



EMF-Help Blog™

Opportunities for EMF Health in Schools—and Just About Anywhere Else

EMF 101: Measuring Electromagnetic Fields

Measuring Wireless Radiation & RF Exposures

The kinds of wireless and RF exposures to be aware of fall into three categories: **1) Wireless Technologies**, **2) Dirty Electricity** and **3) Radio Towers and Radar**.

1. Wireless Technologies. The first exposure is what you would expect—wireless exposures from cell towers, cell phones, wireless routers and networks, wireless computer equipment (mice, printers, keyboards, etc.), microwave ovens, as well as wireless medical monitoring equipment, wireless energy management systems, “smart” utility meters and grids, etc. It also includes radiation emitted between the handset and base unit of a portable phone, though many people do not realize portable phones emit microwave radiation like cell phones.

2. Dirty Electricity. The second category of concern is radiofrequency radiation (RF) that gets on the wiring in homes, offices and schools. One can think of it as radiofrequency ‘noise’ superimposed upon a 60-hertz electrical current. This is called dirty power, dirty electricity or ‘high frequency transients.’ This noise is a result of various factors, including electronic equipment inside a building that

must convert between alternating and direct current. Dirty electricity also gets onto wiring from high RF environments outside, and from dirty power associated with operation of cell towers in a neighborhood.

Compact fluorescent bulbs and dimmer switches also create dirty electricity, as do many other 'green technologies,' such as solar panels, though generally speaking the 'green building' field is mostly focused on 'green materials' and energy efficiency and not yet on electromagnetic fields. Dirty electricity is carried throughout the electrical circuit in a building irrespective of where it originated. So even if a compact fluorescent bulb is not being used in a given classroom, for example, or there is not electronic equipment in a room, if dirty electricity is being generated somewhere else along the electrical circuit serving that room from CFLs or electronics, children and teachers in that room are potentially impacted, as well.

3. Radio Towers and Radar. Finally, if a school is near sources of radio transmission, such as emergency communications transmitters (police, fire, medical), a broadcast radio or TV tower, or even an amateur radio transmitter, it is important to check the levels of radiofrequency exposure. Radar at airports, weather monitoring facilities, near highways or found aboard ferries, are also microwave sources to consider.

All of these forms of radiofrequency radiation (and microwave radiation, in the case of wireless technologies, a subset of radiofrequency radiation) can be measured and resolved so students, teachers and staff can operate without these biologically disruptive fields in their midst.

It is important schools minimize all of the above fields in

learning environments because, besides the long-term effects not being fully understood, exposures have been linked to: ADD, memory difficulties, irritability, stress, interpersonal disorders, heart irregularities and much more.

We'll begin by walking you through the various kinds of RF exposures and explain how to measure and/or detect them. We'll go deeper into remediation strategies and how to be a successful EMF detective in future blogs, ferreting out the kinds of issues you might find in your particular location, but we first want to give you a foundation in how to measure/detect radiofrequency and microwave fields.

Later, we'll also focus on other fields you will want to know about, as well, such as electric and magnetic fields, as well as "ground current", so you can have a more complete picture of the kinds of exposures possible. Understand that all of these fields can create negative biological effects, and, as recommended in the [**BRAG Antenna Ranking of Schools Report**](#), they should routinely be evaluated as part of your school's Environmental Toxics Audit.

By having a more complete EMF framework, you will be empowered to create safe learning environments, free of unnecessary electromagnetic interference *for all*...teachers, students and staff.

*This blog brings the wisdom of world-class experts in electromagnetic fields to your school. In addition to the written blog, **Campaign for Radiation Free Schools** will also feature audio interviews with scientists, remediation experts and physicians that you can listen to and share among faculty and staff so all stakeholders can learn about this important emerging public health issue together.*

Questions? Schools may e-mail Campaign for Radiation

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