

# What is EMF?

## What Does EMF Stand For?

EMF stands for Electromagnetic fields, which are often called EMFs, and invisible electrical and magnetic forces. EMFs are a type of radiation, which take the form of waves.

## Types of Electromagnetic Energy

**Natural EMFs** - The earth produces an electromagnetic field (EMF), and so does the human body. Also known as or extremely low frequency ELF's. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.

Natural EMFs or ELF's are low in intensity; for example, a healthy human body resonates with the earth's magnetic field at around 10 hertz.

**Artificial EMFs** - Human technologies - from hairdryers and cell phones to high voltage wires - create powerful EMFs. These strong EMFs have been shown to disturb the human body's natural energetic field.

Fact: We're exposed to 100 million times greater artificial EMF radiation than our grandparents were, and that exposure grows each year.

There are two parts to an electromagnetic field (EMF): **an electric field and a magnetic field.**

### **The electric field:**

- Created by electric charges, or voltage (the force of the electricity)
- Always there when an appliance is plugged in (even if the appliance is turned off)
- Can be shielded or blocked by metal housing and other barriers.
- Measured in units of hertz

### **The magnetic field**

- Created by moving electric charges (electric current)
- Only there when the appliance is operating (when current is flowing)
- Hard to shield: can penetrate steel, concrete and human bodies (human bodies have the same permeability as air when it comes to magnetic fields, which is why x-rays work so well).
- The more powerful the current is, the more powerful the magnetic field it creates
- Measured in units of gauss (G) or milliGauss (mG), which is one-thousandth of a gauss.

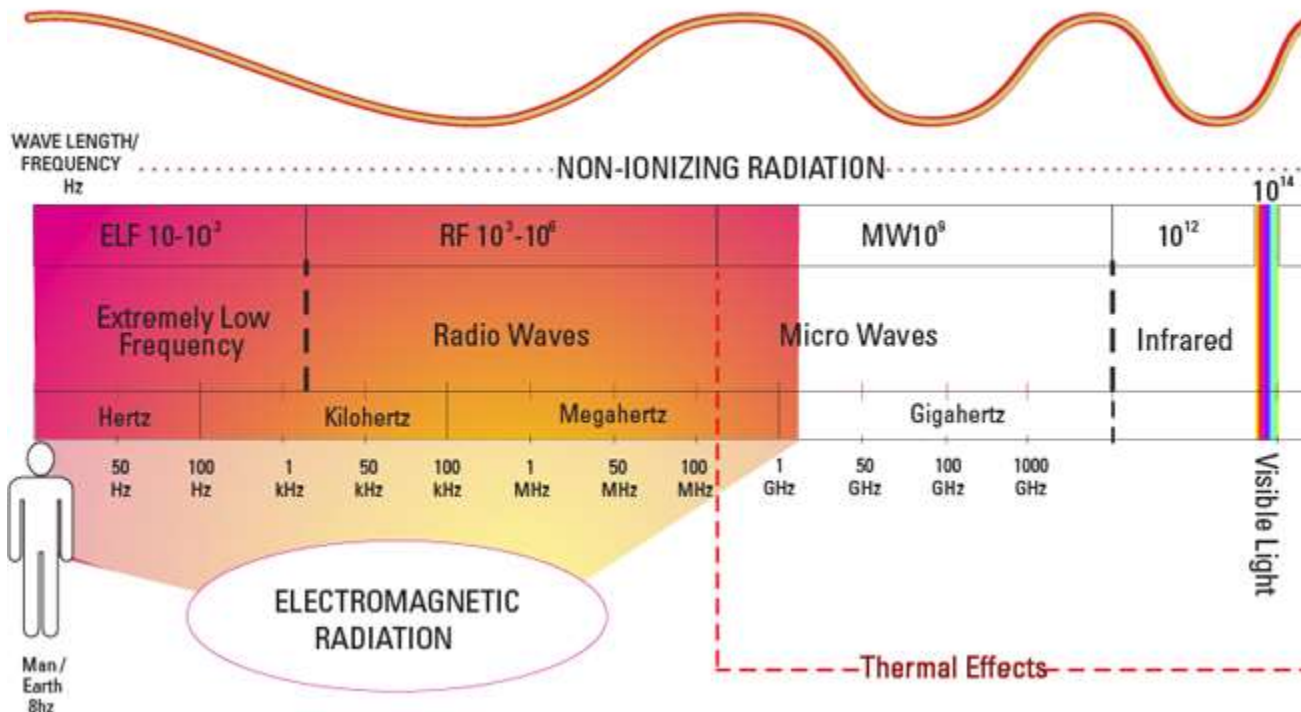
**Both fields are invisible and perfectly silent:** if you live in an area with electric power and cell phone service, some level of artificial EMF is surrounding you.

# The Electromagnetic Spectrum

The electromagnetic (EM) spectrum is the scientific name for types of photon radiation. Radiation is energy that travels and radiates out as it moves. Electromagnetic radiation consists of photons (light particles) which travel in a wave-like pattern at the speed of light.

The amount of energy found in these photons forms the various types of electromagnetic radiation in the spectrum expressed in terms of energy, wavelength or frequency.

Frequency is measured in cycles per second (which is called a Hertz), wavelength is measured in meters and energy is measured in electron volts. The strength of an EMF depends on its wavelength and frequency. A greater number of waves with shorter wavelengths create more energy as you move up the spectrum.



Electromagnetic Spectrum In My Home

## What Is The Range Of Wavelength Of Electromagnetic Waves?

### Extremely Low Frequency (ELF)

- On the low end of the electromagnetic spectrum
- Longer wavelengths
- Come from the 50 - 60 hertz power lines that feed household appliances
- Dangerous to health, especially when near the body for long periods of time.

## Radio Frequency Radiation (RF)

- On the high end of the electromagnetic spectrum
- Come from cell phones, cordless phones, mobile antennas, broadcast towers, electrical security systems, sonar and more
- The higher the frequency or wavelength, the more danger to health

## Microwave Radiation

- Microwaves, with their very short wavelengths are an example of very high radio frequency radiation (RF)
- Microwave radiation has especially been shown to be dangerous to living organisms
- Many cell phone towers operate in the microwave range

## What Ways Are Electromagnetic Waves Dangerous?

Science shows that many processes of the human body are regulated with bioelectrical signals. Strong, artificial EMFs can enter your body interfere with all that, (magnetic fields can even pass into your body and induce current!) harming everything from your sleep cycles and stress levels to your immunities and DNA.

Concern about EMFs has been around a long time. Farmers with sick and dying cattle herds living under high power transmission lines were among the first to sound the alarms.

Since then, decades of research and epidemiological studies conducted all over the world have shown the dangers of the EMFs we live with every day.

**Originally Published by SafeSpace Products**

**Reprint Provided By Energy Equals Wellness, LLC**

**SafeSpace EMF & Wi-Fi Protection Products**

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