

# EMR Safety from Outside Sources

Fact Sheet



*In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists. – Eric Hoffer*



**Building Biology Institute**  
The science of healthy buildings

## EMR Safety from Outside Sources

External sources of non-thermal electromagnetic radiation (EMR) are omnipresent in our modern world. Both urban and rural neighborhoods, landscapes, public spaces and byways are filled with cell towers, radio towers, high-voltage power lines, electrical transfer/relay stations, smart meters, cell phones, and artificial lighting. Smart phones are especially noxious because powered-on cell phones constantly transmit a radiofrequency signal to the relay tower, regardless of whether the phone is in-use or not.

The three forms of electromagnetic radiation that we will address in this course are:

- 1) static electric and magnetic fields
- 2) AC electric and AC magnetic fields
- 3) radiofrequency radiation

These EMR sources are considered *non-thermal*, non-ionizing radiation since they do not generate heat nor break molecular ions (unlike sources such as X-Rays and Gamma Rays, which are classified as both thermal and ionizing radiation). The lack of heating effects from “non-thermal” EMR provides no heat-based physiological warning nor recognition of the biological and metabolic harm that may be caused by such exposure.

In North America, there are no federal regulatory standards that establish safe human exposure limits for non-thermal radiation. Telecommunications companies insist that EMR levels emitted from their products and towers fall well within federal government limits established by the Federal Communications Commission (FCC) in 1996 (and not updated since). However, they are referring only to the limits set for *thermal* radiation, and not the other biological effects that can occur at non-thermal levels.

There are, in fact, thousands of peer-reviewed scientific studies that indicate adverse health effects from man-made, non-thermal EMR on humans, animals, and plant life. The potential human health risks vary according to such variables as: type of field, field strength, voltage, current, charge, grounding, frequency, wavelength, and power density. In humans, EMR impacts the body at the cellular level, diminishing the ability of cells to defend themselves, and disrupting the cells’ natural processes. For example, cell phones, when carried in immediate proximity to the body, have been shown to result in the production of ineffectual sperm cells and impenetrable ovum, to catalyze rogue cells in breast tissue, and to cross the blood-brain barrier.

The International Institute of Building Biology & Ecology has developed a series of standards that set limits for acceptable levels of human exposure to all sources of non-thermal radiation. There are defined methods and easy practices for mitigating EMR exposure, without forsaking modern communication and lifestyle conveniences.