

The Electromagnetic Spectrum

The Electromagnetic Spectrum, as this chart shows, takes in the span of frequencies from normal household AC current to X-rays and Gamma rays. The greater the number of cycles per second, the higher the frequency is of the electromagnetic signal, and this frequency of cycles is referred to in numbers of "Hertz."

The frequencies involved in our standard AC electrical currents produce electromagnetic fields – EMFs. Household AC at 50 to 60 Hertz produces Extremely Low Frequency, ELF fields.

Extremely Low Frequency, ELF – indicated in *Hertz, Hz*

Very Low Frequency, VLF – indicated in *Hertz, Hz*

Radio Wave Frequency, RF – indicated in millions of Hertz, in MegaHertz, MHz (*HF, VHF and UHF are below 1 GHz*)

Microwave Frequency, MW – indicated in billions of Hertz, in GigaHertz, GHz

This should help demystify the Hertz designations on wireless devices.

As can be seen on the chart here, at 1 billion billion Hz, **X-rays** penetrate the tissues of the body and cause damage through heating and through the ionization of DNA. Hence these frequencies are called **ionizing radiation**.

Radiation in frequencies below visible light down to ELF do not cause damage to bodily tissues through ionization and *overt* heating. Therefore, these frequencies are called **non-ionizing** and **'non-thermal' radiation**. For a long time it was put forth that these radiations simply do not and cannot damage tissues or interfere with bodily functions, though quite the contrary was already known. Decades ago, in 1971, the U.S. Office of Naval Medical Research issued a report documenting over 100 medical effects as consequences of these radiations, many of them serious – such as reproductive prob-lems and DNA damage, cognitive, emotional and psychological disorders. It is now known that these non-ionizing frequencies trigger the Voltage-Gated Calcium Channels in the cell membrane. These frequency-sensitive VGCCs are key regulatory mechanisms in bodily systems, such as for the heartbeat and for the production and regulation of many hormones and all of the neurotransmitters. To begin learning about this, just search for the short YouTube, "Wireless Radiation Causes Health Effects Via VGCC: Dr. Martin Pall PhD." Dr. Pall brings together the research results from over 20,000 studies.

3G / 4G – lower, longer range wireless radiation that goes up to about 2.8 GHz.

5G – Range 1: 450 MHz to 6 GHz. Range 2: 24.25 GHz to 52.6 GHz.

