

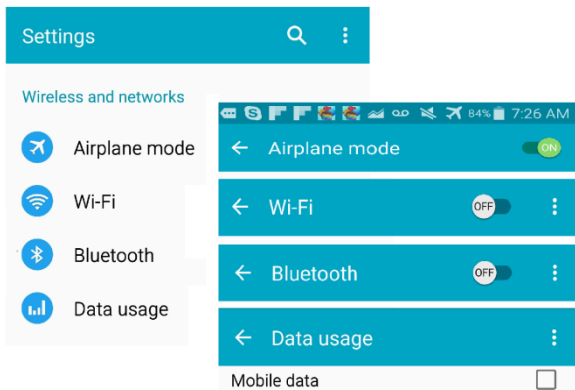
10 Recommendations for EMF Safety

RECOMMENDATION #1: Stop your cell phone from chatting when you aren't.

Data services, whether using Mobile Data or Wi-Fi, may result in continual wireless exposure, even when you are not actively using your cell phone. To reduce your risks, turn off data services the majority of the time and use regular phone service/SMS only, or search for an option to reduce background data transmissions.

When cell reception is low, cell phones typically increase in radiation levels to compensate. In such cases, turn on **Airplane mode** the majority of the time if possible, or else keep your cell phone at a distance of at least a meter from your body and use a headset or speakerphone. When you are sleeping, **Airplane** mode is also a good idea.

Instructions for Android:



Swipe down from the top of the screen and select the gear icon to access the **Settings** menu.

Steps to Use Phone/SMS Service Only:

Select **Data usage**, and uncheck "Mobile data."

Select **Wi-Fi**, and switch to Off.

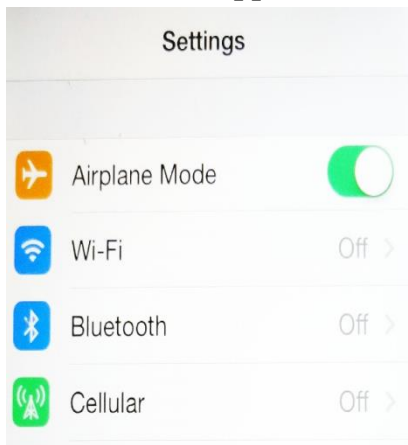
Select **Bluetooth** and switch to Off.

Steps to Turn on Airplane mode:

Select **Airplane mode** and switch to On.

Further Ideas: Search Google Play for an APP to specify an auto-sync interval at which to briefly turn on Internet Services to download new messages.

Instructions for Apple iPhone:



Steps for Phone service/SMS only:

Settings menu >

Airplane mode: Off

Wi-Fi: Off

Bluetooth: Off

Cellular: Switch off

[Cellular Data](#)

Steps to Turn on Airplane Mode

Settings menu >

Airplane mode: On

WHY YOU SHOULD CARE:

- The [NIH National Toxicology Program study](#) revealed that rats subjected to approximately 9 hours a day of nonthermal Radiofrequency Radiation for 2 years had increased rates of brain and heart tumors.
- The [Volkow study](#) published in the prestigious JAMA journal found impacts to brain glucose metabolism with only 50 minutes of cell phone use.
- According to reports on the Interphone study, approximately **30 minutes a day** of cell phone use increases brain cancer risk over 10 years. 30 minutes a day was considered "heavy usage" by that study!

OTHER INTERESTING FACTS:

- **CANCER LATENCIES:** The average latency between smoking and lung cancer is approximately 20 years. Most cell phone studies that look at **10 years or longer** find increased cancer risks from cell phone use, with exception of an industry-funded Danish study that excluded heavy business users and youths. Shorter length studies are deceptive, since typical cancer latencies are over a decade.
- **YOUTHS ARE AT GREATER RISK:** Swedish researcher Leonnart Hardell found that children **under age 20** have a much higher odds ratio for certain brain tumors compared with adults older than 20. Ronald Herberman also found that **brain cancer is increasing among the young adult population**. Some [government health agencies](#) are now recommending that youths do NOT use cell phones at all.

RECOMMENDATION #2: Keep your cell phone away from your ear and your pocket!

Next to time, distance is your other best friend. Putting the cell phone against your ear, in your shirt pocket, in your pants pocket, or any other place on your body, should be avoided. Many [cell phone manuals](#) call for keeping a small distance from the body to avoid exceeding official safety guidelines, which are pretty lax to begin with.

Radio Frequency Radiation Is Reduced With Distance (but can still be considerably high)



391 mW/m²



~11x reduction at 22cm (36 mW/m²), but still showing red warning light

Speaker mode, air tube headsets, and texting can help to increase distance, thereby reducing radiation tremendously, *but as shown above, it may not be enough.* Some [organizations](#) have recommended power densities ≤ 1 mW/m².

In addition to wireless radiation, smart phones also have intermediate frequencies in the kHz range from the LCD screens and/or electronics, the noise of which can be picked up by certain AM radios. Just a few inches of distance should be sufficient to provide a significant reduction.

WHY YOU SHOULD CARE:

- It's not only brain cancer of which experts worry. As reported by the Environmental Health Trust, there are cases of women who had breast tumors precisely where they put their cell phones in their bras. Cell phones may also increase the risk for [salivary gland tumors](#), [tinnitus](#), [infertility](#), memory problems, and many other [biological effects](#) besides brain cancer.
- According to Russell Blaylock, "Most neurological diseases do not become obvious until about 75 percent of brain cells in the affected area have died." Because our brains are quite resilient, internal damage may not be apparent until it is too late. We need to take precautions even before we have adverse health symptoms.
- See a [list of 25 references of effects at levels below our safety standard of 1.6 W/kg](#). Even at 0.0004 W/kg, the blood-brain barrier, which protects the brain from the entry of harmful toxins, can be compromised.
- If you do the [inverse square law calculations](#), and compare the results with the list of known effects by radiation level, potential biological effects are present *even after drastic reductions at 1 meter*.

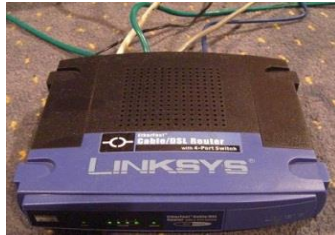
OTHER INTERESTING FACTS:

- **DECEPTIVE SAR MODEL:** The [SAR](#) model uses an outdated standard that only considers thermal effects, despite scientific evidence (e.g., the recently revealed NIH National Toxicology Program study) that show otherwise. The SAR model assumes a head size bigger than ours and may include time and spatial averaging that ignores hot spots and pulsed radiation. SAR ratings can be measured at different distances, resulting in great variance and making comparisons by SAR futile.
- **Not all carrier signals are alike**, according to citations of research contrasting UMTS/WCDMA, GSM, and CDMA. Independent toxicology research is needed to examine the impacts of different frequencies and modulation, and to study newer 4G and 5G technologies.

RECOMMENDATION #3: Disable Wireless Internet, using Ethernet cables instead.



Several countries' [government health agencies](#) have warned about wireless internet's potential health effects. Most Wi-Fi routers transmit continually, even when not in use, resulting in the risk of chronic exposure. If Wi-Fi is still a must, then keep in mind that Wi-Fi routers/access points are not made equally-- some are industrial strength and others are extremely weak. A few even provide the option to adjust the power level. If possible, obtain a low-powered Wi-Fi router and keep a distance of at least 1 to 3 meters when it is powered on. If possible, turn on the Wi-Fi router only when needed and unplug it otherwise.



Prefer Wired to Wireless. Where possible, prefer wired internet to wireless internet. This requires using Ethernet cables to connect your computer to your router, and either disabling wireless functionality on your router or replacing it with a wired router. (For those who are EMF sensitive, note that even wired routers may have electric voltages and intermediate frequencies in the kHz range, which may get injected onto the Ethernet cables. [Grounding the switch or router](#) with a grounding cable can reduce body voltage measurements.)

If possible, only turn on Wi-Fi on your devices (**tablets, iPads, iPods, Kindles, Printers, cameras, video game controllers, etc.**) when needed and do as much as possible offline. Turn off Wi-Fi or enable Airplane mode on your device(s) otherwise, or power them off completely if such an option is unavailable. Otherwise, some devices transmit continuously from the moment of plugging them in. Instead of using your laptop's internal Wi-Fi, you can disable it and choose a low power Wi-Fi USB adapter on a USB extension cable to provide some additional distance.

How to Disable Wi-Fi on your laptop:

- **Microsoft Windows 7 instructions:** Start > Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings > Right-click Wireless Network Connection > Disable
- **Windows 8:** Swipe in from the right of the screen, select the gear icon (**Settings**). Select **Wireless**, and switch of Wi-Fi.
- **Shortcut Keys:** Some laptops have shortcut keys such as Fn-F2 (eeepc) and some laptops have external on-off switches for Wi-Fi that can be used even when the user logged out of the computer.

RECOMMENDATION #4: Beware of DECT cordless phones and DECT baby monitors



Several countries' government health agencies have warned about cordless phones and baby monitors (See Appendix). Keep a distance, since the DECT cordless phone's cradle/base transmits signals continuously. The actual radiation level is high, but appears low when averaged over time due to bursts of radiation separated by time gaps. Make sure the handset also does not transmit continually. In some models, the battery has to be removed to stop this.

If possible, switch to a **wired phone**. If cordless phones are a must, search for an older analog cordless phone whose base station does not transmit continually.



DECT wireless **baby monitors** can pose significant risks to the baby's health, since the radiation is continuous, like the DECT cordless phone's cradle/base, and [some DECT baby monitors are extremely powerful](#), even with a meter's distance. If you must use a wireless baby monitor, the older analog wireless monitors are reportedly safer. Some countries offer voice-activated baby monitors.

WHY YOU SHOULD CARE:

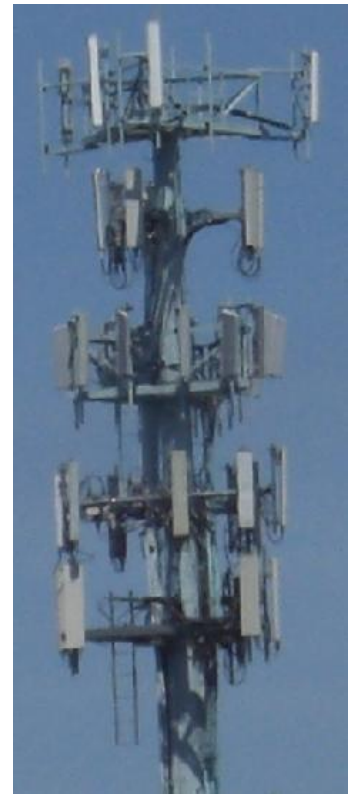
- Leonnart Hardell's studies show similar risks for cordless phones as cell phones.
- Within the home, the exposure to a cordless phone can be more dominant than that of a cell tower.

RECOMMENDATION #5: Be aware of external sources of radiation and keep a setback distance of at least 400 meters from a mobile phone mast.



radio tower and the San Francisco Sutro TV tower.

Cancer increases and other health symptoms have been noted in close proximity around **electricity towers, radio towers, TV towers, and cell towers/masts**. Some of the more well-known towers that have been studied for cancer risk include the Vatican



While the number of radio and TV towers may be tightly regulated, cell tower proliferation has grown tremendously since 1996 with the growing demand for cell phone service. It is important stay at least 400 meters away from a cell tower/mobile phone mast. Look up hidden masts at <http://www.antennasearch.com>.

WHY YOU SHOULD CARE:

- Several [studies](#) have shown increased risk for cancer & other health symptoms within 300-400 meters of cell towers. (Santini, Wolf and Wolf, Eger, etc.)
- Although at a distance, the radiation is lower than that of a cell phone, it is radiating continually and still above levels known to cause health effects, as can be seen by an article by Levitt/Lai in [Environmental Reviews](#).

RELATED PRECAUTIONS:

- [Smart electricity meters](#) are a new wireless technology on the horizon to also keep a watch out for. Moratoriums have been imposed in California due to health, privacy, billing issues, and fire risk. Over 47 California cities and counties have demanded a halt to the installations. Some models are said to transmit signals that are stronger even than cell phones, throughout the day. Beware especially of greater radiation if you are near a relay/collector unit.
- Wireless meters may also be installed for other utilities such as water or gas, for drive-by measurements. The drive-by type may be of lower intensity and frequency than the smart meters, and is less of a concern.
- [Electricity towers and power lines](#) can result in high magnetic fields, and a minimum setback of 150 meters is recommended. However, they are not the only source of magnetic fields. **Wiring errors** are a typical cause of high magnetic fields in homes far from power lines, as noted by Karl Riley in the California EMF program. Sometimes these wiring errors, such as ganged neutrals, or improper neutral-to-ground connections outside of the main service panel, can be fixed. Regular appliances like alarm clocks also have magnetic fields, but as point sources, a setback of only 1 meter should be sufficient to reduce the magnetic fields for most devices. Electric fields, rather than magnetic fields, however are another concern for electrical appliances, as will be mentioned later.



RECOMMENDATION #6: Avoid Dimmers and Choose LCD TV's over Plasma TV's



Avoid ***dimmer switches, and dimmable devices***, which have broad-spectrum kHz frequencies, which can be detected by an AM radio at low kHz frequencies. Under certain conditions, those frequencies can travel along the wiring of the home to pollute the entire home.

Prefer using regular ***on-off dipole switches***, which do not have this problem.

Many books covering EMF remediation bring up this precautionary measure, including *Overpowered, Zapped, Prescriptions for a Healthy House, Radiation Rescue* ("Experts' Action Plans"), and *The Powerwatch Handbook*.

Plasma TV's emit very high levels of intermediate frequencies in the kHz or MHz range that may be up to a thousand times higher than an LCD TV. This can be detected with the Grundig G8 Traveler radio from Radio Shack. It might take a ~12 meter set back to reach levels for which a regular LCD TV would only require ~2 meters. Wiring in the walls may carry the intermediate frequencies, and metal structures may also re-radiate the frequencies. The Plasma TV's radiation is strong enough to pollute an entire home, when the plasma TV is turned on. If you have no alternatives, limit your TV time and turn it off afterwards.

WHY YOU SHOULD CARE:

- Unlike a radio station, which only occupies a small band of the kHz frequencies, a plasma TV occupies a wide soup of kHz / MHz frequencies, including frequencies not covered by radio stations. One ham radio (amateur radio) operator called the plasma TV the "mother of all RFI producers".

RELATED PRECAUTIONS:

- A projector can also generate very high intermediate frequencies, once plugged in to power. Observe a distance of at least a meter if possible.

RECOMMENDATION #7: Use a regular incandescent light bulb instead of a CFL energy-efficient light bulb.

CFL light bulbs (right), results in greater [intermediate frequency exposure in the kHz range](#), as well as UV radiation and some blue light radiation. Furthermore, if broken, the mercury exposure can be dangerous. If you have no alternatives, keep a distance of at least 1-3 meters.



Halogen lighting, on the other hand, is often associated with high AC magnetic fields, but this can be reduced with a meter's distance from the light source.

As mentioned above, ***avoid lamps with dimmers***, due to their broad-spectrum intermediate kHz radio-frequencies.

WHERE POSSIBLE, PREFER:

- ***Incandescent light bulbs***, although old-fashioned, seem to be the healthiest lighting choice, although not as energy-efficient.
- ***LED light bulbs*** may be the next best choice, although they do have some intermediate frequencies and "blue light" radiation so 1 meter of distance is still recommended. (Note: A warm light color may emit less blue light than white light.)
- For the EMF sensitive, note that even with incandescent and LED lighting, the lamp's wiring is typically energized all the time once the lamp is plugged in. If possible, it may be beneficial to [ground the lamp](#) with a shielded, grounded cord.

RECOMMENDATION #8: Run your computer off of battery with a USB wired keyboard & mouse. Keep a distance from computers & monitors!

Keep A Distance: Do not put your laptop directly on your lap, because of potential dangers from the magnetic fields, intermediate kHz radio-frequencies, electric fields (if plugged in), and wireless radiation (if using wireless internet). Keep your body at least 2 feet away from your monitor and computer, and 1 foot away from your USB keyboard and mouse. (EMF sensitive individuals may need to increase that distance, in which case using a lower screen resolution can be used to increase font size.)

Disable Your Wireless Adapter when not needed, preferring a wired connection via Ethernet cables: Argentine researchers found the Wi-Fi of a computer resting on the user's legs could affect male fertility.

Ground Your Computer: If your computer has a 2-pin plug without the 3rd grounding pin, you may be exposed to high AC voltages from your laptop, when it is plugged in, exceeding [SBM 2008 guidelines](#) for body voltage. A grounding cord can be used to [ground your computer](#) from the USB port.

Run Your Laptop On Battery: Due to intermediate frequencies on the AC/DC inverter adapter, the best solution may be to run a laptop off of a long-life battery, unplugging the AC power cable when the laptop is charged. Keep a distance from the transformer on the AC power cable, and unplug when possible.

WHY YOU SHOULD CARE:

- Radiofrequency Radiation and AC Magnetic fields are both IARC Group 2B carcinogens.
- Intermediate frequency sources tend to occupy a broad spectrum of kHz frequencies, subjecting us to a soup of frequencies, of unknown biological consequences.

RECOMMENDATION #9: Be aware of energized cables in the floors and walls and voltages from ungrounded appliances.

Power cables hidden in walls and floors are typically energized up to the outlet or light switch. While commercial buildings usually use shielded metal clad cable, which greatly reduces the exposure to electrical fields, newer residential homes typically use plastic [Romex cable](#), which does not shield the electric fields. Fortunately, most modern homes contain grounded outlets, reducing some of the risk, but not all.

As a precautionary measure for EMF sensitive individuals, it is recommended to place the bed on a [non-metallic frame](#) in an area with lower electrical voltage exposures, or to turn off key circuit breakers at night, routing in power extension cables from a nearby room if needed for limited electricity. An even more advanced option is to install a [remote control demand switch](#) to shut off a circuit's hot wires by a remote control.

Lamps and alarm clocks are usually ungrounded, since they lack the 3rd grounding pin. Furthermore, their cables are also energized once they are plugged in. In fact, a lamp's wire remains energized even when it is plugged in but turned off. To remediate this, a battery-powered alarm clock is a good alternative. Lamps that are metallic can often be [grounded](#) with the help of a licensed electrician.

WHY YOU SHOULD CARE:

- [Electric fields](#) can affect the body's repair processes, which may involve minute voltage gradients (See Robert Becker, *The Body Electric*).
- Like light, nighttime exposure to EMF may result in reduced melatonin levels.
- Neurons that communicate by weak electric fields (Dr Anastassiou et al) may also be impacted.
- A recent [double-blind study](#) on electromagnetic hypersensitivity found that the on-off field transitions of electric fields could have adverse effects on health.

RECOMMENDATION #10: Be holistic and consider nutrition and chemical hazards

Since wireless radiation can open the blood-brain barrier and possibly other tight-junction barriers as well, it is important not only to minimize electromagnetic exposures but also to take extra care of what we eat. The [combined effect of EMF's and chemicals](#) may be worse than the parts. According to the Environmental Health Trust, [one study](#) showed that children exposed to lead and made more cell phone calls were at greater risk of developing ADHD symptoms.

Antioxidants

Fortunately, proper nutrition can help reduce many of the health risks of electromagnetic radiation. Some studies find that antioxidants like vitamin C and E can combat the free radicals generated upon exposure to wireless radiation through the Fenton cycle. This free radical effect of wireless radiation has been confirmed by over 20 research papers. See "[Nutrition for Protection in Wireless Environments](#)" for more information.

Light (for Vitamin D3) and Darkness (for Melatonin)

- Sunlight can help to increase the production of Vitamin D3. One researcher, Dominique Belpomme, found that many people with EMF sensitivity had low levels of Vitamin D3.
- In the evening, melatonin, one of our body's best free radical scavengers, can be interrupted by light and possibly EMF, so it is important to sleep in a pitch dark room with low EMF.

Additional guidelines:

The following are just a few ideas of other things to watch out for:

- Avoid wearing metal on the body. Since metal can act as an antenna, where possible, avoid metal implants, minimize the metal in your eyeglass frame, and avoid wearing metal jewelry and belts.
- Be careful of foods and vitamins which can increase the level of certain metals in your body. For example, avoid foods with additives such as "reduced iron." Try to limit your intake of red meat, another source of unbound iron. Try to avoid drinking black tea with vitamin C, because the vitamin C may increase your absorption of the aluminum naturally found in tea (See Russell Blaylock's newsletter for more information.) Be wary of potential heavy metal contamination of foods and supplements, and of harmful detoxification methods.
- Be aware of the use of fluoride, mercury amalgam fillings, and other metal fillings, used in dentistry. Metals may increase our EMF exposure. EMF's may also trigger greater release of mercury into the body. Replacing metal fillings following IAOMT safety procedures may be helpful for some people.
- Beware of the aluminum or mercury content of flu shots and vaccines that may harm the brain.
- Choose pesticide-free produce for fruits and vegetables most likely to contain high levels of pesticide residues. (Note: Not all organic products are truly pesticide-free nor free of heavy metal contamination.)
- Avoid excitotoxins like aspartame and MSG (often disguised by various other names) and other artificial sweeteners like Splenda and erythritol.
- Avoid genetically modified foods, with the [starting number of 8](#) on the 5-digit PLU number.
- Drink filtered, unfluoridated water, if possible.
- Avoid food with the additive carrageenan, which is inflammatory.
- If possible, prefer glass to plastic for drinking containers to avoid leaching of chemicals into the water. Prefer plastics #1,2,4,5 to [PVC's \(#3\)](#), and check plastics you buy for off-gassing.
- Avoid food coloring dyes when possible.

For more information, see also:

- The study of [building biology](#) (bau-biologie) originates from Germany, where it was noticed that both EMF's and chemical irritants were causing indoor health problems in sick homes.

APPENDIX. HELPFUL REFERENCES

Government and Health agencies:

1. **World Health Organization (May 2011)** added radio frequency radiation to the classification of IARC Group 2B carcinogen (possibly carcinogenic), similar to lead. (Powerline magnetic fields were already deemed a Group 2B carcinogen in 2002). <http://well.blogs.nytimes.com/2011/05/31/cellphone-radiation-may-cause-cancer-advisory-panel-says/>
2. **European council (May 2011)** warns on mobile phones, wireless networks, cordless phones, and cordless baby monitors, and suggests for a ban in schools for health reasons. <http://www.telegraph.co.uk/technology/mobile-phones/8514380/Ban-mobile-phones-and-wireless-networks-in-schools-say-European-leaders.html>
3. **Russian report 2011: Electromagnetic Fields from Mobile Phones: Health Effect on Children and Teenagers, RNCNIRP 2011** – See commentary at <http://electromagnetichealth.org/electromagnetic-health-blog/russian-report/>
4. **Israel's Health Ministry - July 2010** "Israel's Ministry of Health issued a warning today against extensive use of cordless telephones, similar to the warning it has issued about cell phones." <http://www.globes.co.il/serveen/globes/docview.asp?did=1000576383&fid=1380>
5. **European Parliament – February 2009:** “The European Parliament adopted by 559 votes to 22, with 8 abstentions, a resolution on health concerns associated with electromagnetic fields (EMFs). The resolution recalls that wireless technology (mobile phones, Wi-Fi/WiMAX, Bluetooth, DECT landline telephones) emits EMFs that may have adverse effects on human health.” <http://www.europarl.europa.eu/oeil/FindByProcnum.do?lang=en&procnum=INI/2008/2211> "
6. **German government's health protection agency - January 2006:** "The German government's health protection agency recommends the public reduce their exposure to high frequency radiation to minimise health risks. It recommends: • remove cordless DECT phones, • use cabled connections rather than wifi and Bluetooth, • site wi-fi access points away from people, including at work/" <http://www.wiredchild.org/government-alias.html>

For more government health advisories, see <http://www.emfwise.com/government-health-advice.php>

For More Information, see:

- <http://www.emfwise.com/>
- <http://www.ehtrust.org/>
- <http://www.bioinitiative.org/>
- <http://electromagnetichealth.org/>

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