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TriField 100XE Meter Instructions

Important Note about the Battery!

Always be sure to turn the TriField Meter off after each use, or the 9 Volt battery will quickly run down and need to be replaced.

To test the battery, turn the knob to the "battery test" position. The needle should fall within the "battery test" area of the display. If not, replace with a fresh 9 Volt battery. To replace, remove the 4 screws in back of the meter with a Phillips screwdriver.

Part A. MAGNETIC FIELDS…

Why Measure the Magnetic Fields?

Over 1000 research studies have reported biological effects related to electromagnetic fields (EMFs). Published studies from around the world have linked EMFs to increased stress, suppression of immune function, cell and hormone changes, psychological disorders including suicide, and increased risks for several cancers.

Magnetic fields are the EMF component most often linked to these serious health effects in the scientific literature – including leukemia, lymphoma, brain and nervous system tumors, and other cancers, as well as suppression of the immune system.

How to Measure Magnetic Fields…

First, turn the knob to the *"Magnetic (0-100 range)"* position, and hold the meter in any location that you wish to test – for example at your bed, on a couch, outside where your children play, etc. The TriField Meter measures magnetic fields in units called "milligauss" (mG).

Read the magnetic field strength from 0 to 100 mG at the top of the display. If the level is less than 3.0 mG, you can turn the knob to the *"Magnetic (0-3 range)"* setting, and then read from the middle of the display (which measures from 0 to 3 mG).

The Tri-Field Meter can be used to the measure *magnetic fields* from all common sources including power lines, transformers, electrical meter and breaker panels, electrical wiring, computers, televisions, lights, clocks, appliances, motors, telephones, and even inside your car!

The TriField is calibrated for accuracy at 60 Hertz – the electrical frequency of power lines, electrical wiring, and most lights and appliances in the United States. The Tri-Field is also frequency-weighted, so that more complicated *magnetic* fields (such as those emitted from computers, televisions, dimmer switches and various electronic devices) will give higher readings. This is helpful, since these types of magnetic fields might also be more disruptive biologically. However, this reduces the accuracy of the meter.

Perhaps of most importance, the TriField can detect *magnetic* fields over an unusually wide range of frequencies – including the higher frequencies emitted from computers, televisions, light dimmers, fluorescent lights and other electronic devices. This is very helpful, because most 60 Hertz gaussmeters will simply not detect these higher frequency fields. However to accomplish this, there is again some sacrifice in accuracy.

For more accurate measurement of the 60 Hertz magnetic fields from power lines, electrical wiring and other sources, a specialized ELF-frequency gaussmeter like the Bell 4080 ELF Gaussmeter or Alpha UHS Gaussmeter is recommended.

What Level is Safe?

There is still a great controversy about the potential health effects from exposure to *magnetic fields*. Please consult with the proper medical authorities and scientific research literature about recommended safety levels and possible health risks. The following information is presented to help offer some assistance.

A series of international epidemiological studies have linked *magnetic fields* from power lines to increased leukemia, lymphoma, and nervous system tumors in children. The lowest level that has been linked to cancer in these studies has been homes with an average exposure level of 2.0 mG (Feychting and Ahlbom, 1993). Therefore, many people consider it wise to use 2.0 mG as an appropriate safety level.

The safety standard that has been recommended for *magnetic fields* by international scientists in the comprehensive 2007 “BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields” is 1.0 mG. (For more information, go to www.bioinitiative.org.)

When a chemical toxin is linked to adverse health effects, the public safety limit is usually established at a level well below that which has been linked to disease. Similarly, to provide an adequate margin of safety for *magnetic fields,* many individuals prefer a safety limit that is set well below the 2.0 mG level linked to leukemia in the Swedish study referenced above. In my own work with clients, we usually try to reduce all long-term exposures down to 0.5 mG or less.

For individuals with severe or chronic health issues such as cancer, multiple chemical sensitivity, chronic fatigue syndrome, autoimmune disease, or hypersensitivity to EMFs, we usually work with a safety limit of 0.1 mG. And since there is no guarantee that any level is completely safe, it may be wise to reduce any exposures to *magnetic fields* as much as reasonably possible.

The average level in homes across the nation is probably between 0.5 to 1.0 mG (based on information from national studies and 17 years of professional testing experience in northern California). In rural areas, the average home level is probably close to 0.5 mG. In very dense urban areas such as San Francisco and New York City – as well as in many offices and commercial buildings – the average exposure level is probably around 1.0 mG.

How to Reduce the Magnetic Fields…

In many homes, certain locations may have high levels, while other areas may be much lower. Using the measurements from your meter, you can arrange your environment to avoid the highest magnetic fields. For example, you can place beds and furniture in the low field areas, and use the higher exposure areas for storage.

Sometimes you can determine exactly what is causing the magnetic fields by turning off one light, appliance, or circuit breaker at a time. If you turn off all the power at the main panel, and if the field levels are still relatively high, the source is probably from nearby power lines or stray electrical current in municipal water pipes.

In the long run, a very good way to reduce your exposure is to use your TriField Meter to test potential new homes or apartments before you buy or rent them. Your meter is also very useful to pre-test automobiles, computers, televisions, and other appliances.

Need Professional Assistance?

Nationwide, we provide telephone consultations to help guide you through the proper steps to reduce the magnetic fields from power lines, building wiring, computers, appliances and many other common sources. The phone consultation fee with Michael Neuert is $120 per hour (prorated for actual time used, 10 minute minimum).

We consult with homeowners, architects, electricians, contractors and others, and we can provide specific advice regarding your particular situation. In California, we also provide on-site testing, repairs, shielding, EMF-Free electrical wiring, and other specialized services.

Part B. ELECTRIC FIELDS…

Why Measure Electric Fields?

Although the most serious health concerns are usually focused on the *magnetic* fields, *electric fields* can also have important biological effects. Electric fields induce voltages onto the skin that are easily measured. Anecdotal evidence suggests that when people are highly "sensitive" to electricity and electrical devices – perhaps having symptoms such as headache, fatigue, nausea, dizziness or other problems – they often may be sensitive to the *electric fields*.

How to Measure Electric Fields…

The 100XE is not a regular TriField Meter, it is a special model with 100 times more sensitivity to *electric fields*. To use it, turn the knob to the *"Electric"* setting, and look at the top scale (0 to 100). Multiply the reading on the top scale by 10 to get the measurement of the electric field in "volts per meter" (V/m).

In most buildings, you will still not measure any *electric fields* strong enough to register on the 100XE meter (except close to cords and electrical wiring in walls). If you do, you may (a) be located near a high voltage power line, (b) be very close to electrical cords or hidden wires, or (c) have problems within the wiring system. For example, if you plug a computer into a wall receptacle that is not properly grounded, it can generate much higher electric fields than normal.

The TriField 100XE can detect *electric fields* as low as 5 volts per meter (V/m). If the TriField Meter detects any electric fields at all in locations where people sleep or spend a lot of time, it may be prudent to investigate further.

We generally try to keep our highly-sensitive clients' exposures well below the 5 V/m sensitivity level of the 100XE, usually down to less than 1 V/m. For greater accuracy and much more sensitive testing of the *electric fields*, we recommend using a Body Voltage Meter to directly measure the voltages induced onto the skin by the *electric fields* in the environment.

What Can I Do To Reduce Electric Fields?

At night, the electric fields from building wiring can be reduced by turning off the appropriate circuit breakers during sleep. The fields from lamps and appliances can be stopped by simply unplugging them.

An electrician can add proper grounding or repair any wiring problems. If the existing wiring is accessible, it can be shielded for a relatively low cost. For new and remodel construction, special "EMF-Free" wiring can be installed using modern shielded materials. And shielded cords can be installed onto lamps and appliances, especially those near beds.

If you need further assistance with the electric fields, we provide consultations via telephone at the rate of $120 per hour. In California, we provide specialized on-site services to test, shield and reduce the electric fields in your home or workplace.

Part C. RADIO/MICROWAVE RADIATION…

Why Measure Radio Frequency and Microwave Radiation?

Radio frequency (RF) and microwave radiation can also cause potential health effects. Typical exposure sources are from cellular phones and antennas, microwave ovens, cordless phones, radio and TV broadcasting, and the growing number of wireless devices and systems.

How to Measure Radio/Microwave Radiation…

Turn the knob to the *"Radio/Microwave"* setting, and point the top end of the meter toward the source. Read the exposure level from the bottom scale on the display (.01 to 1). To check a microwave oven, point the meter toward the oven while it is cooking something.

The TriField Meter measures radio/microwave radiation in units called "milliwatts per centimeter squared" (mW/cm^2). The levels from microwave ovens will usually drop to 0.01 mW/cm^2 at about 5 to 10 feet from the oven. If the level measures more than 0.2 mW/cm^2 at 6 feet from the oven, the seal may be leaking or the oven defective.

The TriField can detect radio/microwave radiation as low as 0.01 mW/cm^2. Unfortunately, while this is sensitive enough to detect microwave ovens, and also some cell phones and cordless phones at close range, this is not sensitive enough to detect many cell phones, cordless phones, cell towers, Wi-Fi networks, wireless routers and other wireless products. For more sensitive testing, especially of the digital microwaves emitted by many modern devices, we recommend a specialized RF detection meter such as the TES 593 RF Test Meter.

What RF Level is Considered Safe?

Again, there is great controversy about what exposure levels are safe. For our clients, we generally try to keep long-term exposures far below the 0.01 milliwatt/cm^2 threshold level of the TriField Meter. The RF safety standard that has been recommended by international scientists in the 2007 "BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields" is only 0.0001 milliwatts/cm^2 (note, this is equivalent to 0.1 *micro*watts per centimeter squared). (For more information, go to www.bioinitiative.org).

Again, if you need further assistance, please contact our office.

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