
Electromagnetism 101

An electromagnetic field consists of two intrinsically interrelated fields; these are an electric field and a magnetic field. Any change in either one of these will always cause the other to change.

An electromagnetic field has a direction in which it is strongest; this is known as polarisation and is determined by the motion of the electric charge.

The strength of the field changes proportionally as the distance to the source increases or decreases. The strength of the field can also be altered by the materials that it passes through or interacts with; it may also be reflected or attenuated creating regions in which the field strength may be significantly higher or lower than might be expected.

An electromagnetic field may be described in several ways: By referring to its frequency in units of Hertz (Hz); by its wavelength e.g. centimetres, meters, kilometres, etc., or it can be described by reference to its properties i.e. radio, light, heat, etc.

An electromagnetic field can exist around any metal object, water pipes and even the metal structure of a building. Humans and other living organisms also produce an EMF as a result of the electrical activity which occurs within their cells.

Amplitude vs. Frequency

Frequency is the fingerprint of an electromagnetic field. It can be used to identify the source of any EMF that you detect. The amplitude only tells you the strength of an (unknown) EMF.

Single axis vs. Three-Axes

A single axis meter must always be correctly aligned with the orientation of the EMF otherwise it is unable to accurately measure the strength of the field that is present

EMF emitting devices

There are numerous devices which are intended to emit or increase the amount of electromagnetism that is present. This is claimed to increase the 'energy' and to help the spirits to interact with the investigator.

Other devices claim they can be used to detect the presence of a spirit of ghost and alert the user to them interfering with the radiated field.

These devices come in many forms, from steampunk gothic designs and cuddly children's toys. Often they also come with exaggerated claims about the capabilities. These claims are unsupported and their ability to increase or detect paranormal activity is unproven and unlikely to be true.

Many of these devices are also expensive and have become popular after being featured on a number of ghost hunting shows.



To date, there hasn't been a single device that is proven to detect the presence of a ghost or spirit.

EMF meters

Electromagnetic fields occur naturally or they may be man-made. The electromagnetic spectrum is vast and includes radio, microwaves, cellular phones and light. Investigators have increasingly become interested in measuring electromagnetism

Using Equipment

Guidance Notes for Investigators
of Apparitions, Hauntings,
Poltergeists and Similar Phenomena

Investigation Quick Guide



Choosing an EMF meter

Meters which have a large continuous measuring range, i.e., from tens of Hertz (Hz) to hundreds or thousands of Hertz (kHz and GHz) are normally less accurate than meters which have a smaller measuring range. Ideally, look for a meter that covers from around 20Hz up to no more than 1kHz.

Don't be tempted to use a meter that only gives the data using a vague series of lights or sounds. Choose a meter that presents the data using one of the accepted units of measurement, milliGauss (mG) or microTesla (uT).

Three-axis meters do not need aligning with the polarisation of the EMF. They are generally more accurate than single-axis meters which must be orientated with the EMF or they may significantly under-read the true strength of an EMF.

Data-logging EMF meters allow measurements to be taken over an extended period of time, the data can be downloaded and used with additional software to examine the field strength and variability.

Many meters are battery powered although some also have an option to power the device using an adaptor. This can sometimes introduce errors into the measurements. If you are uncertain, test the meter using battery power then repeat in the same place powered by the adaptor. If the value changes, use battery power.

If your budget permits, choose a meter that gives both frequency and amplitude information.

Using the EMF meter

Place the meter well away from any electrical appliances or cables.

Your body will also cause of erroneous values to be indicated. Handholding should if possible be avoided. If the meter is to be used handheld, try to hold it well away from your body.

Keep movements of the meter to a minimum and if you are 'sweeping' an area move the meter slowly.

Take note of the position and orientation of the sensor, this will normally be indicated on the case of the meter or in the instruction manual. Try to align the sensor with the field in order to provide the most accurate measurements.

Ad-hoc or spot measurements will rarely provide you with useful data. It is better to make measurements over a period of time. This can easily be done using a data logging type of EMF meter or by manually recording the values using a record chart.

Baseline measurements should commence as soon as possible and continue until the end of the investigation period.

!!! SAFETY WARNING !!!

Electricity Kills...

Never be tempted to interfere with any electrical appliance or wiring installation. If you suspect any type of electrical fault or failure ALWAYS consult a qualified electrician.

Check the specifications of the EMF meter

The manufacturer should specify the type of electromagnetic field that can be measured and the location of the sensor. Avoid meters that have vague or missing specifications.

Only use the meter for purpose it was intended

EMF meters measure only electromagnetism. They are not intended to act as ghost detectors or spirit communication devices.

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Further Information

For those seeking more comprehensive information about EMF meters and electromagnetism; the Society for Psychological Research has published a useful book.

Using Equipment Guidance Notes for Investigators of Apparitions, Hauntings, Poltergeists and Similar Phenomena.

The book is available in soft back format directly from the SPR website: www.spr.ac.uk (books for sale) and also from Amazon in either printed or kindle formats.

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