

Electromagnetic Survey of a Home

by Andrew Eriksen

I was recently asked to do an electrical survey of a house. The owner had MCS and mild electromagnetic hypersensitivity. Her house was all electric, and she used a computer as well as other common electronic gadgets. The owner complained about having sleep problems and was wondering if there was an electrical problem causing this.

I first walked around the outside of the house, checking the surroundings with my gaussmeter. I use an upgraded version of the TriField meter, which is capable of measuring electromagnetic radiation (EMF) down to about 0.001 milligauss (0.0001 microtesla, 0.1 nanotesla). The standard version is simply not sensitive enough for people who are electrically sensitive.

The house was located on a large 20-acre lot in rural Arizona. On one side of the house, the ambient levels were about 0.002 milligauss, which is about as good as one can get. On the other side, the levels were 0.006 milligauss, a little elevated from the electrical utility feed that came through a buried cable to a meter mounted on the detached garage. From there, a line went to a breaker panel on the outside of the house, on the wall to the utility room.

That was all very fine. In a suburban area, ambient radiation from the utility lines and stray current running in the soil is typically around 0.2 milligauss, and can be more than ten times higher.

Some research has suggested that constant exposures to radiation above one milligauss (0.1 microtesla) can cause health problems long term. People who are electrically sensitive would need levels lower than that, perhaps 0.1 to 0.01 milligauss (0.01 to 0.001 microtesla).

Then I looked at the breaker panel on the side of the house. It was not connected directly to a grounding rod, but was only grounded through the underground cable going to the meter on the garage. This setup reduces ground currents, and is thus a good thing, though many building inspectors would frown upon it.

I took out a small AM radio and set the dial at the lowest end of the scale, where no stations could be heard. Then I put the radio up against the electrical panel. The static did not increase, so it seemed that there was good quality electricity coming into the house. Old wiring and emissions from electrical equipment in nearby buildings can cause “dirty power”, which then can use the wires in the

house as an antenna to emit radiation inside the house. These emissions can be bothersome to extremely sensitive people. If there had been a problem here, it would have sounded like angry bees or some other pattern in my radio, but there was none. So far, everything was perfect.

Going inside the house, I started with the kitchen. On the kitchen counter was a telephone caller-ID unit, with a transformer plugged into the wall. The owner told me she unplugged it at night, and I could show her with the meter and the crackling AM radio that that was a good idea.

However, the main culprit in the kitchen was elsewhere. Her stove had an electrical clock on it, with little hands that were moved by a small electrical motor. The gaussmeter could pick up the radiation everywhere in the kitchen. It went away when we turned off the stove by the breaker. I suggested she consider having a handy person remove the panel on the back of the stove and disconnect the wires to the clock.

Of course, the stove radiates much more than the clock, when the burners are on, but that is only for shorter periods of time, and the owner can just stay well away when not needing to tend the pots. The clock, however, radiates 24 hours a day, and wasn't really necessary.

Moving into the living room, there were several sources of EMF radiation. A boom box was plugged in and emitted radiation from its built-in transformer, even when turned off. I suggested she put it on a power strip, so she only had power to it when actually using it.

There was also a UPS (uninterruptible power supply) for her computer in the den. It was apparently put in the living room to be away from her when she uses the computer, but it was on 24 hours a day and emitted copious amounts of radiation. I knew these devices operate at higher frequencies than the TriField meter is capable of measuring, so I knew the real number was higher than what the meter showed.

The computer in the den was in sleep mode, but radiated EMF nonetheless. The EMF even traveled on the house wiring into the adjacent bedroom. Here the same noise pattern could be heard on the AM radio when I put it up against the electrical outlets there, as could be heard when I put the radio near the computer. It disappeared both places once the computer was turned fully off.

The bedroom has been wired with a kill switch, which is a double-poled switch that disconnects both the hot phase and the neutral wires in the circuit. But that

didn't stop the signals from the computer, which either jumped the switch (which high frequency signals can), or traveled on the ground wire.

In the bathroom, there was an electric toothbrush, which sat in a charger. The charger, of course, radiated EMF. Again, the AM radio proved to be a great educational tool, with the hisses and crackling it emitted when near the toothbrush. The other issue with this electronic tooth brush is the very high levels of EMF it emits when in use, when it is placed very close to the head.

The bathroom also had a rechargeable flashlight plugged into the wall. Using a regular flashlight on batteries would be a better solution for the occasional power outages. I like the LED flashlights for their long battery life, but some sensitive people cannot stand the bluish light these give off.

The house was specially built to be less toxic and with low EMF. The kitchen and the utility room were placed as far from the bedroom as possible. The utility room held an electrical water heater, washer and dryer, and there didn't seem to be any issues there, when not in use.

The survey took about 1-1/2 hours. The problematic devices were unplugged as we went through. When I left the house, it felt more electrically calm to me than when I arrived. Some days later, she told me that she slept better at night now.

Had it not helped, a full survey of the house wiring might have been needed. This is time consuming, as each circuit is inspected closely, to look for common wiring errors.

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