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The medical world has known for decades that the human body (and all other living creatures) through heartbeat and muscle movement produce a measurable EM energy field. In fact this energy has been used in such staple medical procedures as the common EKG. EM shielding has also been used in various applications the most recognizable being the grid in your microwave oven door. The conductive grid is effectively smaller that the height of the energy wave therefore it is unable to pass through and is attenuated in the conductive grid.

Electromagnetic shielding is the process of limiting the penetration of electromagnetic fields into a space, by blocking them with a barrier made of conductive material. Typically it is applied to enclosures, separating electrical devices from the 'outside world', and to cables, separating wires from the environment the cable runs through. Electromagnetic shielding used to block radio frequency electromagnetic radiation is also known as **RF shielding.**

The shielding can reduce the coupling of radio waves, electromagnetic fields and electrostatic fields, though not static or low-frequency magnetic fields. (A conductive enclosure used to block electrostatic fields is also known as a Faraday cage.) The amount of reduction depends very much upon the material used, its thickness, the size of the shielded volume and the frequency of the fields of interest and the size, shape and orientation of apertures in a shield to an incident electromagnetic field.

A **Faraday cage** or **Faraday shield** is an enclosure formed by conducting material, or by a mesh of such material. Such an enclosure blocks out external static electrical fields. Faraday cages are named after the English scientist Michael Faraday, who invented them in 1836.[1]

A Faraday cage's operation depends on the fact that an external static electrical field will cause the electrical charges within the cage's conducting material to redistribute themselves so as to cancel the field's effects in the cage's interior. This phenomenon is used, for example, to protect electronic equipment from lightning strikes and other electrostatic discharges.

To a large degree, Faraday cages also shield the interior from external electromagnetic radiation if the conductor is thick enough and any holes are significantly smaller than the radiation's wavelength. For example, certain computer forensic test procedures of electronic components or systems that require an environment devoid of electromagnetic interference may be conducted within a so-called screen room. These screen rooms are essentially work areas that are completely enclosed by one or more layers of fine metal mesh or perforated sheet metal. The metal layers are grounded to dissipate any electric currents generated from the external electromagnetic fields, and thus block a large amount of the electromagnetic interference. See also electromagnetic shielding. Note that the reception of external radio signals, a form of electromagnetic radiation, through an antenna within a cage can be severely reduced or even totally blocked by the cage itself.

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