



EMF TEST KIT INSTRUCTIONS (V1)

WILLIAM S BATHGATE – DE FILTERS LLC

INSTRUCTIONS

PC CONNECTION DETAILS

PICO SCOPE DETAILS

HIGH VOLTAGE DIFFERENTIAL PROBE DETAILS

PICO INTERFACE DETAILS

RF TESTING DETAILS

MAGNETIC FIELD DETAILS/NET CURRENT

ELECTRIC FIELD DETAILS

INTRODUCTION

Here is the EMF Test Kit.

In the package there is the following key equipment

1. LAPTOP PC with Windows
2. A PICO 2205A 25 MHz 2 channel oscilloscope
3. A PICO TA041 25 MHz differential probe
4. RF Testing Meter (either HF35C or Safe & Sound Pro 2)
5. BVK Electric Field Tester
6. Alpha UHS2 Labs 3D Magnetic Field Meter
7. Sperry Instruments DSA600TRMS 12 Function True RMS Digital Clamp Meter
8. Various cables and connectors

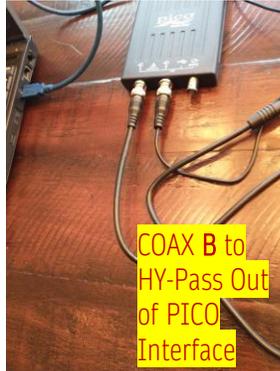


CONNECTION DIAGRAM

SLIDE NUMBER



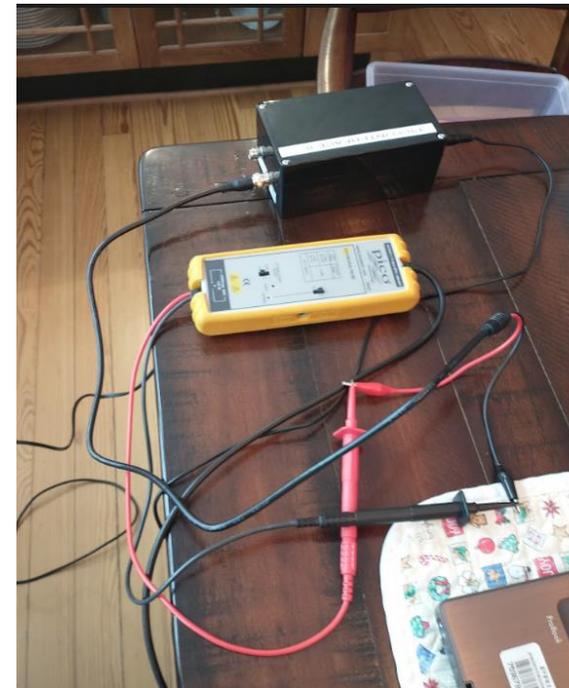
Blue USB Cable



COAX B to HY-Pass Out of PICO Interface



COAX B to HY-Pass Out of PICO Interface



Set High Differential Probe to setting of 1/10 then turn on power

Cable from High Volt Port of PICO Interface To alligator clip cable to High Volt input to PICO Differential probe (Red & Black cable) Then from low voltage Coax output of Differential probe to A port of PICO Scope

Attention - Run PC on Battery only, unplug PC power supply from wall and from PC

FIRST TEST DIRTY ELECTRICITY

- 4 Attention - Plug in Power to PICO interface II LAST!



EMF GUIDELINES

Recommended EMF Levels

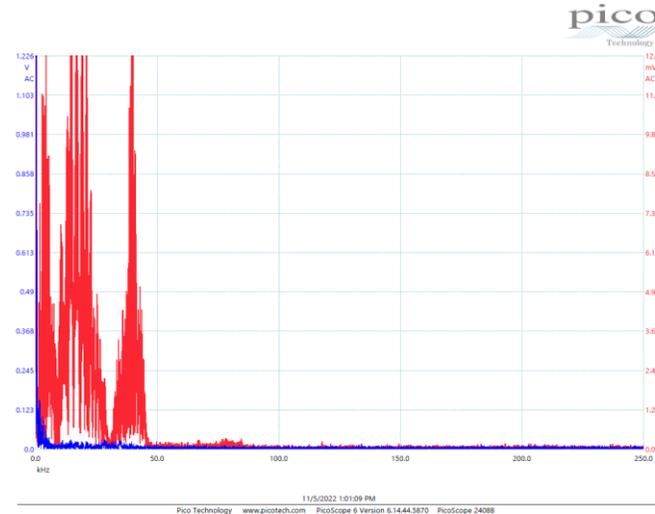
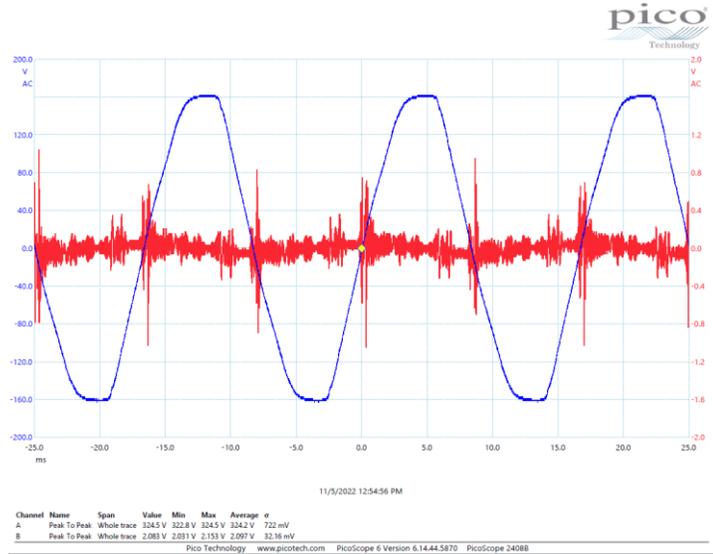
1	AC Magnetic Fields		No Concern	Slight Concern	Severe Concern	Extreme Concern
	Flux Density in milligauss	mG	< 0.2	0.2 - 1	1-5	> 5
2	RF Radiofrequency Radiation		No Concern	Slight Concern	Severe Concern	Extreme Concern
	Power Density in microwatt per square meter	$\mu\text{W}/\text{m}^2$	< 0.1	0.1 - 10	10-1000	> 1000
3*	Dirty Electricity		No Concern	Slight Concern	Severe Concern	Extreme Concern
	Graham / Stetzer GS Units FCC Class B Specs of 250 μV Max		< 30 <250	30 – 50 250-500	51-400 600-800	> 400 >800
4	AC Electric Fields		No Concern	Slight Concern	Severe Concern	Extreme Concern
	Field Strength potential-free in volt per meter	V/m	< 0.3	0.3-1.5	1.5-10	> 10

*Dirty Electricity Guidelines do not yet exist in official Building Biology standards, as the methods and recommendations are still in development. The Dirty Electricity guidelines on this page are based on the research of Building Biology practitioners and other researchers. The only other source of standards for DE is the FCC Class B specification. The maximum rating is 250 μV (Micro Volts) at frequencies above 60 Hz.

PC OPERATION & READINGS

- Fully charge PC battery – Let PC warm up for 15 minutes, PC password if needed is on the white tape on keyboard or there is no password at all
- Once everything is connected then click on the desktop icon for PICO Voltage and PICO Spectrum separately, Shut down PICO software between applications
- In the PICO voltage screen you will see the normal 60 Hz sine wave in Blue on the A channel then simultaneously you will see the DE measurement in Red on the B channel. You will also see the voltage measurement values of channel A and Channel B. A channel will be about 300 -340 volts and B channel will be between 400 Mv to several volts. You should try to have less than 500 Mv peak to peak on the B channel once the system is corrected in your wiring and devices.
- You have been provided a RXDNA V2X filter and Sine Tamer Test Filter to see their effects. A **warning!** the Sine Tamer operates so fast if used on a GFI or Arc Fault breaker circuit it will trip that device, avoid plugging into a kitchen outlet. Get a long extension cable and plug it into another room.
- You have been provided Stetzer Micro Surge Meter, in the kit, while helpful it is hardly an accurate device. It will not measure signals below 10 KHz or above 150 KHz, As you will see on the PICO spectrum views there is a lot of noise below 10 KHz and above 150 KHz, the same if true for most plug in meters. Only a scope can show you the full picture.

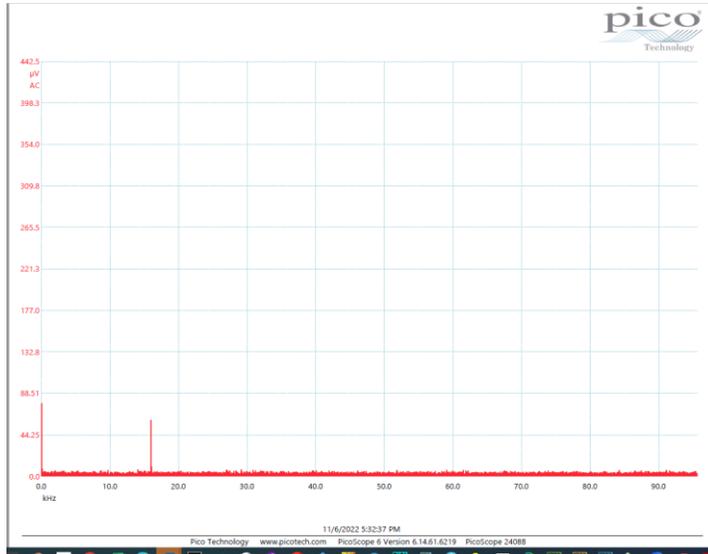
EXAMPLE CHARTS – BEFORE REMEDIATION



Voltage View – Note the voltage in the lower register – Channel B (DE) is about 2.083 volts – way too high, there are dimmer switches on as noted by the sharp red spikes in the waveform – this is about 603 GS Units on the Stetzer Meter

Spectrum View – Note the high DE voltages and frequency of the source. In RED. With this information you can turn off the offending circuits and remove the offending devices or filter the system. With the Spectrum view you can do a lot of analysis of the system using the “Measurements” ICON and check for Harmonic distortion and many other valuable clues to what the system is experiencing.

Example Charts – Neutral to ground Test before remediation



Spectrum View – In this example there is not much happening except at about 15 KHz , but if you see a lot more than this you should investigate this by turning off breakers one by one.

EXAMPLE CHARTS – NEUTRAL TO GROUND TEST BEFORE REMEDIATION



Change this setting to X1

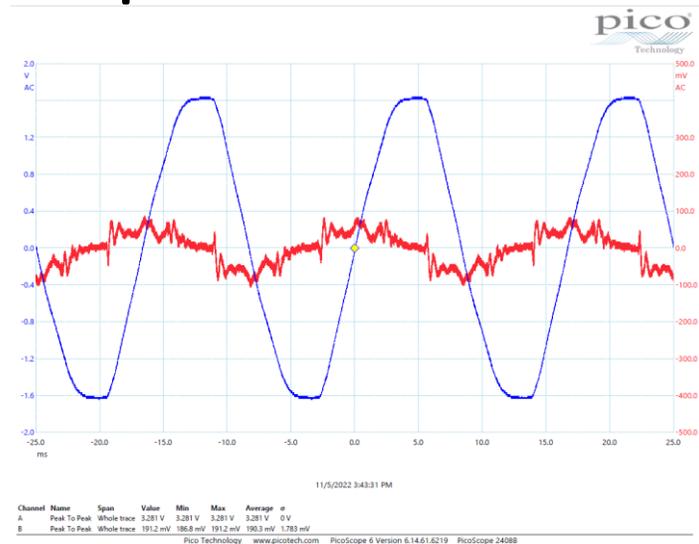


Use Spectrum View –Take the tip probe and connect it to the white wire and take the alligator clip and connect it to the green (Ground) wire. Connect the probe to the B Channel. You can try flipping this around using the probe tip and hooking it to ground and the clip to neutral. Set the probe to X1 not X10. It is safe to touch these wires because there is no power present. You cannot do a test like this with any plug in meter.

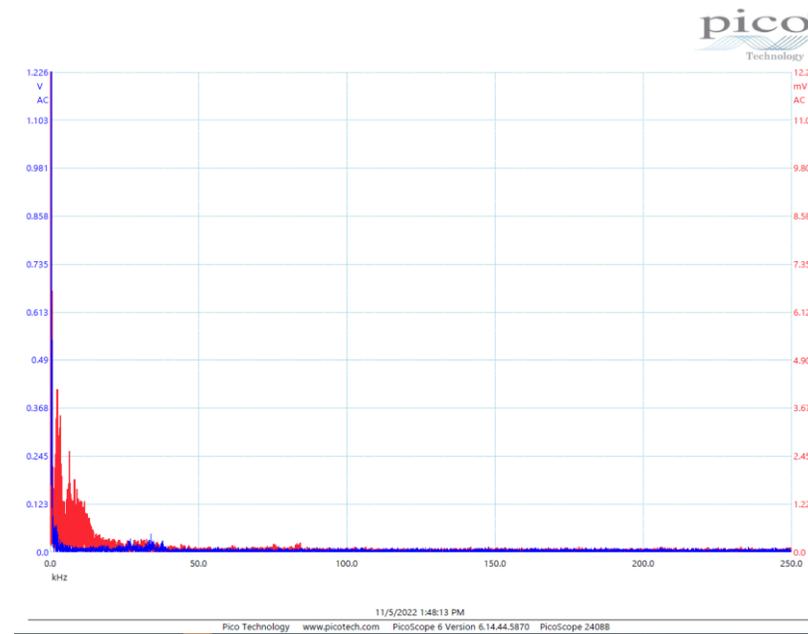


Example Charts After remediation

SLIDE NUMBER

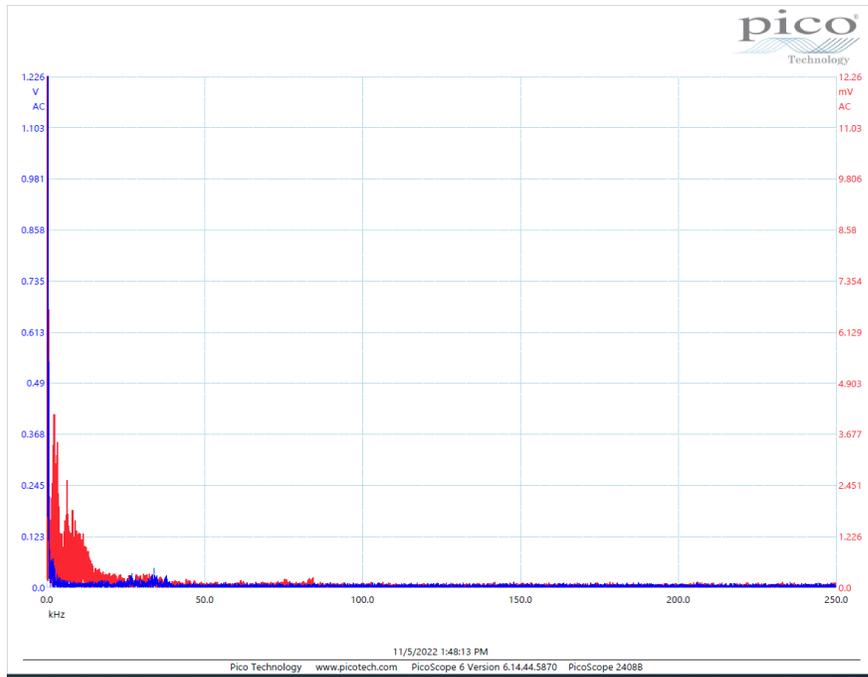


Voltage View – Note the voltage in the lower register – Channel B (DE) is now about 192.1 Mv – 36 GS Units on the Stetzer Meter also note the red spike from the dimmer switches is gone, this was done with a RxDNA V3LF filter. This client was severely sickened by the previous DE present



Spectrum View – Note the high voltage and frequency of the sources are well mitigated. You never figure this out with a plug in type meter. What we found were some very nasty wiring errors, poor grounding, and extensive florescent lighting. We tried the RxDNA V2X filter and the Sine Tamer and they helped a lot but we could only get down to 45 GS units but the spectrum view was about the same as this chart. We upgraded the ground circuit from a #6 wire to a 1/0 wire, which made a big difference. With the RxDNA V3LF we got 23 GS Units.

Example Charts After remediation using the DNA RxDNA V2X and Sine Tamer combined



Spectrum View – Note the high voltage and frequency of the sources are well mitigated. You never figure this out with a plug in type meter. What we found were some very nasty wiring errors, poor grounding, and extensive florescent lighting. We tried the RXDNA V2X filter and the Sine Tamer and they helped a lot but we could only get down to 45 GS units but the spectrum view was about the same as this chart. We upgraded the ground circuit from a #6 wire to a 1/0 wire, which made a big difference.

A word of caution – most low cost filters such as the Stetzer, Green Wave and SATIC take the DE and Turn it into an oscillating current on the neutral. This then goes thru the whole house making you sick and you'll never know why. Check this out

11 <https://defiltersllc.com/de-filter-comparison/?v=93b46a3fc67d>
<https://defiltersllc.com/power-perfect-box-information/?v=93b46a3fc67d>

LED Bulb Testing



Use the Voltage and Spectrum View – and Stetzer Meter. You will find out what I have found none of the LED bulbs are good electrically. They can increase DE. You can use this adapter on the circuit going to the PICO interface voltage view (which is in the kit) and a power strip you can turn Off/On. Do not rely on the Electrical voltage characteristics only, watch the effect on current placed on your electrical system and how it affects the light spectrum exposure to your eyes.

See my testing on my web site.

<https://defiltersllc.com/led-light-bulb-test/?v=93b46a3fc67d>

https://drive.google.com/file/d/1GxYmVcbneLoHxLD8JLeXTlSKn626SE2n/view?usp=share_link

https://docs.google.com/document/d/1qig7JJ3MrynyryPsGCl1qorsUa5zPtDy8/edit?usp=share_link&oid=102842195710321355344&rtpof=true&sd=true

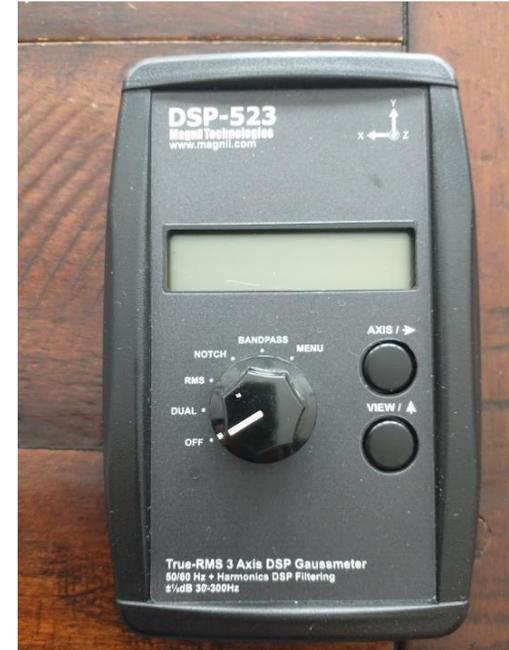
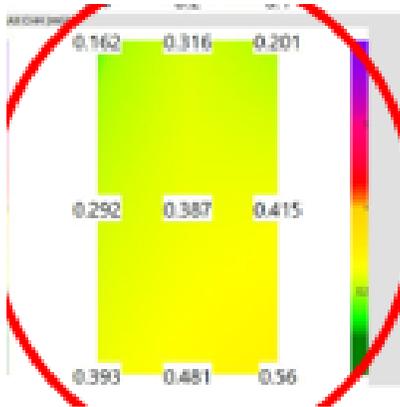
MAGNETIC FIELD TESTS

- You can find magnetic fields with this meter in 3 dimensions, be careful not to wave this unit around, it will give fluctuating readings, keep it steady, there is a full manual provided.
- Check the bed readings with power on and power off, measured at 9 points in the bed, 3 at the head, 3 at the torso and 3 at the feet, write these down and record before and after power is turned off in the room.
- You can check your water pipes for current flow, if you have a magnetic field it will go throughout the house. Install a dielectric union or short section of PEX tubing near the water entrance to remove this. Ground your electric system via a ground rod, do not use a water pipe. Since every home in the block may be using the water pipes for ground avoid doing this. Magnetic fields have a direct link to creating cancer and leukemia.
- One of the most useful things is to check for wiring errors in wall switches for things like "Net Current". See my web site for Net Current <https://defiltersllc.com/net-current-issues/?v=93b46a3fc67d>. This will also detect a ground to neutral error in a sub panel.
- Here is how you find Net Current without opening up the power panel
 - Place meter in a horizontal plane right up to the switch, then slowly move the meter in a horizontal plane about one foot from the switch. If the readings drops quickly, then it is OK, if it falls slowly you have a problem



MAGNETIC FIELDS TESTS

- 9 Point Magnetic Field Bed Map Example
- Here is an Example: 0.3 Mg is the max safe limit



AMPERAGE TESTS

Sperry Instruments DSA600TRMS 12 Function True RMS Digital Clamp Meter

0.000 amps resolution great for detecting Net Current

Includes a full function Voltmeter

See our web site on how to use it here:

<https://defiltersllc.com/net-current-issues/?v=93b46a3fc67d>

If you can physically get to the ROMEX wires to the branch circuits from your power panel, this makes testing very easy. Just turn on every light in the house and then clamp around the ROMEX cable one by one, if you get a reading of more the 0.000 you have net current. Mark that cable with a pen or magic marker or colored tape. Then call an electrician and get it fixed.

Set the unit to 60Amp AC as shown

This device is great for checking you incoming water line. If that shows current you need to install a ground rod instead and use that for your ground. Then place a dielectric union or a short piece of PEX tubing to break the connection from your water service and your electrical system.

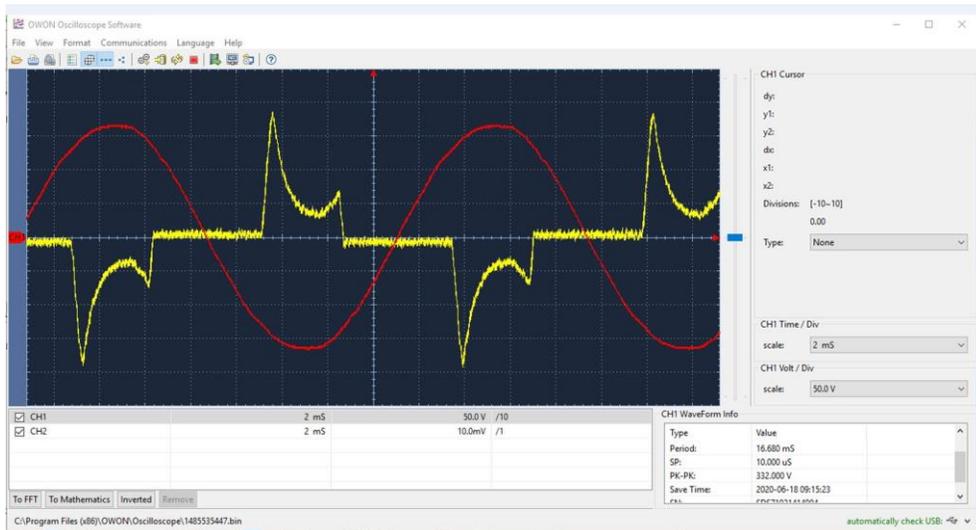


AMPERAGE TESTS

HANTEK CC-65 Scope Digital Clamp Meter

You can use this device to check the amount of current and its waveform on the PICO scope channel B. Use can use the Voltage view or spectrum view. Use the lowest setting . Use 1mV/10 ma setting. You will have to adjust the settings on Channel B in the scope to display the waveform correctly. **Do not forget to turn this off or the battery will go dead.** You can use this to check filters, and appliances etc.

Example LED Bulb Waveform (amps are in Yellow volts are in Red)



Push the big black button to Degauss before taking a reading



ELECTRIC FIELD TESTS

- This is a very nicely packaged Body Volage Kit. This kit can help you create your own "Sleep Sanctuary"
- You can find electric fields with this meter, the blue "E" Pen can be used to detect the wires behind a wall. The "E" Pen is very sensitive and is useful for trouble shooting wiring errors. There is a full manual in the kit and a set of charts (in the PC Case) you can use for logging data.
- This unit is an excellent "Body Voltage" meter and a volt meter. It comes with an outlet tester to help you find a bad outlet. It has all the needed adapters to use with a house outlet ground or an external ground stake. A ground stake is included, but not the wire to extend it where you may needed it to be. You can find that at your local hardware store if needed. It comes with a 50 Ft. cable



- 1 - plug white ground cord into "COM"
- 2 - plug black handle cord into "INPUT"
- 3 - plug black handle cord into handle
- 4 - Turn dial to "V"
- 5 - Press red "SEL" button once
- 6 - make sure "AC" is on screen
- 7 - press blue "HOLD" button if you need screen to be lite

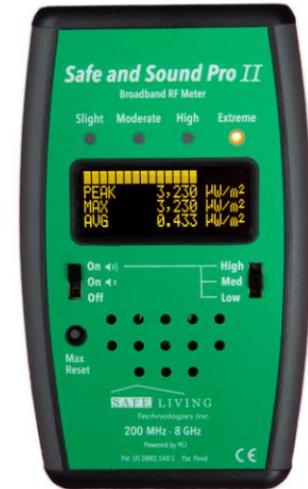
<https://www.youtube.com/watch?v=BOfOPrXDy4g&t=104s>

<https://www.youtube.com/watch?v=rUfQfMra4SA&t=6s>

RF FIELD TESTS

- HF35C 800 to 2.7 GHz
- This is a very RF Measurement Instrument – I can detect RF strength up to 199,900 $\mu\text{W}/\text{Sq}$ Meter with the included DG20 Attenuator (included). Set meter to Peak value.
- **HF35C Antenna: Directional Logarithmic Periodic “LogPer” (log Periodic) 800 MHz – 2.7 GHz 45° beam angle**
- Safe And Sound Pro2 400 MHz to 7.2 GHz, Field Strength of up to 2,500,000 $\mu\text{W}/\text{Sq}$ Meter

Note: Turn off your cell phone when doing testing, otherwise the readings will be skewed, wrap your phone in 2 layers of Aluminum Foil



HF25C Demo

<https://www.youtube.com/watch?v=0U2j0S1KYh8&t=42s>

Safe and Sound Pro2 Demo

<https://www.youtube.com/watch?v=8Rxy5h0jfYA&t=12s>

Sound Identification <https://safelivingtechnologies.com/rf-sounds/>

SUMMARY

We created this test kit due to the highly confusing and protentional misleading information in the field of EMF testing and to help educate the consumer. This will give you the insight to make better informed purchasing of EMF products.



**THANK YOU
CALL 734-627-7610 IF
NEEDED**

WILIAM S BATHGATE
DE FILTERS LLC