

EMF Protection and Safety

Every year more research is published about the hazard of electromagnetic pollution, and more evidence is collected. The conclusion is now well founded that **electromagnetic fields can adversely affect your health.**

See our page [EMF Health Effects](#) if you are skeptical.

EMF protection begins with good information. If you are aware of EMF risks and EMF protection strategies, you can make better choices to keep yourself and your loved ones safe.

If you cannot make all the recommended changes, do what you can. Every bit helps.

Reduce your exposure to electromagnetic radiation by increasing your distance.

This is the most important rule for EMF protection, and often the easiest to apply.

How much to increase your distance depends on the type of EMF hazard. For example, to halve the field intensity, you might have to move further away by a distance of

25 metres for power lines and cell towers

30 cm (15 ") for your computer monitor

5 cm (2 ") for the electric clock next to your pillow

2.5 cm (1") for the cellphone pressed to your ear

Many people understand that they can improve their EMF safety by moving a hundred metres further away from power lines or cell towers, but they do not realize that they might be able to achieve an even bigger improvement in their personal EMF safety by moving their computer to the floor instead of on the desk, or by sitting further away from their TV.

To get an indication of what distance is safe for many different kinds of appliances, see

our **Sample EMF values** table, but bear in mind that your appliances' EMFs may differ considerably. If you have access to one, it's best to use a suitable **EMF meter**.

General EMF Protection Rule #2

If you cant avoid the EMF exposure, try to keep it short.

It can be quite appealing to watch our appliances at work, to hang around office printers and photocopiers for a chat, or to stand next to the oven while it cooks our dinner.

In all these cases, and in many others, it would be better for your health to apply Rule #2.

General EMF Protection Rule #3

If it doesn't need to be turned on, switch it off

EMF radiation comes from many devices which are left on unnecessarily, for example charger units (for batteries, cellphones, laptops etc.), computers and printers.

Switching off also contributes to the health of the planet and your wallet.

EMF Protection from power lines and substations

Become aware of all major EMF sources in your environment.

First look at the location of the buildings you occupy. Power lines more than 400 metres away are unlikely to have a health impact. Closer than that and you may want to check the EMF strength with a meter.

Local power lines (bringing power to your building) can also be a cause of significant electromagnetic exposure.

Note the position of electricity transformers or substations serving your buildings. The electromagnetic radiation from local substations may extend for 5 to 10 metres. Do not allow children to play in this area.

See **Living near Power Lines** for further information on this topic.

400 meters is also a good distance to keep from cell towers, assuming that you know they are there. (They're getting hard to spot.) See our page [Cell Tower Health Risks](#)

EMF Protection from TV and Radio masts

While you are looking around the area, take a note of how far away you are from TV and Radio masts. These can be very much more powerful than cell towers.

Several studies have linked increased cancer and leukemia rates to proximity to TV masts, especially the very large and powerful ones, which seem to affect cancer rates up to 3 to 5 kilometers away.

Unfortunately there is no effective protection except to apply Rule #1

Home, sweet home - with EMF protection

In the home, electromagnetic radiation originates from house wiring and from electrical appliances of all kinds.

House wiring makes a very significant contribution to many peoples' overall electromagnetic exposure, but its an aspect seldom considered. Some companies offer [EMF house surveys](#). See if you can find one in your area. Or you can do the job yourself with a suitable [gauss meter](#).

See [House Wiring EMF](#) for further discussion.

EMF protection from home appliances

Concerning electrical appliances, some very common household appliances have quite high EMFs. Increase your distance from these devices, and keep your exposure short.

If you make frequent or prolonged use of an appliance, it may be worth finding one with a very low rating. For example, handheld hairdryers often produce high strength EMFs, but if you only use it for 1 minute a day, it may contribute little to your overall exposure.

However, if you are a hairdresser using a handheld hairdryer for a total of maybe 60

minutes a day, then you will want to obtain a low EMF hairdryer. The same would apply to sewing machines for professional garment workers.

See [Appliance/TV Radiation](#) for further discussion.

Bedroom Technique - or Protection from EMF radiation in the bedroom

Try to identify your personal exposure. Pay particular attention to EMFs to which you are exposed for a significant portion of the day. Start with your bedroom, because you spend about 8 hours a day there, so even a small EMF in your bedroom has a significant effect on you.

Switch off electric blankets when not required, and use the lowest setting possible. Keep electric clocks/radios as far away as possible from a sleeping person, preferably 60cm (2') or more for mains devices. Even battery clocks and clock radios should not be right next to your head.

Take note of the place where mains electricity enters your house and the position of the main switch box.

If it is in a bedroom, place the bed/s far away (at least 1.5m). The magnetic portion of the EMF will easily penetrate walls, so think about what is on the other side of the wall too.

Electromagnetic protection from cell phones

Cell phones are shaping up as a major biological hazard, perhaps as significant as smoking cigarettes. Use alternatives (land line phones) where possible.

Do not use cell phones for long conversations or keep others talking on their cell phone for more time than is necessary.

We recommend the use of an air-tube headset, or at least use the speaker-phone facility - so that you can avoid holding the cell phone right next to your head while you talk.

Children need to be protected from cell phone use because their developing brains are especially vulnerable to cell phone EMFs and their skulls are thinner. See **Who is at risk?**

We recommend that children under 10 do not use cell phones for making telephone calls and older children also need strict guidelines.

See **Cell phone Radiation** for a complete discussion on this topic.

Workplace EMF protection

If you spend a lot of time working in an office or factory, try not to sit within 1.5 metres of any major item of electrical equipment, for example, heaters and airconditioners, file servers or printers. Keep a similar distance from neon lights or major electrical wiring junction boxes.

If you work at a computer for much of the day, position it as far away from you (especially your head) as cables allow. If possible, do not use a CRT monitor but use an LCD monitor instead. Keep it as far away from you as comfort and cables allow.

If you have an Uninterruptible Power Supply (UPS), its electromagnetic field could be much stronger than that of the computer. Try to position it 1.5 metres away from yourself and other people.

It is worth taking some trouble to optimize these arrangements if you spend many hours every day in this environment. See our page **Computer Radiation** for a full discussion on office EMF.

Try to avoid working in an environment which is pervaded by wireless devices - networks, Wi-Fis, modems and cordless telephones. Do not take their safety for granted. Radio and Microwave radiation is probably even more dangerous than low frequency (VLF) radiation.

Estimate personal (low frequency) EMF exposure.

After you have applied the recommendations above, it is a good idea to check your daily exposure to low frequency (ELF and VLF) radiation, in milligauss/hours. This will help to make you aware of where your personal electromagnetic exposure is coming from.

This section, and the "EMF budget" limit we propose, applies to low frequency radiation only, not Radio and Microwave EMFs (which are probably dangerous at much lower levels).

A constant ELF/VLF exposure of 1.0 milligauss is generally regarded as safe. That would be equivalent to 24 milligauss/hours (1.0x24) per day.

We set our EMF budget recommendation slightly lower, at 20 mG/hrs.

To calculate it correctly, you need to add in all your EMF exposures from all sources.

For example, if you use a hairdryer (EMF strength of 100 milligauss at 30 cm) for 1 minute every morning, that is 100 milligauss/minutes, or 1.67 milligauss/hours (100/60).

If you sleep for 8 hours next to an electric clock whose EMF strength at your head is 4 milligauss, then you've "clocked up" 32 milligauss/hours (4x8) and blown your EMF budget before you've even got out of bed!.

To calculate your total ELF/VLF exposure in milligauss hours (mG/Hrs):

Make a list of all the appliances that you use every day, together with the duration of exposure (in minutes).

Then look up the milligauss value for each of these items in our **EMF Table**, selecting the appropriate distance for each appliance.

Multiply the mG value by the number of minutes for each item. Sum the mG/minutes for all items. Then divide the total by 60 to arrive at mG/hours.

Adjust your total for special factors like proximity to powerlines (see table), travelling time (see **EMF Radiation from Other Sources**) and any other known ELF/VLF sources.

This method is a somewhat crude tool for defining overall low frequency EMF exposure. But it helps you to see where the bulk of your EMF radiation is coming from and the

overall total helps you to assess your risk.

Having calculated your total daily dose, try to make lifestyle adjustments that will result in the biggest reduction. Go for the easy ones first. (Move the electric clock further from your pillow!)

Suppose you do this exercise and find you are currently absorbing 60 mG/hrs per day of VLF radiation - then an EMF budget of 20 mG/hrs may be out of reach, especially if you work in a high-EMF environment.

So set an attainable budget for yourself, say 30 mG/hrs. When you achieve it, give yourself a pat on the back for halving your EMF radiation exposure. Then see what can be done to reduce it still further.

For additional EMF protection and safety recommendations, see the individual Radiation Source pages (menu top left).

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