

RADIOFREQUENCY RADIATION, (RFR):

(RFR Information - Technology Newsletter)

George M. Harris, P.E.

January 18, 2010 , (Revised: November 11, 2010)



Questions:

- What is Radiofrequency Radiation, (RFR)?*
- With cell phones and SO MANY other devices emitting RFR, is it safe?*
- Are the current RFR regulatory policies adequate?*

...In the paragraphs that follow, an attempt is made to familiarize the reader with some of the fascinating elements of this otherwise mysterious phenomenon. (A Full Version of this Letter is available if desired.)

Electromagnetic energy is used everywhere in modern life. Cell phones, blackberries, PDA's, wireless internet connections, TV and radio broadcast and cell phone towers and microwave ovens are just a few examples.

Electromagnetic waves are systems of electric and magnetic fields, traveling together through space at the speed of light. Radiofrequency Radiation, (or RFR), is one example of the broader class of propagating, (or traveling), electromagnetic energy. Since an Electromagnetic Wave has both an electric and a magnetic field component, it is often convenient to express the intensity of the RFR environment at a given location in terms of units that are specific to each field component. For the electric "field strength", the units are expressed in "volts per meter", (V/m), and for the magnetic "field strength", the units are expressed in "amperes per meter", (A/m).

A commonly-used unit for characterizing the total RFR electromagnetic field is called “power density”, or RFR power per unit area. Commonly-used units are expressed as watts per meter squared, (W/m^2), or milliwatts per centimeter squared, (mW/cm^2). Power density is most appropriately used in situations involving cell towers or large broadcast transmitting facilities where the people exposed are much farther away from the transmitting source, (called the “far field”), than is the case with cell phones.

In terms of power density, maximum exposure limits to the general public depend on several factors, including the frequency. For example, the maximum power density allowed for the general public at a frequency of 146 MHz is $0.2 mW/cm^2$.

For cell phones, cell towers, broadcast transmitting facilities, microwave ovens as well as other equipment, other RFR limit standards apply.

*****For much more detailed information, please feel free to view the Full Version of this Newsletter. Click: http://www.micronetixx.com/full_version_rfr_newsletter.pdf**

George M. Harris, P.E.
Micronetixx, P.A.
Direct Phone: (207) 786-2003
Direct E-Mail: gahrris@micronetixx.com
Web.: www.micronetixx.com

CV of G. M. Harris, Click: <http://www.micronetixx.com/George M. HarrisCV.pdf>