnings which describe the minimum distance devices must be kept away from users in order to not exceed the as-tested limits for exposure to wireless radiation. For example, the FCC sets exposure limits for laptops and tablets that are tested 20 cm away from the body.

Why are these Fine Print Warnings important?

If these distances are not maintained, people can be exposed to radiation at levels that exceed the current FCC standard, potentially exposing them to thermal exposures. The SAR for laptops, printers, routers and tablets should be less than 1.6 W/kg for any 1 gram of tissue, as measured 20 cm (~8 inches) from the device. Because of the inverse square law if devices are used closer than 8 inches to the body, exposures grow exponentially. Thus, at 5 inches it could increase 16-fold, and at less than one inch (i.e. on your lap) it could increase 100-fold.

“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 builtin 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 astested 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 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 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](#)

“If your viewer is made out of cardboard, make sure that your audiences understand the limitations of the material: not water-resistant, potentially combustible (especially if lenses are facing a strong light source)”

“Take frequent breaks while using Cardboard. If you experience nausea, discomfort, eye strain, or disorientation, immediately discontinue using Cardboard.”

“If you include magnets, retain the messaging that the viewer contains magnets that may affect pacemakers.” - [Google Cardboard](#)

Examples of Fine Print Warning on Devices Commonly Used in the School

“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.”

[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 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 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](#)

Appendix VII: Insurance Industry Reports on Cell Phones, Wireless and Health

[“Swiss Re SONAR 2014 Report: New emerging risk insights.”](#) Unforeseen consequences of electromagnetic fields are categorized as having a potential impact of HIGH in this report on emerging risks.

“This report highlights 26 new emerging risk themes. It is meant to provide a first indication of what might lie beyond the horizon so that our readers can prepare for future challenges. Themes

were identified through Swiss Re's SONAR process and have been reviewed by Swiss Re's emerging risk management experts. They draw on all areas of insurance, and many themes have cascading effects across areas and lines of business. Unforeseen consequences of electromagnetic fields are categorized as having high potential impacts."

The section on Smart Cities (page 22) states that "an increasing level of interconnectivity and the growing prevalence of digital steering and feedback systems also give rise to new vulnerabilities. These could involve cascading effects with multiple damages as well as long-lasting interruptions if the problems turned out to be complex and/or difficult to repair. Interconnectivity and permanent data generation give rise to concerns about data privacy, and exposure to electromagnetic fields may also increase."

2013 Swiss Re SONAR Report

Swiss Re SONAR 2013 Report: "Emerging risk insights."

"Unforeseen consequences of electromagnetic fields. Potential impact: *High*. Time Frame: >10 Years.

The ubiquity of electromagnetic fields (EMF) raises concerns about potential implications for human health, in particular with regard to the use of mobile phones, power lines or antennas for broadcasting. Over the last decade, the spread of wireless devices has accelerated enormously. The convergence of mobile phones with computer technology has led to the proliferation of new and emerging technologies. This development has increased exposure to electromagnetic fields, the health impacts of which remain unknown. Anxiety over the potential risks related to EMF has risen. Studies are difficult to conduct, since time trend studies are inconsistent due to the still rather recent proliferation of wireless technology. The WHO has classified extremely low-frequency magnetic fields and radiofrequency electromagnetic fields, such as radiation emitted by cell phones, as potentially carcinogenic to humans (Class 2B carcinogen). Furthermore, a recent ruling by an Italian court suggested a link between mobile phone radiation and human health impairment. Overall, however, scientific studies are still inconclusive regarding possible adverse health effects of EMF. If a direct link between EMF and human health problems were established, it would open doors for new claims and could ultimately lead to large losses under product liability covers. Liability rates would likely rise."

1996 Swiss Re Report on Electrosmog

"Electrosmog - a phantom risk." 1996 Swiss Re Report on Electrosmog

"The following chapters explain in detail why it is not possible to answer with certainty the question of whether weak electromagnetic phenomena pose health risks."

This report was later followed up by a 2013 report which stated that the consequences of electromagnetic fields have a high potential impact.

2013 AM Best Briefing

"Emerging Technologies Pose Significant Risks with Possible Long-Tail Losses"

“The risks associated with long term use of cell phones, although much studied over the past 10 years, remains unclear. Dangers to the estimated 250,000 workers per year who come in close contact with cell phone antennas, however, are now more clearly established. Thermal effects of the cellular antennas, which act at close range essentially as open microwave ovens can include eye damage, sterility and cognitive impairments. While workers of cellular companies are well trained on the potential dangers, other workers exposed to the antennas are often unaware of the health risks. The continued exponential growth of cellular towers will significantly increase exposure to these workers and others coming into close contact with high-energy cell phone antenna radiation.”

2011 Business Insurance White Paper

[“The Next Asbestos: Five emerging risks that could shift the liability landscape.”](#)

This white paper examines mass tort exposures that may have the potential to cause major difficulties for commercial policyholders and their insurers and includes workers' overexposure to radio frequency waves from rooftop wireless transmitters and also states, “research, meanwhile, also has shown biological effects from lower-level “nonthermal” exposure, and people exposed at lower levels have reported headache, dizziness, nausea, mood disorders, mental slowing and memory loss.”

2010 Lloyd's of London Report on Electromagnetic Fields

[“Electromagnetic fields from mobile phones: recent developments.” Lloyd’s Emerging Risks Team Report](#)

This report looks first at current views on EMF as stated by international bodies such as the World Health Organisation and the European Union, and then goes on to examine recent scientific research into the field. It finally considers the implications for the insurance industry by scrutinising current legal cases on EMF and any comparisons which can be drawn with asbestos.

"The danger with EMF is that, like asbestos, the exposure insurers face is underestimated and could grow exponentially and be with us for many years.” Lloyd’s refuses to cover claims linked with RF radiation .

Austrian Accident Insurance Institute

2016 Austrian Accident Insurance Institute (AUVA) ATHEM Report 2

[“Investigation of athermal effects of electromagnetic fields in mobile communications.”](#) in German

“The ATHEM 2 project investigated cognitive effects as well as whether and how the RF-EMF changes cells of the human body.”

2011 Austrian Accident Insurance Institute (AUVA) ATHEM Report 1

[“Investigation of athermal effects of electromagnetic fields in mobile radio areas.”](#) in German

“The ATHEM project investigates the athermal (heat-independent) biological effects of radiofrequency electromagnetic fields on an interdisciplinary basis.”

2009 Austrian Accident Insurance Institute (AUVA) ATHEM Report

[“Athermal effects confirmed - Limits questioned - Precaution required.”](#) German document

“The Austrian General Accident Insurance provides a research report on athermal effects of mobile radio radiation and calls for precautionary policies.”

2009 Austrian Accident Insurance Institute Report on Health Risks from Cell Phone Radiation

[“Nonthermal Effects of Electromagnetic Radiation in the Cell Phone Frequency Range”](#)

“The AUVA studies have verified that: Electromagnetic fields from cell phone radiation have an impact on the: Central Nervous System (brain), Immune System, Protein Syntheses.”

“The radiation-induced effects observed, however, were not always dosage-dependent as would be expected from thermal effects. Some cells showed an even stronger response when the 5-minute exposure was followed by a 10-minute break (intermittent exposure). This would also support a nonthermal effect mechanism. The project results, therefore, serve as a further confirmation of the existence of so-called nonthermal effects.” (p. 169)

“Any person, of course, can learn important lessons from these results. The findings of the study show that a cell phone user can minimize the potential risks through a prudent use of this technology.” (p.169)

“One of the observations showed that, among the different cells, those respond particularly strongly, which are metabolically active. This cell property is especially pronounced in growing tissues, that is, in children and youth. Consequently, these population groups would be more susceptible than average to the described effects.”

NEWS ARTICLES

2012 Willis Insurance Broker Article on Electromagnetic Fields

[“Electromagnetic Fields: More than Just an Eye Sore.” pg. 11-12.](#)

“Public health and toxic tort liabilities concerns surrounding EMFs have become contentious among utility companies, regulatory agencies, land owners and other affected stakeholders. While many studies have produced varying (and sometimes contradictory) results, many epidemiological studies suggest a possible human carcinogenic link in a classification group similar to, say – formaldehyde, DDT, dioxins and PCBs.”

“From an insurance perspective, when considering the potential legal and toxic tort implications, a layer of defense against EMF liabilities and exposures could be found through an environmental insurance product. Among other coverage grants being provided, these environmental policies cover third-party bodily injury and property damage claims and legal defense associated with EMFs. Many carriers have EMF coverage built directly into their form via their definition of “Pollutants” (e.g.,...any solid, liquid, gaseous or thermal pollutant, irritant or contaminant

including but not limited to...smoke, vapors, toxic chemicals, hazardous substances... electromagnetic fields...). And, most environmental policies include “diminished third-party property value” in their definition of “property damage.””

2011 Business Insurance Article

[Geisel, Roseanne White. “Insurers exclude risks associated with electromagnetic radiation.”](#)

The article provides a brief overview of electromagnetic radiation and the possible health effects, then notes multiple litigation cases on radiofrequency radiation exposure, as well as interviewing multiple insurance companies.

2011 Business Insurance Article on White Paper “The Next Asbestos: Five Emerging Risks that Could Shift the Liability Landscape”

[“White paper explores risks that could become 'the next asbestos.'”](#)

2002 Real Estate Finance Journal Article on the growing presence of electromagnetic field litigation

[Forcade, Bill S. “Electromagnetic Field Litigation: A Growing Issue for Real Estate and Building Concerns.”](#)

“There is a growing public concern that electromagnetic elds cause personal injury or property damage. That concern is expressed in toxic tort litigation, commercial property transactions, and insurance considerations. Because the number and variety of conicts is increasing, it is important for prudent property managers to understand what this conict is about, what kind of situations prompt EMF conicts, what the courts have done, and what to do to reduce the risks of an EMF conict.”

“Second, EMF litigation is profoundly dependent upon the character of the most recent scientific studies on the health eects of EMF. Even a single reputable scientific study showing that EMF are a direct cause of an adverse health eect could lead to an explosion in litigation.”

1999 Microwave News Article on Refusal of Lloyd’s of London to cover cell phone manufacturers

[Microwave News March/April, “Wireless Notes”](#)

“Lloyd’s of London, the leading U.K. insurance underwriter, is refusing to cover manufacturers of wireless phones against health risks to users of their phones, the Guardian and its sister publication, the Sunday Observer, both leading British newspapers, reported on April 10 and April 11, respectively. The announcement follows the release of the University of Bristol findings of changes in cognitive function following exposure to signals from a mobile phone.”

1999 News Article in the Guardian on Current Status of Britain’s Insurance Policies

[Ryle, Sarah. “Insurers balk at risks of phones.”](#)

News article from the Guardian describing the events leading up to a Lloyd’s underwriting refusing insure phone manufacturers against the damage to user’s health. The article briefly outlines Britain’s efforts in the wake of scientific publications showing harm from cell phone exposure.

EMF Exclusions in Insurance Coverage Policies

[Portland Public School Insurance: GENESIS INSURANCE COMPANY](#)

Pg 30.” Exclusions: This insurance does not apply to:

Bodily injury, personal injury, advertising injury, or property damage arising directly or indirectly out of, resulting from, caused or contributed to by electromagnetic radiation, provided that such loss, cost or expense results from or is contributed to by the hazardous properties of electromagnetic radiation. This includes any costs for the actual or threatened abatement, mitigation, or removal.”

Coverage Part B School Board Legal Liability: Various provisions in this Coverage Part restrict coverage. Read the entire Coverage Part carefully to determine rights, duties and what is and is not covered.

Pg 48 Exclusions: This insurance does not apply to any loss:

“8. Bodily injury, personal injury, advertising injury, or property damage arising directly or indirectly out of, resulting from, caused or contributed to by electromagnetic radiation, provided that such loss, cost or expense results from or is contributed to by the hazardous properties of electromagnetic radiation. This includes any costs for the actual or threatened abatement, mitigation, or removal.

Cost or expense arising directly or indirectly out of, resulting from, caused or contributed to by electromagnetic radiation, provided that such loss, cost or expense result from or are contributed to by the hazardous properties of electromagnetic radiation. This includes any costs for the actual or threatened abatement, mitigation, or removal.”

[California State University Risk Management Authority \(CSURMA\) Self Insured Program](#)

“We will not pay for loss or damage caused by or resulting from any of the following:

Artificially generated electrical, magnetic or electromagnetic energy that damages, disturbs, disrupts or otherwise interferes with any: (1) Electrical or electronic wire, device, appliance, system or network; or (2) Device, appliance, system or network utilizing cellular or satellite technology. But if fire results, we will pay for the loss or damage caused by that fire if the fire would be covered under this coverage form.

For the purpose of this exclusion, electrical, magnetic or electromagnetic energy includes but is not limited to: (1) Electrical current, including arcing; (2) Electrical charge produced or conducted by a magnetic or electromagnetic field; (3) Pulse of electromagnetic energy; or (4) Electromagnetic waves or microwaves. “

Canadian ProSurance Architects & Engineers Policy

In 2015 The General Exclusions section of their Canadian ProSurance Architects & Engineers Policy Document places EMF on the same footing as Asbestos: a total exclusion on liability for all EMF radiation.

“GENERAL INSURANCE EXCLUSIONS: Electromagnetic fields directly or indirectly arising out of, resulting from or contributed to by electromagnetic fields, electromagnetic radiation, electromagnetism, radio waves or noise.

NATIONAL RIFLE ASSOCIATION OF AMERICA Carry Guard™ Declarations and Policy Illinois Union Insurance Company is a Chubb® Company

This insurance shall not apply to...S. Pollution, and 1. any claim relating to the actual, alleged or threatened discharge, dispersal, release or escape of “pollutants” however caused or whenever or wherever happening;

or 2. any request, demand or liability to test for, monitor, clean up, remove, contain, treat, detoxify or neutralize “pollutants”, whether or not any of the NRA (SECTION 1m) 05 17 Page 5 of 10 foregoing are or should be performed by the “individual insured member” or by others.

“Pollutants” means any electromagnetic transmission or fields, or any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalies, chemicals and wastes, including medical waste. Waste also includes materials to be recycled, reconditioned or reclaimed.

Updated Zurich Community Care Liability Insurance

“We will not pay anything under this policy, including claim expenses, in respect of: Electromagnetic fields any liability of whatsoever nature directly or indirectly caused by, in connection with or contributed to by or arising from electromagnetic fields (EMF) or electromagnetic interference (EMI)”

Great American Insurance Group - A Special Environmental Liability Insurance Policy Is needed to cover electromagnetic radiation

“This insurance covers bodily injury, property damage, legal expenses and clean-up costs resulting from pollution conditions associated with a covered location on a claims-made basis.”

“The definition of pollutants includes mold, legionella, electromagnetic fields and methamphetamines.”

A&M Insurance for Medical Professionals - No Coverage for Electromagnetic Fields

“GENERAL INSURANCE EXCLUSIONS: Electromagnetic fields directly or indirectly arising out of, resulting from or contributed to by electromagnetic fields, electromagnetic radiation, electromagnetism, radio waves or noise.”

AT&T Mobile Insurance

AT&T Does Not Cover Damage Caused by Pollutants, Now Including Electromagnetic Fields

“Exclusions:

F. Loss caused by or resulting from the discharge, dispersal, seepage, migration, release or escape of Pollutants

M. “Pollutants” means: Any solid, liquid, gaseous, or thermal irritant or contaminant including smoke, vapor, soot, fumes, acid, alkalis, chemicals, artificially produced electric fields, magnetic field, electromagnetic field, sound waves, microwaves, and all artificially produced ionizing or non- ionizing radiation and waste. Waste includes materials to be recycled, reconditioned or reclaimed.” (pg. 4)

Penn National Insurance, “Commercial Liability Umbrella Coverage Form”

“Bodily injury” or “property damage” arising out of any liability loss, cost or expense directly or indirectly arising out of, or resulting as, a consequence of “electromagnetic radiation”.

Abu Dhabi National Insurance Company Workman’s Compensation Insurance Policy

“Other Exclusions: Any claim bringing of or attributed to electromagnetic fields...”

BIICL Product Liability Forum Insurance Perspectives on Product Liability

“Standard: Pollution, Asbestos, Electromagnetic fields

Due to potentially catastrophic losses and high clean up costs, product liability insurance contracts frequently exclude, whether partially or completely, the insured’s liability for asbestos, pollution and contamination, radiation and electromagnetic fields.

Most UK product liability insurance contracts implement the wording, either in its original or an adapted form, recommended by the Association of British Insurers to exclude liability for gradual pollution or contamination (such as long standing leaks from pipes or tanks).

This wording excludes all liability for pollution or contamination other than that caused by “a sudden identifiable unintended and unexpected incident which takes place in its entirety at a specific time and place during the period of insurance”.

South China Insurance Commercial General Liability Insurance Electrical/Electromagnetic Field/Radio Frequency Radiation (EFL/EMF/RFR) Exclusion Clause 101.07

“This exclusion applies, but is not limited, to any injury, damage, expense, cost, loss, liability or legal obligation to test for, monitor, abate, weaken, control or take any other remedial action with respect to EMF's, EFL's or RFR's. “

ICW Group Exclusion Clause

“Electrical, magnetic or electromagnetic energy that damages, disturbs, disrupts or otherwise interferes with electrical or electronic wire, device, appliance, fixture, system or network. For the purposes of this exclusion, electrical, magnetic or electromagnetic energy includes, but is not limited to: a. Electrical current, including arcing; b. Electrical charge produced or conducted by a magnetic or electromagnetic field; c. Pulse of electromagnetic energy; or d. Electromagnetic waves or microwaves;”

REINS American Institute of Marine Underwriters LIABILITY EXCLUSION CLAUSE (2015)

“Health Hazard or Occupational Disease as defined in the original policy. In the absence of these terms being defined in the original policy, they shall be defined cumulatively as follows: C7.1. Any loss, damage, injury or expense directly or indirectly caused by or arising out of: asbestos; tobacco; coal dust; polychlorinated biphenyls; silica; silicosis; benzene; lead; talc; dioxin; mold; pesticides or herbicides; electromagnetic fields; pharmaceutical or medical drugs/products/substances/devices; or any substance containing such material or any derivative thereof.”

SUN General Insurance

“This policy does not cover any liability, loss, cost or expense directly or indirectly arising out of, resulting from, caused or contributed to by exposure to magnetic electric or electromagnetic fields or radiation however caused or generated.”

Appendix VIII: Wireless Company Statements on Risk in Annual Reports

AT&T Inc.

2016 Annual Report

“Unfavorable litigation or governmental investigation results could require us to pay significant amounts or lead to onerous operating procedures”

“We are subject to a number of lawsuits both in the United States and in foreign countries, including, at any particular time, claims relating to antitrust; patent infringement; wage and hour; personal injury; customer privacy violations; regulatory proceedings; and selling and collection practices. We also spend substantial resources complying with various government standards, which may entail related investigations and litigation. In the wireless area, we also face current and potential litigation relating to alleged adverse health effects on customers or employees who use such technologies including, for example, wireless devices. We may incur significant expenses defending such suits or government charges and may be required to pay amounts or otherwise change our operations in ways that could materially adversely affect our operations or financial results.”

Verizon Communications Inc.

[2016 10-K ANNUAL REPORT](#)

“We are subject to a significant amount of litigation, which could require us to pay significant damages or settlements.

...our wireless business also faces personal injury and consumer class action lawsuits relating to alleged health effects of wireless phones or radio frequency transmitters, and class action lawsuits that challenge marketing practices and disclosures relating to alleged adverse health effects of handheld wireless phones. We may incur significant expenses in defending these lawsuits. In addition, we may be required to pay significant awards or settlements.”

Crown Castle

[2016 10-K ANNUAL REPORT](#)

“If radio frequency emissions from wireless handsets or equipment on our wireless infrastructure are demonstrated to cause negative health effects, potential future claims could adversely affect our operations, costs or revenues.

The potential connection between radio frequency emissions and certain negative health effects, including some forms of cancer, has been the subject of substantial study by the scientific community in recent years. We cannot guarantee that claims relating to radio frequency emissions will not arise in the future or that the results of such studies will not be adverse to us.

Public perception of possible health risks associated with cellular or other wireless connectivity services may slow or diminish the growth of wireless companies, which may in turn slow or diminish our growth. In particular, negative public perception of,

and regulations regarding, these perceived health risks may slow or diminish the market acceptance of wireless services. If a connection between radio frequency emissions and possible negative health effects were established, our operations, costs, or revenues may be materially and adversely affected. We currently do not maintain any significant insurance with respect to these matters.”

Blackberry Limited

[40-F Annual Report for the Fiscal year ended February 28, 2017](#)

*** Important changes from 2014 report

“The Company is subject to risks related to health and safety and hazardous materials usage regulations, and to product certification risks.

The Company must comply with a variety of laws, standards and other requirements governing, among other things, health and safety, hazardous materials usage, packaging and environmental matters, and its products must obtain regulatory approvals and satisfy other regulatory concerns in

the various jurisdictions in which they are sold. There can be no assurance that the costs of complying with such laws, standards and requirements will not adversely affect the Company's business, results of operations or financial condition. Any failure to comply with such laws, standards and requirements may subject the Company to regulatory or civil liability, fines or other additional costs, and reputational harm, and may in severe cases prevent it from selling its products in certain jurisdictions.

In addition, any perceived risk of adverse health effects of mobile communication devices could materially adversely affect the Company through litigation or a reduction in sales. In addition to complying with regulatory requirements, the Company must obtain certain product approvals and certifications from governmental authorities, regulated enterprise customers and network carrier partners. Failure to maintain such approvals or certifications for the Company's current products or to obtain such approvals or certifications for any new products on a timely basis could have a material adverse effect on the Company's business, results of operations and financial condition."

Blackberry Limited 2014 Report had different wording

[40-F Annual Report for the fiscal year ended March 01, 2014](#)

"The Company is subject to regulation and certification risks that could negatively affect its business, and is also subject to allegations of possible health or other risks relating to the use or misuse of the Company's products, or lawsuits and publicity related to such allegations.

The Company must comply with a variety of laws, standards and other requirements governing, among other things, health and safety, hazardous materials usage, packaging and environmental matters, and its products must obtain regulatory approvals and satisfy other regulatory concerns in the various jurisdictions in which they are manufactured or sold. For example, the Company's products must be approved by the FCC before they can be used in commercial quantities in the United States. The FCC requires that access devices meet various standards, including safety standards with respect to human exposure to electromagnetic radiation and basic signal leakage. Regulatory requirements in Canada, Europe, Asia and other jurisdictions must also be met. Although the Company's products and solutions are designed to meet relevant safety standards and recommendations globally, when used as directed, any perceived risk of adverse health effects of wireless communication devices could materially adversely affect the Company through a reduction in sales.

There has also been public speculation about possible health risks to individuals from exposure to electromagnetic fields or radio frequency energy from the use of mobile devices. Government agencies, international health organizations, industry associations and other scientific bodies continue to conduct research on the topic, and there can be no assurance that future studies, irrespective of their scientific basis, will not suggest a link between electromagnetic fields from mobile devices and adverse health effects. Mobile device manufacturers and cellular services providers have been named in lawsuits alleging that the use of mobile devices poses a risk to

human health and that radio emissions have caused or contributed to the development of brain tumors. Other users of mobile devices with multimedia functions, such as MP3 players, have claimed that the use of such products has contributed to or resulted in hearing loss or other adverse health effects. In addition, users of the Company's products who disregard the Company's warnings about using the products while operating a motor vehicle or who use aftermarket accessories, such as batteries, that are not subject to the Company's quality control procedures may also be at risk of bodily harm. The perception of risk to human health or other risks could adversely affect the demand for the Company's Table of Contents 51 products and allegations of risks relating to the Company's products could result in litigation, which could distract management or result in liabilities for the Company, regardless of the merit of such claims."

China Mobile Limited

[2016 Form 20-F](#)

"Actual or perceived health risks associated with the use of mobile devices could materially impair our ability to retain and attract customers, reduce wireless telecommunications usage or result in litigation.

There continues to be public speculation about possible health risks to individuals from exposure to electromagnetic fields from base stations and from the use of mobile devices. While a substantial amount of scientific research conducted to date by various independent research bodies has shown that radio signals, at levels within the limits prescribed by public health authority safety standards and recommendations, present no adverse effect to human health, we cannot be certain that future studies, irrespective of their relative reliability or trustworthiness, will not impute a link between electromagnetic fields and adverse health effects. Research into these issues is ongoing by government agencies, international health organizations and other scientific bodies in order to develop a better scientific understanding and public awareness of these issues. In addition, several wireless industry participants were the targets of lawsuits alleging various health consequences as a result of wireless phone usage or seeking protective measures. While we are not aware of any scientific studies or objective evidence which substantiates such alleged health risks, we cannot assure you that the actual, or perceived, risks associated with radio wave transmission will not materially impair our ability to retain customers and attract new customers, significantly reduce wireless telecommunications usage or result in litigation."

American Tower Corporation

[2016 Annual Report](#)

“Our costs could increase and our revenues could decrease due to perceived health risks from radio emissions, especially if these perceived risks are substantiated.

Public perception of possible health risks associated with cellular and other wireless communications technology could slow the growth of wireless companies, which could in turn slow our growth. In particular, negative public perception of, and regulations regarding, these perceived health risks could undermine the market acceptance of wireless communications services and increase opposition to the development and expansion of tower sites. If a scientific study or court decision resulted in a finding that radio frequency emissions pose health risks to consumers, it could negatively impact our tenants and the market for wireless services, which could materially and adversely affect our business, results of operations or financial condition. We do not maintain any significant insurance with respect to these matters.”

AMÉRICA MÓVIL, S.A.B. DE C.V.

[2016 Form 20-F Annual Report](#)

“Concerns about health risks relating to the use of wireless handsets and base stations may adversely affect our business.

Portable communications devices have been alleged to pose health risks, including cancer, due to radio frequency emissions. Lawsuits have been filed in the United States against certain participants in the wireless industry alleging various adverse health consequences as a result of wireless phone usage, and our subsidiaries may be subject to similar litigation in the future. Research and studies are ongoing, and there can be no assurance that further research and studies will not demonstrate a link between radio frequency emissions and health concerns. Any negative findings in these studies could adversely affect the use of wireless technology and, as a result, our future financial performance.”

T Mobile

[2016 Form 10-K Annual Report](#)

“Our business could be adversely affected by findings of product liability for health/safety risks from wireless devices and transmission equipment, as well as by changes to regulations/radio frequency emission standards.

We do not manufacture the devices or other equipment that we sell, and we depend on our suppliers to provide defect-free and safe equipment. Suppliers are required by applicable law to manufacture their devices to meet certain governmentally imposed safety criteria. However, even if the devices we sell meet the regulatory safety criteria, we could be held liable with the equipment manufacturers and suppliers for any harm caused by products we sell if such products are later found to have design or manufacturing defects. We generally seek to enter into

indemnification agreements with the manufacturers who supply us with devices to protect us from losses associated with product liability, but we cannot guarantee that we will be fully protected against all losses associated with a product that is found to be defective.

Allegations have been made that the use of wireless handsets and wireless transmission equipment, such as cell towers, may be linked to various health concerns, including cancer and brain tumors. Lawsuits have been filed against manufacturers and carriers in the industry claiming damages for alleged health problems arising from the use of wireless handsets. In addition, the FCC has from time to time gathered data regarding wireless handset emissions and its assessment of this issue may evolve based on its findings. The media has also reported incidents of handset battery malfunction, including reports of batteries that have overheated. These allegations may lead to changes in regulatory standards. There have also been other allegations regarding wireless technology, including allegations that wireless handset emissions may interfere with various electronic medical devices (including hearing aids and pacemakers), airbags and anti-lock brakes. Defects in the products of our suppliers, such the recent recalls by a handset Original Equipment Manufacturer (“OEM”) on one of its smartphone devices, could have an adverse impact on our operating results.

Additionally, there are safety risks associated with the use of wireless devices while operating vehicles or equipment. Concerns over any of these risks and the effect of any legislation, rules or regulations that have been and may be adopted in response to these risks could limit our ability to sell our wireless services.”

GCI INC

[2016 Form 10-K Annual Report](#)

“Concerns about health/safety risks associated with wireless equipment may reduce the demand for our wireless services.

We do not manufacture devices or other equipment sold by us, and we depend on our suppliers to provide defect-free and safe equipment. Suppliers are required by applicable law to manufacture their devices to meet certain governmentally imposed safety criteria. However, even if the devices we sell meet the regulatory safety criteria, we could be held liable with the equipment manufacturers and suppliers for any harm caused by products we sell if such products are later found to have design or manufacturing defects. We cannot guarantee that we will be fully protected against all losses associated with a product that is found to be defective.

Portable communications devices have been alleged to pose health risks, including cancer, due to radio frequency emissions from these devices. Purported class actions and other lawsuits have been filed from time to time against other wireless companies seeking not only damages but also remedies that could increase the cost of doing business. We cannot be sure of the outcome of any such cases or that the industry will not be adversely affected by litigation of this nature or public perception about health risks. The actual or perceived risk of mobile communications devices

could adversely affect us through a reduction in subscribers. Further research and studies are ongoing, with no linkage between health risks and mobile phone use established to date by a credible public source. However, we cannot be sure that additional studies will not demonstrate a link between radio frequency emissions and health concerns.

Additionally, there are safety risks associated with the use of wireless devices while operating vehicles or equipment. Concerns over any of these risks and the effect of any legislation, rules or regulations that have been and may be adopted in response to these risks could limit our ability to sell our wireless services.”

TELEFÓNICA, S.A.

[2016 Form 20-F Annual Report](#)

“The telecommunications industry may be affected by the possible effects that electromagnetic fields, emitted by mobile devices and base stations, may have on human health.

In some countries, there is a concern regarding potential effects of electromagnetic fields, emitted by mobile devices and base stations, on human health. This public concern has caused certain governments and administrations to take measures that have hindered the deployment of the infrastructures necessary to ensure quality of service, and affected the deployment criteria of new networks and digital services such as smart meters development.

There is a consensus between certain expert groups and public health agencies, including the World Health Organization that states that currently there are no established risks associated with exposure to low frequency signals in mobile communications. However, the scientific community is still investigating this issue especially with respect to mobile devices. Exposure limits for radio frequency suggested in the guidelines of the Protection of Non-Ionizing Radiation Protection Committee have been internationally recognized. The mobile industry has adopted these exposure limits and works to request authorities worldwide to adopt these standards.

Worries about radio frequency emissions may discourage the use of mobile devices and new digital services, which could cause the public authorities to implement measures restricting where transmitters and cell sites can be located, how they operate, the use of mobile telephones and the massive deployment of smart meters and other products using mobile technology. This could lead to Telefónica being unable to expand or improve its mobile network.

The adoption of new measures by governments or administrations or other regulatory interventions in this respect, and any future assessment on the adverse impact of electromagnetic fields on health, may adversely affect the business, financial conditions, results of operations and cash flows of the Telefónica Group.”

CROWN CASTLE INTERNATIONAL CORP.

[2016 Form 10-K Annual Report](#)

“If radio frequency emissions from wireless handsets or equipment on our wireless infrastructure are demonstrated to cause negative health effects, potential future claims could adversely affect our operations, costs or revenues.

The potential connection between radio frequency emissions and certain negative health effects, including some forms of cancer, has been the subject of substantial study by the scientific community in recent years. We cannot guarantee that claims relating to radio frequency emissions will not arise in the future or that the results of such studies will not be adverse to us.

Public perception of possible health risks associated with cellular or other wireless connectivity services may slow or diminish the growth of wireless companies, which may in turn slow or diminish our growth. In particular, negative public perception of, and regulations regarding, these perceived health risks may slow or diminish the market acceptance of wireless services. If a connection between radio frequency emissions and possible negative health effects were established, our operations, costs, or revenues may be materially and adversely affected. We currently do not maintain any significant insurance with respect to these matters.”

Softbank

(SoftBank is a corporate group comprising the pure holding company SoftBank Corp. and 756 subsidiaries including Sprint, Wireless City Planning and Yahoo Japan. They consolidated Sprint in 2013.)

[2014 Annual Report](#)

“Concerns about health risks associated with mobile devices

There have been claims made that the radio waves emitted from mobile devices have adverse health effects, such as increasing the risk of cancer. Such concerns over adverse effects on health associated with use of mobile devices could make it difficult for the Group to acquire and retain customers, which could impact the Group’s results of operations. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has prescribed guidelines relating to the amplitudes of the electromagnetic waves emitted from mobile devices and base stations. The World Health Organization (WHO) has issued an opinion that there is no convincing evidence that electromagnetic waves have adverse effects on health when their amplitude is within the reference values in the ICNIRP’s guidelines, and recommends that all countries adopt them. The Group complies with a policy for protection from electromagnetic waves based on the ICNIRP guidelines in Japan, and complies with the requirements of the Federal Communications Commission (FCC) in the U.S. However, the WHO and other organizations continue to conduct research and investigations, the results of which may lead to regulations being revised in the future, or new regulations being introduced.”

Nokia

2016 Annual Report

***** Important changes made from 2014 report**

“Regulations about health risks associated with electromagnetic waves.

There have been some research results that have indicated the possibility that electromagnetic waves emitted from mobile devices and base stations have adverse health effects, such as increasing the risk of cancer. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has prescribed guidelines relating to the amplitudes of these electromagnetic waves. The World Health Organization (WHO) has issued an opinion that there is no convincing evidence that electromagnetic waves have adverse effects on health when their amplitude is within the reference values in the ICNIRP’s guidelines, and recommends that all countries adopt them. The Group complies with a policy for protection from electromagnetic waves based on the ICNIRP guidelines in Japan, and complies with the requirements of the Federal Communications Commission (FCC) in the U.S. However, the WHO and other organizations continue to conduct research and investigations, the results of which may lead to regulations being revised in the future, or new regulations being introduced. Complying with such revision or introduction of regulations may incur costs, or may restrict the Group’s business operations, which could impact the Group’s results of operations. Moreover, regardless of the presence of such regulations, concerns over the adverse effects on health associated with use of mobile devices could make it difficult for the Group to acquire and retain customers, which could impact the Group’s results of operations.” - pg. 71

2014 Annual Report

“An unfavorable outcome of litigation...allegations of health hazards associated with our businesses could have a material adverse effect on us.

Although NOKIA products are designed to meet all relevant safety standard and recommendations globally, we cannot guarantee we will not become subject to product liability claims or be held liable for such claims or be required to comply with future regulatory changes in this area, and these could have a material adverse effect on our business. ‘ “We have been involved in several lawsuits alleging adverse health effects associated with our products, including those caused by electromagnetic fields and the outcome of such procedures is difficult to predict, including the potentially significant fines or settlements.” “Even a perceived risk of adverse health effects of mobile devices or base stations could have a material adverse affect on us through reduction in the demand for mobile devices having an adverse effect, for instance through decreased demand for mobile networks or increased difficulty in obtaining sites for base stations.”

Microsoft

2016 Annual Report

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
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“U.S. cell phone litigation

Nokia, along with other handset manufacturers and network operators, is a defendant in 19 lawsuits filed in the Superior Court for the District of Columbia by individual plaintiffs who allege that radio emissions from cellular handsets caused their brain tumors and other adverse health effects. We assumed responsibility for these claims as part of the NDS acquisition and have been substituted for the Nokia defendants. Nine of these cases were filed in 2002 and are consolidated for certain pre-trial proceedings; the remaining 10 cases are stayed. In a separate 2009 decision, the Court of Appeals for the District of Columbia held that adverse health effect claims arising from the use of cellular handsets that operate within the U.S. Federal Communications Commission radio frequency emission guidelines (“FCC Guidelines”) are pre-empted by federal law. The plaintiffs allege that their handsets either operated outside the FCC Guidelines or were manufactured before the FCC Guidelines went into effect. The lawsuits also allege an industry-wide conspiracy to manipulate the science and testing around emission guidelines.”