



# SCHAEFER NEWS

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## Electric And Magnetic Fields



As we progress into the twenty first century, the impact of our technology on the environment and our health has become an issue of major concern. These are no longer issues left to just the environmentalists, and industry. They are now a concern to home buyers as well.

One such issue that has concerned home buyers is the effects of electric and magnetic fields (EMF) on human health. Is there reason for concern? To what degree should this concern be? The information that follows was taken from material provided by both the power companies and the Connecticut Department of Public Health and Addiction Services. We hope it helps to answer some of your questions.

### What is EMF

EMF stands for electric and magnetic fields. They are not the same, but they both come from the same source, although different aspects of that source. The electricity we use in everyday life, from our homes to our businesses consists of voltages and currents. These alternate level and direction at a frequency of 60 cycles per second (60-Hz). This 60-Hz produces electric and magnetic fields.

**Electric Fields** are produced by voltage. Voltage moves electricity through the wire. These fields are present where- ever there is electricity, even when the appliances these wires lead to are shut off. Electric fields diminish rapidly from their source and can be blocked by objects. Trees and the walls of your house will block these fields from entering your home from outside power sources.

**Magnetic Fields** are produced by current flowing through the wire. These fields only exist when there is current flowing. If you turn off an appliance the magnetic field is no longer present.

The significant difference between these two fields is that electric fields can and are blocked by objects while magnetic fields are not. For this reason nearly all the concern over health risks has been in relation to magnetic fields rather than electric fields. This is the area of ongoing studies by the scientific community and the focus of the following information in relation to their source and risk of exposure.

### Going to the Source

When speaking about magnetic fields, their units of measurement are referred to as a Gauss. Magnetic fields are measured in one one thousandth of a gauss - milliGauss (mG). The level of background field in the average home is 1.0 mG. These fields, generated in the home come from a number of sources, such as your television, light fixtures, clothes dryer and any other home appliance. Whether they are generated from within the home or from an outside source, they drop off rapidly from that source. A television will measure from 8 to 20 mG within 1.5 inches and drop off to 0.1 to 1 mG at 39 inches away.

### Exterior sources of EMF

Transmission power lines of high voltage carry electricity from generation plants to substations and to interconnect neighboring utility systems. These are large cross country lines. Directly under these lines fields will measure 57.5mG dropping to 1.8 200 ft. away. Distribution lines are those which carry electricity from substations to homes, schools and businesses. At the source these will read about 29.7 mG and drop to 1.7mG at 100 ft.

With all of our modern electronic conveniences, it would be impossible to live free of all magnetic fields. Before becoming a hermit, continue to read and find out what the known health risks are at this time.

### Health Risks

Is EMF a health risk? The EPA as of this writing has not taken a position on EMF but refers studies done by other agencies. These studies have concluded, that describing ELF (extremely low frequency) EMF as “possibly” carcinogenic is a conservative public health decision based on “limited evidence...”

The lack of conclusive results provoke only a need for further investigation. A 1992 EPA report noted that "although the existing evidence does not prove a current cause-effect relationship for EMF exposure and human disease, it does suggest the need for further research to allow for a realistic evaluation of the possibility of public health risks and assessment of their potential magnitude".

There are three types of research studies evaluating the possible effects of EMF as a health risk.

1. Epidemiology - studies various human population exposed to EMF.
2. Laboratory studies - exposing animals or humans to EMF to look for possible effects that it may cause.
3. Laboratory studies exposing single cells of tissue to EMF fields, looking for any changes or effects. Although some changes have been noted in these laboratory studies, it is difficult to say whether or not they are negative or will lead to a health problem.