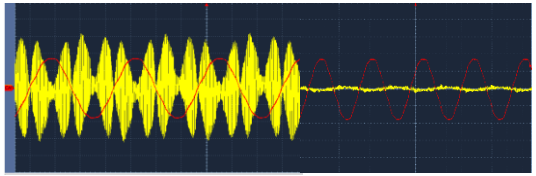
Building Biology and EMR Assessment





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Summary

This home was built in MO in 2021. It is a 1643 sq ft Three-bedroom single-family ranch home with vinyl siding and Stone Facia. It is located in a very desirable location and has beautiful views of the residential area and is a corner lot with only one close neighbor. There is a 3-car garage. It sits on 3 acres.

- Frame Construction
- Central air
- Electric Forced Air Furnace
- Electric Water Heater
- City Water
- 2 people in house
- Internet
- Some lawn treatments

The main complaint is concern about the interaction with EMF.

- Primary complaints sleep disorders and strong electric and magnetic fields
- There currently is WIFI in house
- The TV sets are all radiating including Bluetooth controls
- Cell phones in house on sometimes in Airplane mode.
- Need a recommendation on what to do in this house.

For the concern with EMF's, I detected an issue with the Grounding systems (water main connection), Magnetic Fields, Dirty Electricity and Radio Frequencies:

There is WIFI. There is no land line phone service provided. There is moderate cell phone use in the home.

Links and copy of files:

Here is some information on LED lights that you may find interesting:

LED Blue Light Health Study

https://www.jbc.org/article/S0021-9258(20)61544-7/fulltext

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

Note: Here. This means you must remove any tie in to the city supplied water pipes. You do this by having a plumber install a short piece of PEX tubing in the water line in the basement. But then connect the house to a ground rod and remove the connection to the water system. This water system tie in will create a magnetic field in the Severe concern to Extreme level.

2	RF Radiofrequency Radiation		No Concern	Slight Concern	Severe Concern	Extreme Concern
	Power Density in microwatt per square meter	**$\mu W/m^2$**	< 0.1	0.1 - 10	10-1000	> 1000

Note: The Electric Meter is likely the highest reading of (12,000 µW/M²) or greater, the this makes this an extreme concern for your home. The only practical way to mitigate this is to opt out of the electric meter with the utility. Then there are the various TV sets radiating. Would disable the laptops from using Bluetooth and WIF. Your cell phones radiate around 2,000 to 5,000 µW/M². I advise you look to add a land line to your home as I show later on in my report and only use the cell phones when travelling outside the home. There is also a Likely a water meter on the side of the house. This should be measured to see if this is radiating.

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

Note: With no filters applied you Likely have in excess of 100 GS units. Once the DNA filters are applied you had you will be in spec for GS Unit. Mitigating this is about $1,875 using a pair of DNAV2X filters and a pair of outlets at the main panel.

*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.

4

AC Electric Fields		No Concern	Slight Concern	Severe Concern	Extreme Concern
Field Strength potential-free in volts per meter	**V/m**	< 0.3	0.3-1.5	1.5-10	> 10

Note: The reading will exceed 2 Volts/Meter. This puts it in the “severe” category. The most economical means to mitigate this is with an EMF Sleep Switch or turn off the breakers we marked with tape. You will find this in the action plan. Alternatively, you can require with MC shield cables

EMF #5: DC Magnetic Fields

5

DC Magnetic Fields		**No** Concern	**Slight** Concern	**Severe** Concern	**Extreme** Concern
Flux Density in Nano Tesla	n**T**	< 5000	5K – 10K	10K -100K	2K

Note: no test was required or done

Conclusions

I conclude there some severe concerns. There is a concern for grounding arrangements and a concern for AC Electric and Magnetic fields in the house as already noted.

In the master bedroom, get rid of electric fields with a Sleep Switch. You should install the DNA V2X filter at the main panel (which you already have begun). You should Opt-Out of the electric Meter.

Based on the pictures of your power panels you have the ground wires and neutral wires combined on the same buss. This will lead to high electric fields and magnetic fields. There is a need for one wire to Bond the Neutral buss to the ground system, but only one not over a dozen of them as you have here.

Any LED and fluorescent bulbs must be replaced. You can conduct a Conduct a “Blue Box” test to determine any further wiring errors, details are on my web site. The use of cell phones within the home is not recommended. Your phones can be changed with a simple phone such as a Princess Phone or other standard phones as an example. You must have a telephone line service from internet provider or make your own as I describe later in this report. Please review my section later on in this report on using a cell phone via an ethernet cable. Also check my “EMF Safe Sleep” references for Electric Fields and magnetic fields in the bedrooms. You will never get better until all the RF and strong AC electric and magnetic fields are mitigated or removed.

In addition, I would highly recommend you change the grounding connections with a 1/0 sized ground wire.

Read this article on doing this service disconnect.



Meter Disconnect Installation Notes u

WIFI solutions:

I realize there are household members that will have a difficult time with removing WIFI entirely, you can consider using this type of router because it only turns on WIFI when an authorized device requests it and the power level and number of transmissions per second can be adjusted. While I do not use WIFI my wife does use WIFI from her cell phone and this is not full time. When she leaves the house or turns off her phone the WIFI stops. automatically. In addition, I have turned down the power levels such that when it is on it does not seem to bother me because the power level is very low and the number of transmissions is very low compared to any other typical router on the market. Most routers on the market blast full strength and at full duty cycle all the time.

$300



JRS Eco-WiFi 100 D2

WIFI doesn't transmit when not being used

On/Off Button for WIFI

90% reduced pulse frequency

Radiation levels can be reduced by as much as 99%

Timer for scheduled powering down.

Action Plan

In order of most important to least, please use this action plan to address the issues found during my inspection.

1. Install a 1/0 size grounding wire and rods from the main panel to the ground outside.
2. Install a short 6-inch section of PEX tubing in the incoming water line and remove the connection as a ground as recommended in this report.
3. Upgrade furnace filter from MERV 9 to MERV 11+.
4. Verify/calibrate oven temperature using thermometer.
5. For internet communications please add a Cable TV Neutral Current Isolator - $29.99 – 1-888-480-7759
   EMF Sleep Switch - (Use Discount Code DE Filters for a 5-10 % off https://emfsleepsafe.com/) - Estimated cost installed is $1,100 including electrician install cost.

Contact list for repairs and changes

For the opt out of the electric meter and gas meter.
Your utility will charge $10.00 per month average per meter reading charge

Electrician for 1/0 ground wire and panel wiring error correction – Estimated Cost of $250.00. If you should decide to add the Power Disconnect this is estimated to cost $1,500.00.

For replacement furnace filters – $39.00 each at Home Depot -

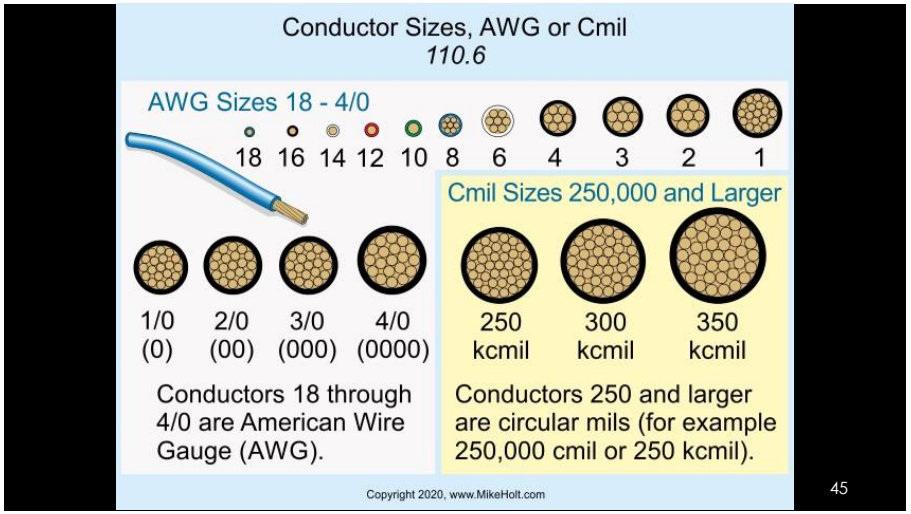
Plumber for the install of the 6-inch section of PEX tubing in the water line. estimate of $200.00.

For Calibrating the oven – Walmart - Taylor Precision Classic Oven Thermometer 5932 – $8.99

Cable TV Neutral Current Isolator - $29.99 – ElectraHealth EMF 1-888-480-7759

Back Yard
Ground Wire Size Importance

As a guide, please note the difference in wire sizes between #6 wire in your house (0.162 Inch Diameter – 0.508 circumference) and 1/0 (0.3249 Inch Diameter – 1.0207 circumference) a 200% increase in circumference. It is 400% larger in area. When increasing the size of the ground wire, you allow the ground circuit to do its job better. The concept is similar to this. If you try to push 10 gallons a minute thru a small hose it creates a back pressure upstream of the hose outlet. When you use a larger hose, the backpressure is reduced. The same is true for the electric current and RF transmission (flow). So, if the wire size is small the current trying to get out the neutral wire (white wire) back to the utility is constrained (which is typical on the utility grid). Dirty Electricity is a voltage transient at a frequency above 60 Hz. So, DE is a radio frequency (RF) signal, RF travels on the outside circumference of a wire, the larger the circumference the better able to conduct the RF of DE to the ground source and get rid of the DE. If the ground wire is too small it cannot help, and the result is that the RF of DE is pushed back on the branch circuit neutral and ground wires throughout the house circuits. You probably do not know but there is a bond between the Neutral wire and Ground wire. That involves a dependency between the Neutral and Ground and wire sizes.



AWG	Diameter [inches]	Diameter [mm]	Area [mm²]	Resistance [Ohms / 1000 ft]	Resistance [Ohms / km]	Max Current [Amperes]	Max Frequency for 100% skin depth
0000 (4/0)	0.46	11.684	107	0.049	0.16072	302	125 Hz
000 (3/0)	0.4096	10.40384	85	0.0618	0.202704	239	160 Hz
00 (2/0)	0.3648	9.26592	67.4	0.0779	0.255512	190	200 Hz
0 (1/0)	0.3249	8.25246	53.5	0.0983	0.322424	150	250 Hz
1	0.2893	7.34822	42.4	0.1239	0.406392	119	325 Hz
2	0.2576	6.54304	33.6	0.1563	0.512664	94	410 Hz
3	0.2294	5.82676	26.7	0.197	0.64616	75	500 Hz
4	0.2043	5.18922	21.2	0.2485	0.81508	60	650 Hz
5	0.1819	4.62026	16.8	0.3133	1.027624	47	810 Hz
6	0.162	4.1148	13.3	0.3951	1.295928	37	1100 Hz
7	0.1443	3.66522	10.5	0.4982	1.634096	30	1300 Hz
8	0.1285	3.2639	8.37	0.6282	2.060496	24	1650 Hz
9	0.1144	2.90576	6.63	0.7921	2.598088	19	2050 Hz
10	0.1019	2.58826	5.26	0.9989	3.276392	15	2600 Hz
11	0.0907	2.30378	4.17	1.26	4.1328	12	3200 Hz
12	0.0808	2.05232	3.31	1.588	5.20864	9.3	4150 Hz
13	0.072	1.8288	2.62	2.003	6.56984	7.4	5300 Hz
14	0.0641	1.62814	2.08	2.525	8.282	5.9	6700 Hz

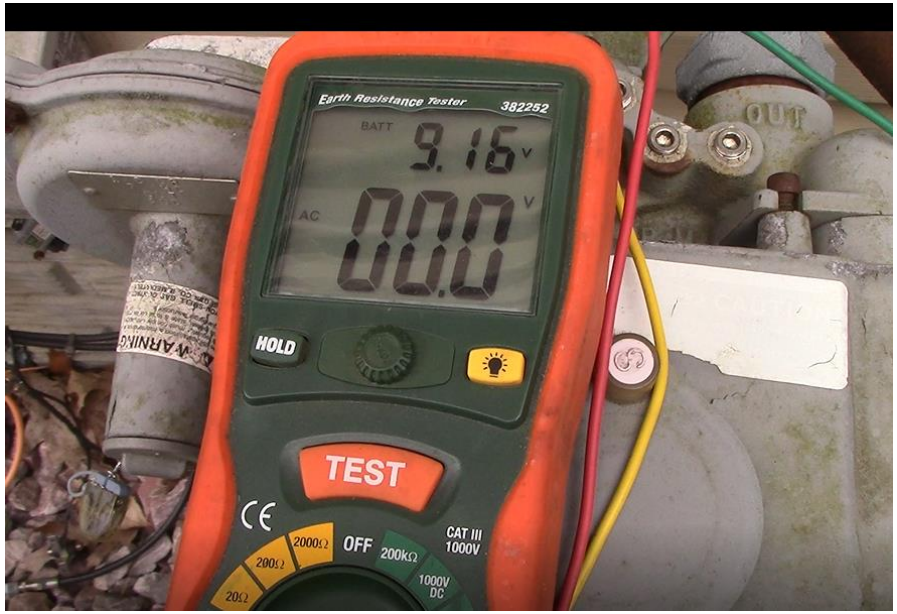
Ground System Tests

No test was done but this is typically what one looks like. Earth Resistance should not exceed 5.0 Ohms

Your ground exceeds this limit with a resistance of 0.1 ohm which is much better than I usually see.

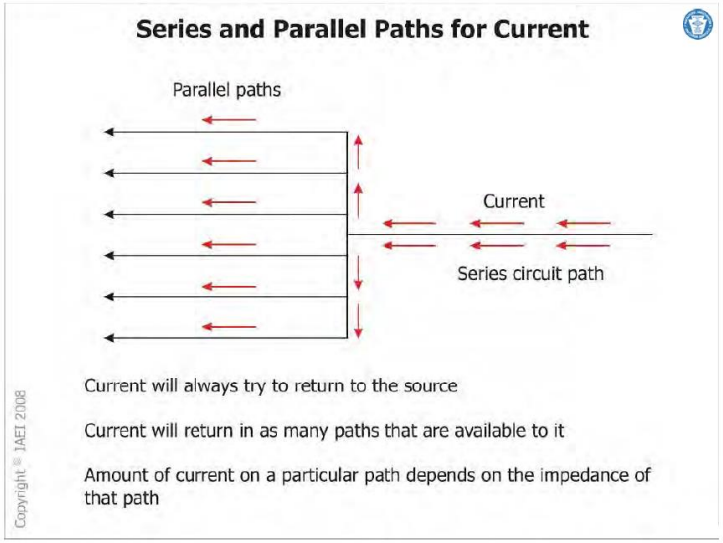


Earth Voltage should not exceed 0.5 Volts RMS, here you have 0.0 Volts. This is very good.



Ground Current

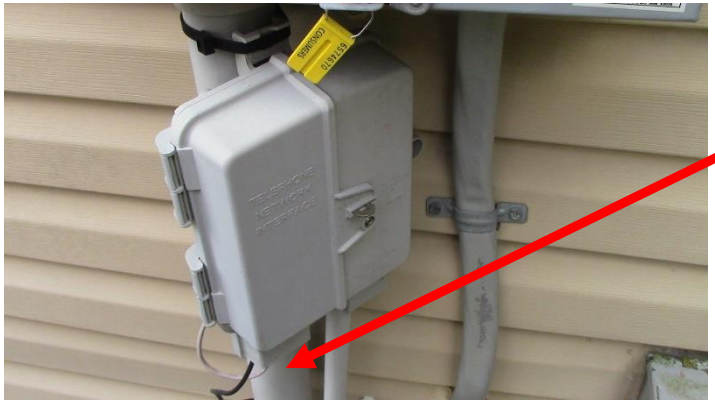
No ground current test was performed, since your house's ground wire is connected to the water pipe. Here is an example of how this test is performed with a grounding rod or water pipe connection.



Communications/Internet Connection

At this time, you do have internet operating, but there still is a mitigation that is needed as illustrated, you need to add the following device. This will remove the current that the cable carries from the cable company into your home.

https://www.electrahealth.com/cable_tv_current_isolator.html





Cable TV Neutral Current Isolator

This is called a Cable Isolator; it protects your cable connection from Lightening shock and blocks the objectionable current coming from the cable company from getting onto your ground system. Cost is $29.99, you order this from ElectraHealth EMF. It goes in a particular way, it varies based on the provider, if you lose internet after installing it just flip it around.

Electric and Gas Smart Meters

Here are your electric smart meters. The electric meter RF has a max value of 12,900 μW/m^2 (emitted every 5 seconds or so).

Electric Meter



Gas Meter

Water Service Meter

Note:

I recommend getting a plumber to insert a short section of plastic PEX tubing between the water meter and house plumbing. I understand you have this section of PEX tubing, but your ground is connected to the incoming water line creating a strong magnetic field. Remove this connection and install a separate ground rod.

You should contact the utilities and opt out if you can. The water meter may be more challenging to mitigate, but try it anyway.

Please note the safe level is 100 µW/M² maximum.

Evaluation Parameters & General Property Observations

The property was examined for water drainage, soil preservation, slope of landscape, and plantings.

- Findings
  - The house is fitted with full 5-inch gutters and downspouts with some downspouts run underground.
    The gutters were clean, not plugged and draining properly. To protect against leaves clogging the gutter I recommend the following inexpensive product.
    https://www.menards.com/main/building-materials/roofing/gutters/gutter-accessories/amerimax-hoover-dam-gutter-cover/6381/p-1545118171101-c-5812.htm?tid=-4640588255260354328&ipos=6

  - Soil was sandy/gravel with some clay content. Clay soil with heavy gravel content is normal for this region. In the front yard there is a full lawn with gardens and well sloped frontage. There are no chemicals and herbicides heavily applied to the lawn. The drainage looked in good order except in the back yard area.
    The heavy clay soil may be the reason the drainage at the rear area is not well drained.

  - The property has about a 3-foot declination from the road front edge to the rear home frontage. There was adequate slope for rain drainage and there was no erosion of the soil on the steepest edges of the property. There is no hazard of lake/river flooding to the dwelling from seasonal fluctuations in water levels. There are no reverse slopes near the foundation grade except for a limited slope in one corner preventing rain water accumulation near the foundation.

  - The home has planned flower Pots/beds and where flower Pots/beds are not present there is a mature growth of grass to protect the foundation from water and weeds. There are

many several mature trees with none directly abutting the foundation edges.

Construction Integrity

- Findings
  - The dwelling construction is of conventional wood frame over a poured cement foundation. There is a full asphalt roof. I found no cracks in the walls or ceiling and was very sound, there were no unrepaired cracks present. Your basement area is very clean and orderly.
  - This is a single-story ranch home with wood floors.
  - Insulation of >R-19 in the ceiling. R11 in the walls.
  - The dwelling has 9 rooms in total, three bedrooms, master bathroom, guest bathroom, one living room, one kitchen, kitchen dining area, and laundry downstairs. All utilities are in the basement. The basement is partially finished and in good condition.
  - The home heating is with electric
  - The driveway is not cracked and needs no repair.
  - I have to complement you on the condition of the basement, it was very clean and uncluttered.

HVAC Systems and air filtration

There is a central furnace with standard electric and air conditioner. There is a MERV 9 filter.

Indoor Air Quality

The home was not tested for Mold or TVOC/TMVOC content. I could not detect any strong mold odors or respiratory irritant in the home due to a lack of air circulation. Perhaps a TVOC/TMVOC test could be done in the future to identify any issue that should arise.

Note that cleaning supplies should never be stored under the kitchen sink, but should be removed and stored in the garage or backyard shed and not the basement. Remove them from the indoor environment. Perhaps you do not realize that even with the container lids closed these still outgas Volatile Organic Compounds (VOC or TMVOC) into the air potentially leading to aggravation of asthma. There was no apparent mold presence shown in this inspection.

Temperature, Relative Humidity and Dew Point

No test was performed. I would say the humidity was a normal. You should target about 39-47% Relative Humidity and a temp of 68-70 degrees I would use a simple analog monitor similar to this. I would keep an eye on this going forward using something like this to monitor the house.

https://www.weathershack.com/product/weems-plath-endurance-comfortmeters.html

You have an excellent heating system; I do not suggest any changes. In the future you may consider added air purification units, but this one is extremely good.

https://surgicallycleanair.com/jade/

Water Systems

The water systems were not tested during the evaluation. You have a municipal water system. I would suggest you have an annual water quality test. I did not see a Reverse Osmosis (RO) unit in the house, perhaps I missed it but since you live near former farms you should check for arsenic in the water as the result of farm chemical usages.

Radon Testing

The home was not tested for Radon gas prior to this evaluation. You do not have a RADON venting system already. It is recommended that a test be performed every few years. Do this during the months of April or May when there is more fresh air present in the home. Look for a reading well below the maximum of 4 Picocuries. Radon test kits are readily available or free from your county health department.

AC Electric and Magnetic Fields

I did do an examination of the Electric and Magnetic fields in the bedrooms. Based on the tests conducted you do seem to have high electric fields in the home.

This home was not tested for EMFs in the past.

- I would test for Magnetic fields due to parallel neutrals. This is usually found near the switches and outlets in the various rooms. It is usually found in wall switch plates that have multiple switches this is a wiring error due to “Net Current”. I find this defect in many homes surveyed. I think you will find this condition at your home. This is a violation of NEC 300.3 (B). It is a potential fire hazard.

- Here is very good book that describes this very well. If you have this problem, it must be fixed and is a potential fire hazard. I find this issue due to improperly trained electricians and I find it in almost 50% of all homes.

  https://drive.google.com/file/d/14s4qxlR-BSMbmDr7FgfEWkHpS437YLK1/view?usp=sharing

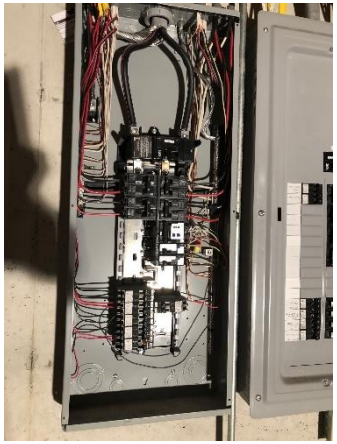
  Here is a video on the same subject.

  https://youtu.be/IAAZCMns8YM

Electrical Panel

Please note my comments that follow about your electrical system.

Main fuse box: Your power panels are in need of changes. The neutral and ground wires for the branch circuits are joined on the same buss bar. I usually find this in a home. They should be separated. As I previously mentioned the ground wire size need to be increased to 1/0 size and connected to a separate ground rod.





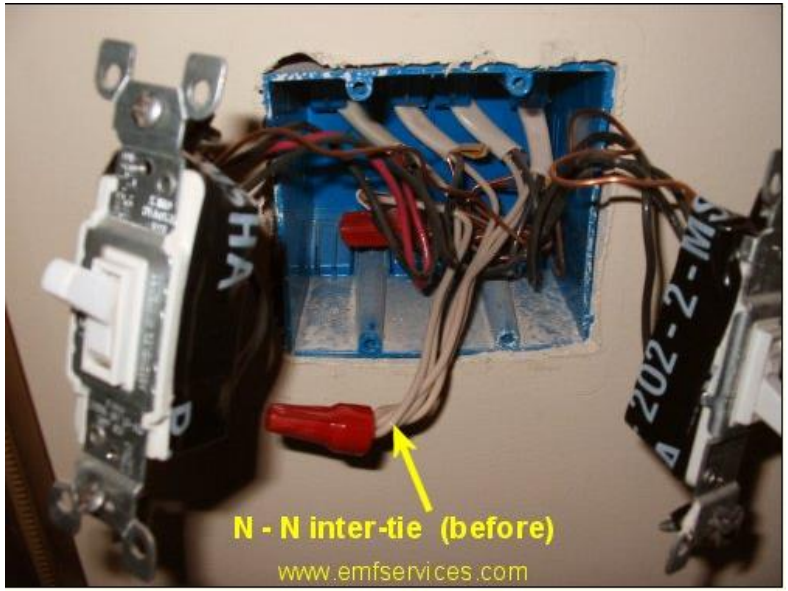


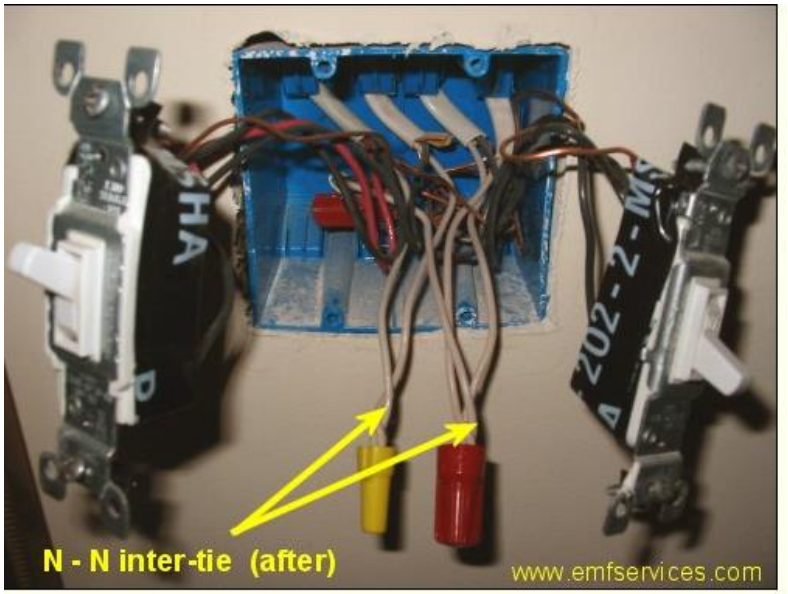
AC Wiring Details

AC Net Current measurements were performed. In the future, “Net Current” and ground loop effects should be checked for wiring errors in the wires and switch plates. Examples are provided, note: NEC Code Violations 300.3 (B). Look at my web site on the procedure to do your own tests. I did find this condition. This should be re-reviewed by an electrician.

https://defiltersllc.com/net-current-issues/

Typical NEC 300.3 (B) Violations – Examples





Here is a basic explanation of how an elevated magnetic field is produced by a circuit imbalance (net current). Most of the wiring in homes and commercial buildings consists of cables containing two or more current-carrying conductors (or conduits containing multiple conductors). At any point in time, an equal current is flowing in one direction on one wire, and in the opposite direction on another wire. Since these wires are very close together inside the cable jacket or conduit, the magnetic field around one wire is cancelled by the opposite magnetic field around the other wire. The field drops to a negligible level a few inches from the wires. In this case there is no **net current** on the circuit, and a clamp-on ammeter placed around the cable or conduit will indicate zero current. A clamp on Ammeter is the most accurate tool for measuring this effect and most

electricians use a large ammeter with inadequate resolution. You must use an Ammeter with a resolution of 0.000, not 0.0 as most electricians use. Here is a picture to illustrate this type of meter and in this example, it shows 0.026 amps of net current. This would be a violation of the NEC Code 300.3 (B)

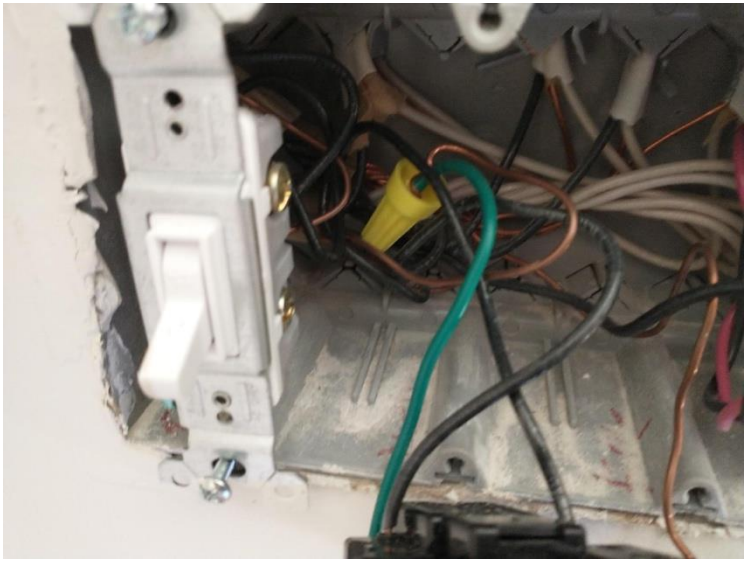


Problems occur when this balance is destroyed by improperly wired circuits. Common examples are:

- neutrals from separate branch circuits that are connected anywhere beyond the point of origin
- neutral-ground shorts (intentional or inadvertent) anywhere in the system

- improperly wired subpanels (a form of N - G short), you do have this effect because of the ground loop detected.
- incorrect three-way switch wiring where the hot and neutral are fed to different points in the circuit
- In each case, a portion of the normal utilization current is caused to flow over an alternate path, creating an imbalance, or **net current**, on two or more circuits. A clamp-on ammeter placed around the cable or conduit of such a circuit will indicate a substantial current (often 0.001 to 10 Amps). It is not unusual to find multiple wiring errors in new construction, and inspections conducted by local code enforcement authorities will not detect the great majority of these problems because inspectors only check the rough in electrical, not the final inspection. Plugging in an outlet tester will not find net current.

Typical Switch Plate – There is a net current issue here where all the white wires are bundled together.



This net current effect places a Contact Current load of high frequencies and contact current onto every outlet in the house with the dirty neutral wire “pushing” the current and frequencies through the house. Especially the current, which needs to be less than 18 µAmps. When I see this type of wiring, I see greater than .002 amps (2000 µAmps) on the ground system. You definitely have this issue based on the net current tests. But it can all be corrected by fixing the wiring in the switch plates and outlets. Most electricians ignore or dismiss this concern, but the EPRI does not and in fact warns about this.

The Electrical Power Research Institute[9] (EPRI), one of America’s largest electrical research agencies (created by the electric utilities in 1973), published research in 2000 revealing that extremely low levels of contact current (~18µA) are a “potentially important exposure with respect to childhood leukemia” and have “biological effects relevant to cancer.

*…the absolute (as well as modest) level of contact current modeled (**~18µA)** produces average electric fields in tissue along its path that exceed 1 mV/m. At and above this level, the NIEHS[2] **[National Institute of Environmental Health Sciences]** Working Group [1998] accepts that **biological effects relevant to cancer** have been reported in ‘numerous well-programmed studies.’*
The effects the Working Group cites are "increased cell proliferation, disruption of signal transduction pathways, and inhibition of differentiation." The NIEHS endorses this conclusion in its final EMF RAPID report [1999][3]
Note: we did not test for Contact Current.

Your Internet Connections

There are wireless internet connections enabled in this home. You can either get a decent RF meter to check this or change the connection by getting rid of the COMCAST router and install your own compatible modem. Here is a list of compatible modems, https://networkshardware.com/modems/approved/comcast-xfinity/

Of course, internet company will give you a little run around when you tell them you want to do this, but it is supported. Just get the modem only not a combo modem and wireless together.

Use this router which does not have any WIFI at all.



https://www.electrahealth.com/wifi_free_wired_only_router.html

AC Electric Fields & Bed Maps

Bed maps were not performed for the bedrooms. You should strive for 1 V/M max. (Volts per Meter). These are what are called potential free measurements, which means they are not influenced by the grounding wire and the antenna effect from your hand. It is a much more accurate method than a body voltage meter, but the NFA1000 I use cost around $2,000. A body voltage meter is less expensive, but has the limitations I have mentioned.

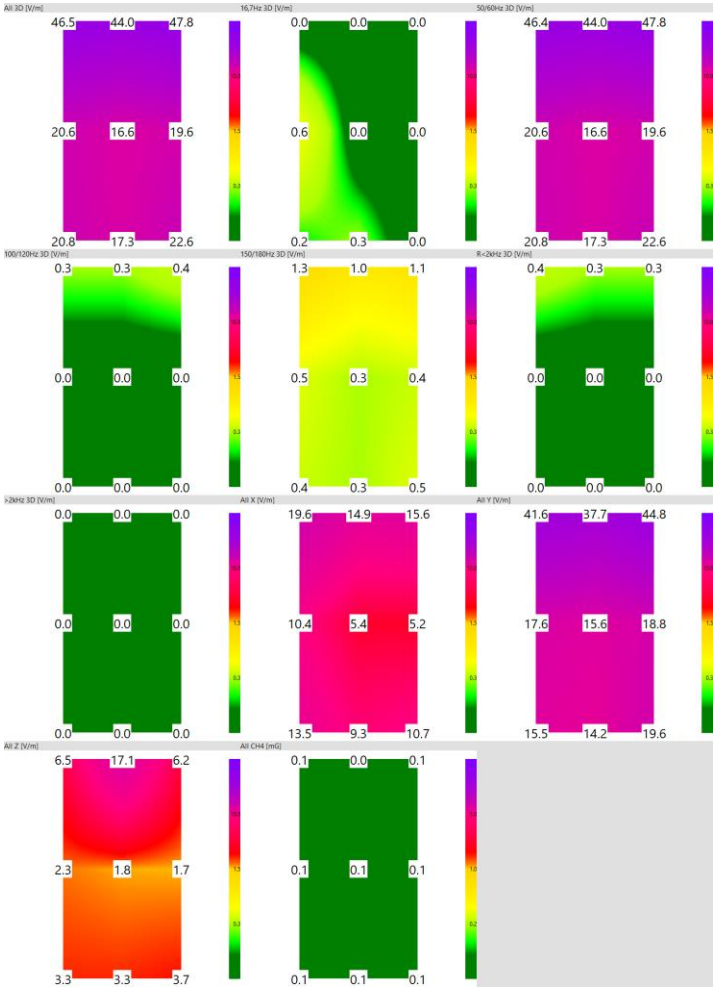
There is likely some circuit that needs to be disabled under the floor in the new position, which means possibly some other breakers need to be disabled.

The magnetic fields are likely not in tolerance in all positions.

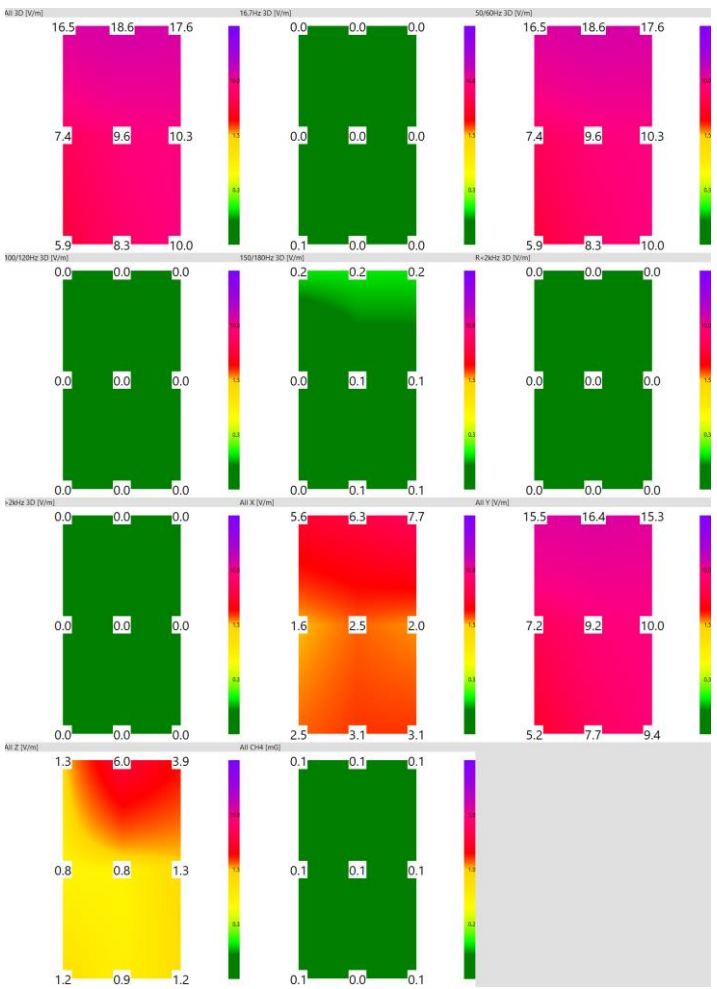
It is well known that electric fields above 1 V/M will affect your sleep patterns. These bed maps are in all three directions left, right and up/down. The most important one is the top left map, which includes all three directions and at all frequencies.

The images below is typical in a home.

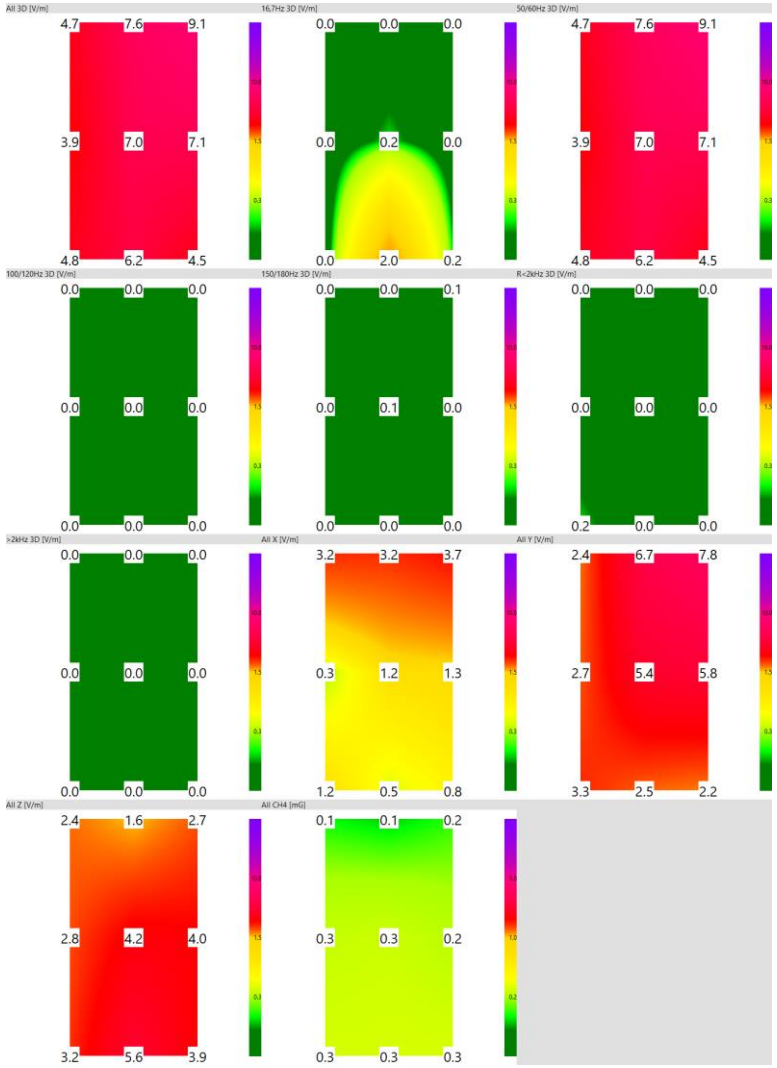
Power on



Power Off



Power off with bed moved to different wall



Here is a tool you can inexpensively use on you own to detect electric fields. It is called a Body Voltage Kit, aka Model BVKc.





You can make improvements in the whole house with electric fields by using shielded power cords and shielded power strips. When you use an ethernet cable to a PC of another device you can use a CAT 7 shielded cable as described.

See these references for products to help you make selections.

https://www.electrahealth.com/shielded_surge_suppressor_6_outlet.html

https://www.electrahealth.com/Ultimate-Grounding-USB-to-Gigabit-Ethernet-Adapter-with-USB-Hub.html

https://www.electrahealth.com/Ethernet-grounding-adapter-kit_p_129.html

https://www.electrahealth.com/wifi_free_wired_only_router.html

https://www.electrahealth.com/ElectraHealth-Shielded-Power-Cable-Cord--Multipurpose--12-feet-long--18-AWG_p_113.html

https://www.electrahealth.com/ElectraHealth-Shielded-Extension-Cord--Heavy-Duty-Light-Almond-14-gauge_p_139.html

https://www.electrahealth.com/cat7-25ft.html

https://www.electrahealth.com/cat7-50ft.html

A Safe Router – if you really must have WIFI, this unit is the only one I know of where you can control the number and strength of the transmissions.

https://www.jrseco.com/p/jrs-eco-100-wifi-d2-on-asus/

RF Signals

From my estimated measurements your electric meter is a major issue as already identified. You have to remove WIFI RF and cells phones from the environment. I know it is not easy, but you must begin the process of using **shielded** CAT 6 or CAT 7 internet wiring for all access to the internet, this includes school work. I can help you with this all you have to do is ask me.

Other interesting RF issues (though not directly related to your house)

Our schools are now flooded with WIFI. The WIFI in Schools is a particular concern. Watch this video for more information.

https://www.youtube.com/watch?v=KN7VetsCR2I

TV Station Frequencies

I did not detect any of these frequencies, but I thought you should know these do exist almost everywhere in the country.

Television Broadcast Frequencies

A television Radio Frequency (RF) channel is allocated 6 MHz of bandwidth for over-the-air transmission in the **VHF** or **UHF** frequency band. The VHF band has 12 RF channels (2-13). The band is sometimes subdivided into VHF-Lo (channels 2-6), and VHF-Hi channels 7-13). The UHF band originally had 70 RF channels (14-83). The UHF band was later reduce to 56 channels (14-69). The band was reduced again in June 2020 to 38 channels (14-51). Note, Channel 37 is reserved for radio astronomy.

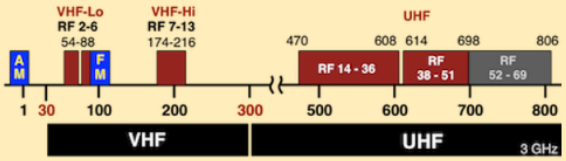
Sponsored links

TV Broadcast Bands

Band	RF Channels	Frequency
VHF-Lo	2 - 6	54 - 88 MHz
VHF-Hi	7 - 13	174 - 216 MHz
UHF	14 - 51	470 - 698 MHz

A VHF antenna will receive channels 2 - 13 (54 - 216 MHz).

Television Frequency Chart (MHz)



VHF - Very High Frequency 30 - 300 MHz
UHF - Ultra High Frequency 300 - 3000 MHz

AC “EMC” Conducted Emission on Wiring (commonly called DE – Dirty Electricity)

This is a little-known electrical characteristic, some call this “Dirty Electricity or DE”, building biology calls this “MEP” (Micro-Surge Electrical Pollution). However, the IEEE and the FCC call this “EMC/EMI” (Electro-Magnetic Conducted Emissions and Electro-Magnetic Interference) and there are two classes called Class A and Class B. and is also an international standard called CISPR 22. We are all talking about the same effect on the house wiring. It means there are added voltage transients above the normal 120 volts 60 Hz provided by the utility.
Here are the FCC Specifications.



module8_regulations.pdf

Conducted Emission DE – Dirty Electricity Reading

There are several instruments that can be used to evaluate the house wiring for comparison to the FCC Class A and Class B Specifications. The most useful and accurate instrument is an Oscilloscope. When making these measurements it is extremely important to not use the AC power to drive the scope otherwise you will get a reading much higher than the actual reading. I used two different types of scopes.

The first is the OWON SDS 7102V 2 Channel 100 MHz, a battery-operated scope. The Second Scope is a PICO 2408B, this scope also running from battery sources.





Pico 2408B
Oscilloscope/Spectrum Analyzer

The OWON scope is excellent for analysis of power wave forms and voltage transients. The PICO scope is excellent at revealing the frequencies of the various transients and helps to identify the sources of those transients.

The OWON oscilloscope traces I am including here need a little explanation.
You will notice a line trace in RED which is the measured 120-volt AC 60 cycle.
This RED trace is the normal waveform I would expect in every building.
Notice the scale of the major division (the big black squares) is 50 Volts per division.
You will note that 120 volts is actually somewhere almost it is useful to use as a reference when comparing the YELLOW trace waveform. In this building the 60 Hz waveform is not normal. There are some harmonics as the wave form is slightly distorted and not a uniform sinusoidal curve. There is not much that can be done regarding this situation, this is all in the control of the utility company. All the homes in the area all will have the same characteristic.

The YELLOW trace is a measurement of what is called the DE that is actually riding the RED waveform. However, you cannot pick out the frequencies present because the amplitude (signal strength) of the 60 Hz signal is so significant that it obliterates the higher frequencies from the measured values. In order to provide this important measurement, you must add a “High Pass Filter” to block the fundamental 60 Hz signal. I used a “High Pass Filter” to measure the frequencies above 60 Hz. DE is at frequencies from 1 kHz to 10 MHz with biologically active effects starting at about 1.7 KHz.

I also got a reading of 1630 GS (Graham-Stetzer) units. Below 50 is considered

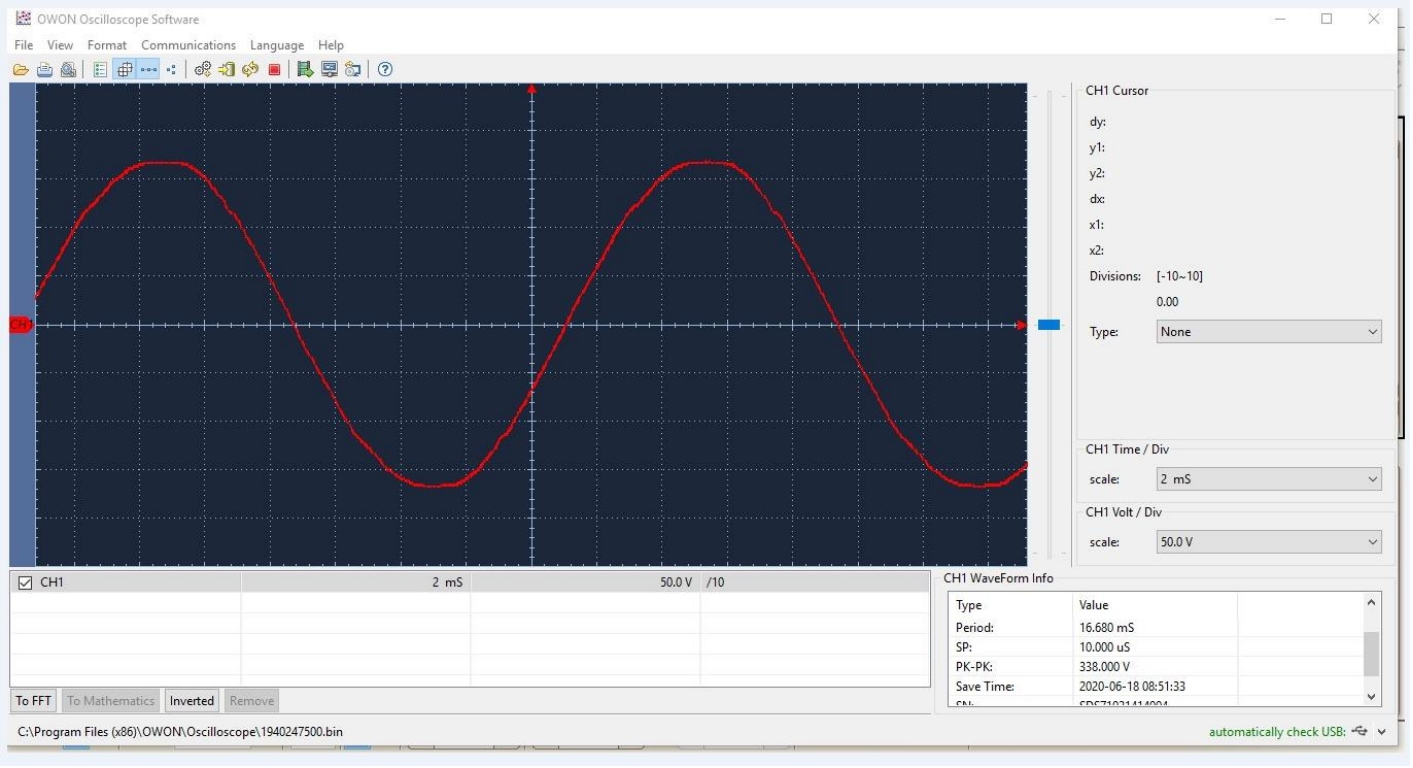
acceptable on the handheld Stetzer brand micro-surge type of meter.

A word of caution on these small hand-held meters is in regards to their ability to measure the full range of frequencies present. Both the Green Wave and Stetzer cannot measure below 10 KHz or rarely reflect much above 100 KHz. In addition, I have found the EMI meter which looks just like the Green Wave meter rarely agree even though both meters are of almost identical design. I have never gotten two Green Wave meters or two EMI meters to ever agree with one another. The same with the Stetzer Micro Surge meter, I cannot get two of them to agree either.

The only device that's consistent is an oscilloscope.

The Standard 60 Cycle wave Form

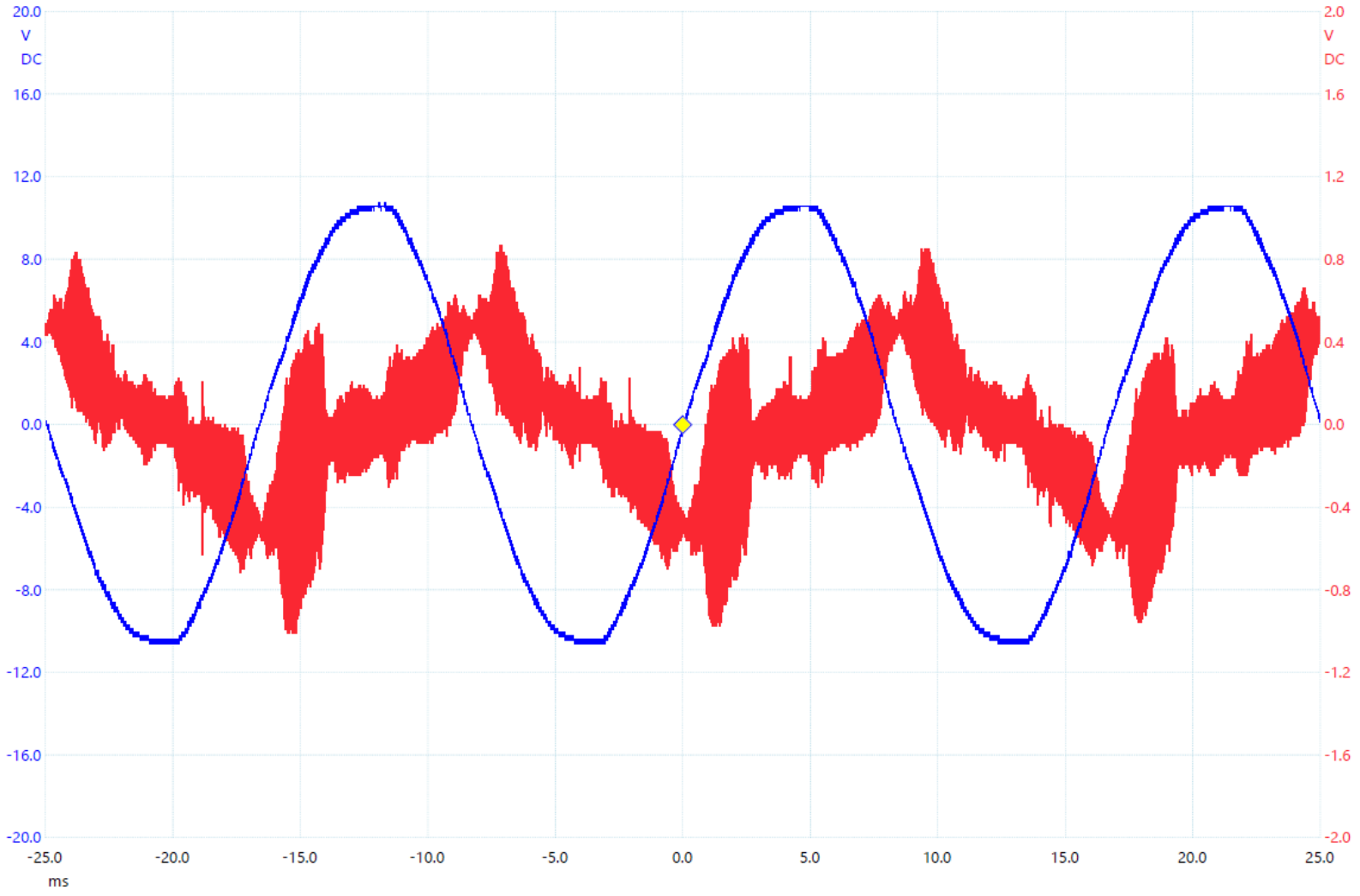
Here is what I measured at your home with no filters applied with the OWON scope.
This image is just the standard 60 cycle wave form of your home.
This is very good and shows no significant harmonic distortion from the power company. No filters have been applied in this test.



DE and 60 cycle wave Form

No added filters have been applied in this Oscilloscope test. This is a PICO brand, battery operated, lab quality, bench scope that is very accurate. It is a voltage versus time type device. In comparison to a hand held Stetzer meter with a safe level of about 50 GS (Graham-Stetzer) units this measured

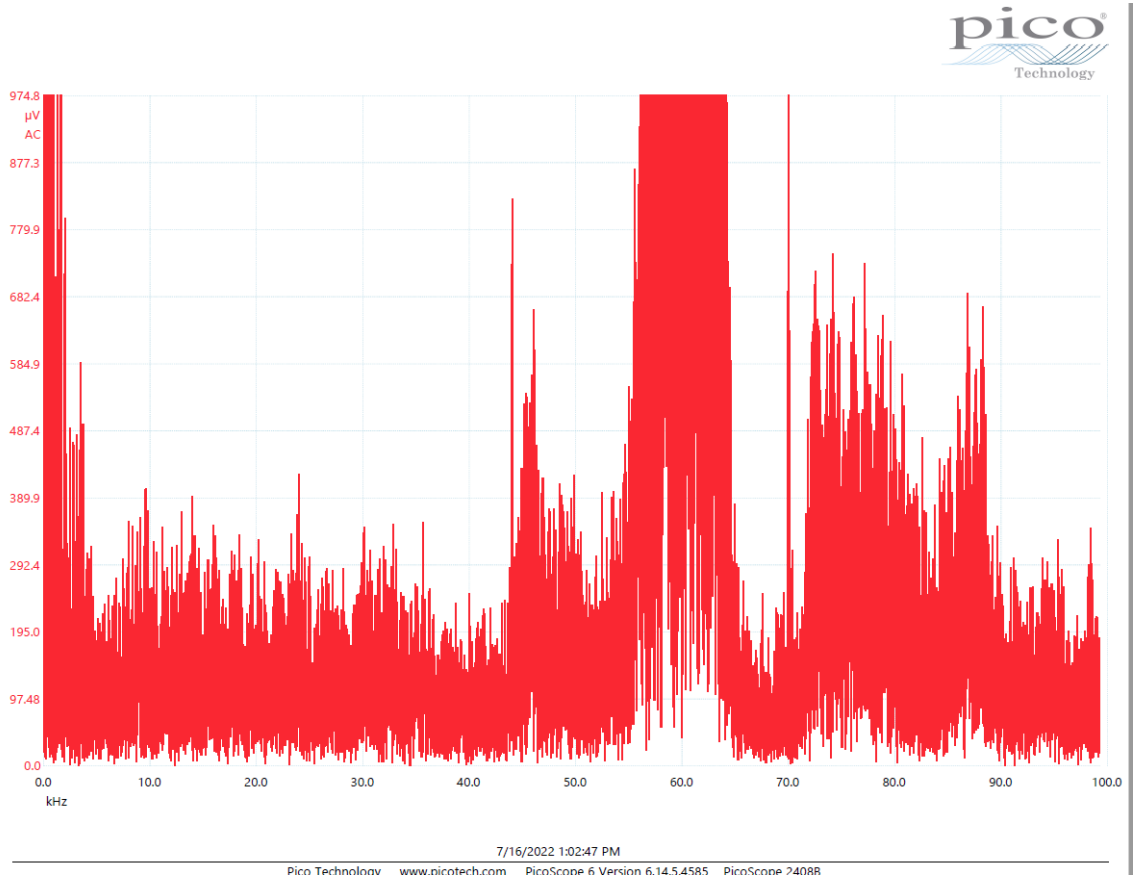
While this is not directly measured at your home this chart is typical. The blue line is the 60-cycle waveform, the red line is your DE measurement.



7/16/2022 12:52:07 PM

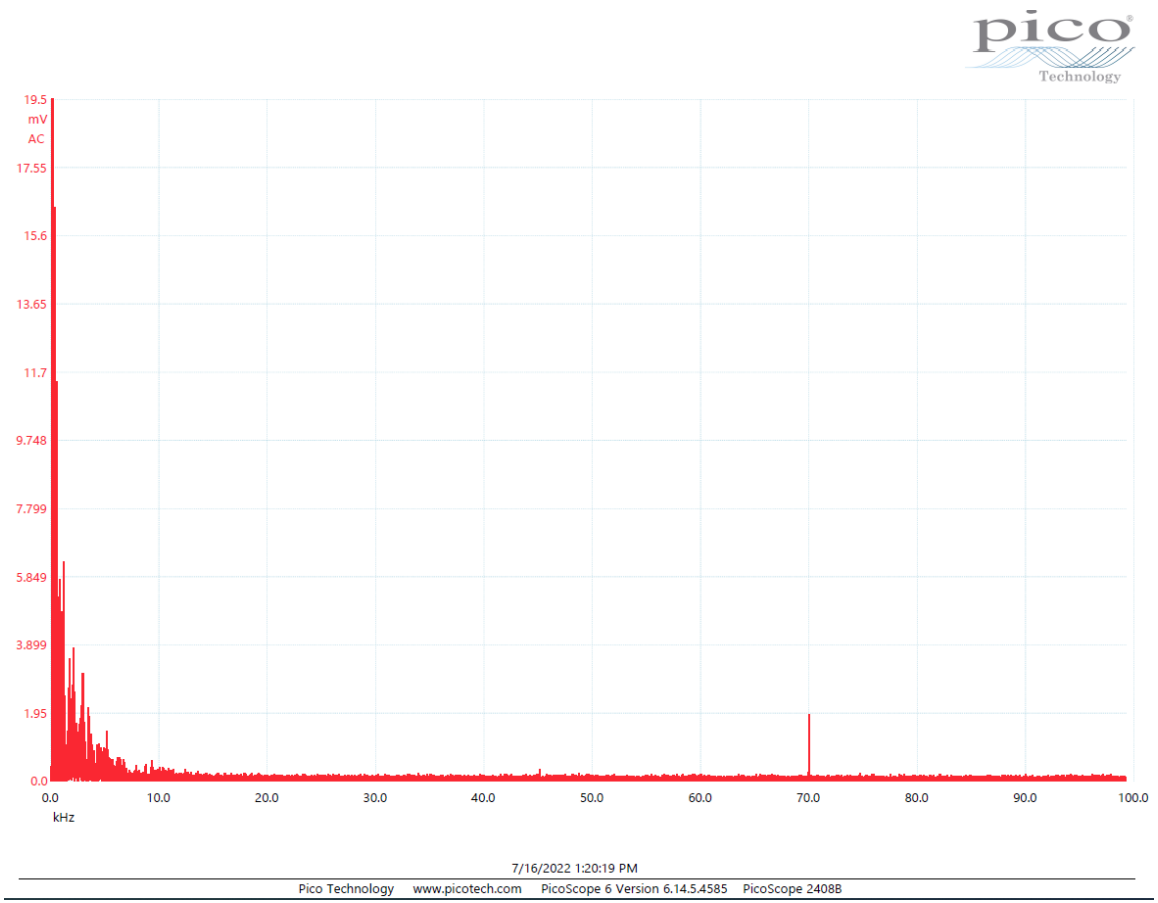
Pico Technology www.picotech.com PicoScope 6 Version 6.14.5.4585 PicoScope 2408B

Again this is not your home but is typical.
Here is a reading of the frequency spectrum also using a PICO scope. This chart demonstrates the voltages present and the frequencies of oscillation. This is without any filters applied. This is also at 1630 GS units. The big spike on the left is from the utility and you cannot do much about that. It is from the utility companies' integration of large solar arrays on the grid. Think about that when you drive by one of these large installations. Studies have shown DE frequencies above 1.7 KHz have health effects



Here is the same view with no filters installed, but at a larger scale so you can see the peak volts. You should have no more than 250 µVolts per the FCC specs.

Here is the PICO scope Spectrum view of the A side power with RXDNA V2X filters on and all circuits on. Here the GS units were reduced to 46 GS units. This is a dramatic improvement. This is typically what I would see in your home when the filters are applied.



DE Remediation Scenarios

Note: you were complaining of an issue that the DE was likely an issue. This turned out to be true as you can see from the scope readings.
I still recommend a DNA brand RXDNA V2X filter However, there is also a recommendation to improve your system grounding circuit with a 1/0 size insulated copper wire. Add a new jacketed/shielded ground wire in 1/0 size to your ground rod as already discussed. Then extend this wire to the power panel. Then change the ground wire as already mentioned and remove the water pipe ground wire connection

You can buy the DNA filter from my web site at:
https://defiltersllc.com/product/rxdna-v2x-dna-filter/?v=93b46a3fc67d

Remove any LED and florescent bulbs from the whole house.

Light Bulb Test

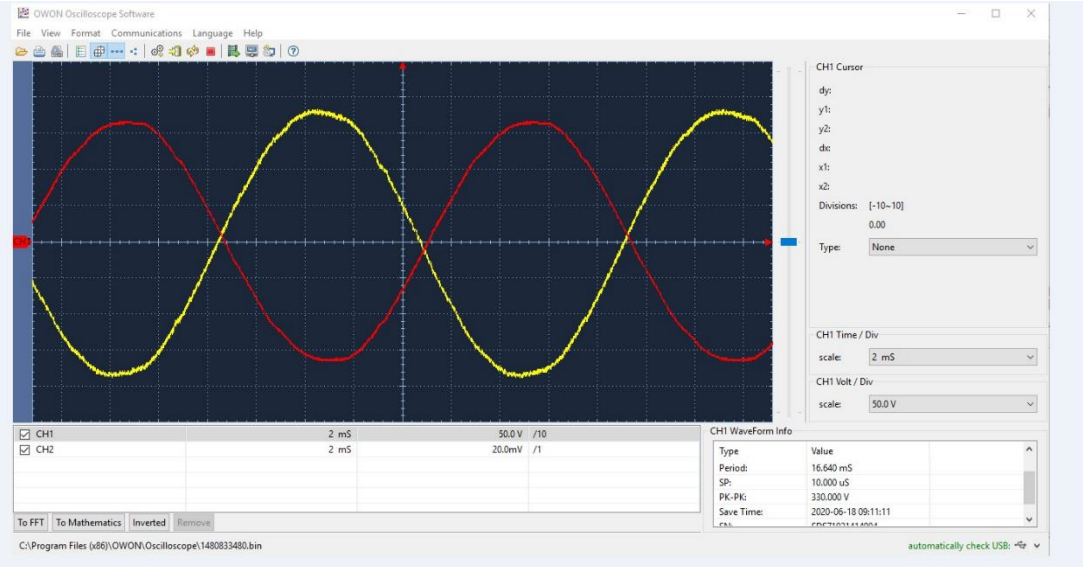
I do not recommend LED bulbs. I realize that perhaps you may think of adding LED lights to save on your power bill, **do not do this**. All your bulbs should be what is called a “Modified Incandescent”, some call them Halogen bulbs, (https://www.amazon.com/gp/product/B01AGMZ20O/ref=ppx_yo_dt_b_asin_title_o02_s01?ie=UTF8&psc=1) (https://www.amazon.com/gp/product/B00A282UNK/ref=ppx_yo_dt_b_asin_title_o02_s00?ie=UTF8&psc=1)

these do save energy about 29% on amps, but does not add any voltage above 60 Hz. For example, on the light bulb box it will say 75 Watts but only consumes 53 watts that is the type of bulb you want. Many people are convinced that LED bulbs save energy. However, this would only be true if the meter on the home was an older “Analog” electro mechanical meter that only measured amps (with the old wheel that spun around). But now with a Smart Meter this new meter has an electronic chip that measures both volts and amps, which converts the combined measurement of volts and amps into Volt Amps (VA), which then via software in the meter converts this to KWh. So, while you have an amp’s measurement you also have voltage measurement that you did not have before. In your specific example you have 5 volts on each leg of your 240 volts of added voltage on your home so instead of 240 volts you have 250 volts, even though a volt meter will say it is only 240 volts! (120 Volts on each leg). But since all volt meters only measure RMS voltage a volt meter will never pick this up. But the chip in the Smart Meter will. The other 10 volts (5 volts on each leg) is at frequency higher than 60 Hz, and all volt meters cannot discern this difference. Only an oscilloscope can do this. This sometimes this leads a consumer to complain to the

electric company that ever since the Smart Meter was installed their bill went up. In my opinion it is the measurement technique applied that is causing this, not the consumer consumption.

These added voltages above 60 Hz is actually adding to your bill. Your LED bulbs and Dimmer switches are not helping your electric bill because they are adding voltages to be counted. You should be 0.5 volts max. The LED bulbs and Dimmer switches typically increase this voltage causing a large difference. The only person that gains from LED bulbs is the electric company. The Electric company primary cost is generating amps, not voltage. After the initial voltage created by the generator, all voltage is a function of transformers. So, it really does not cost the utility to create volts. But as the amps demand goes up it does cost them more fuel to service the load, which is amps.

Here is an example of a “Modified Incandescent” bulb on the Oscilloscope. The Red trace is primary voltage and the yellow trace is in amps.



You will note the Amps follow the voltage in a uniform pattern. This is normal.

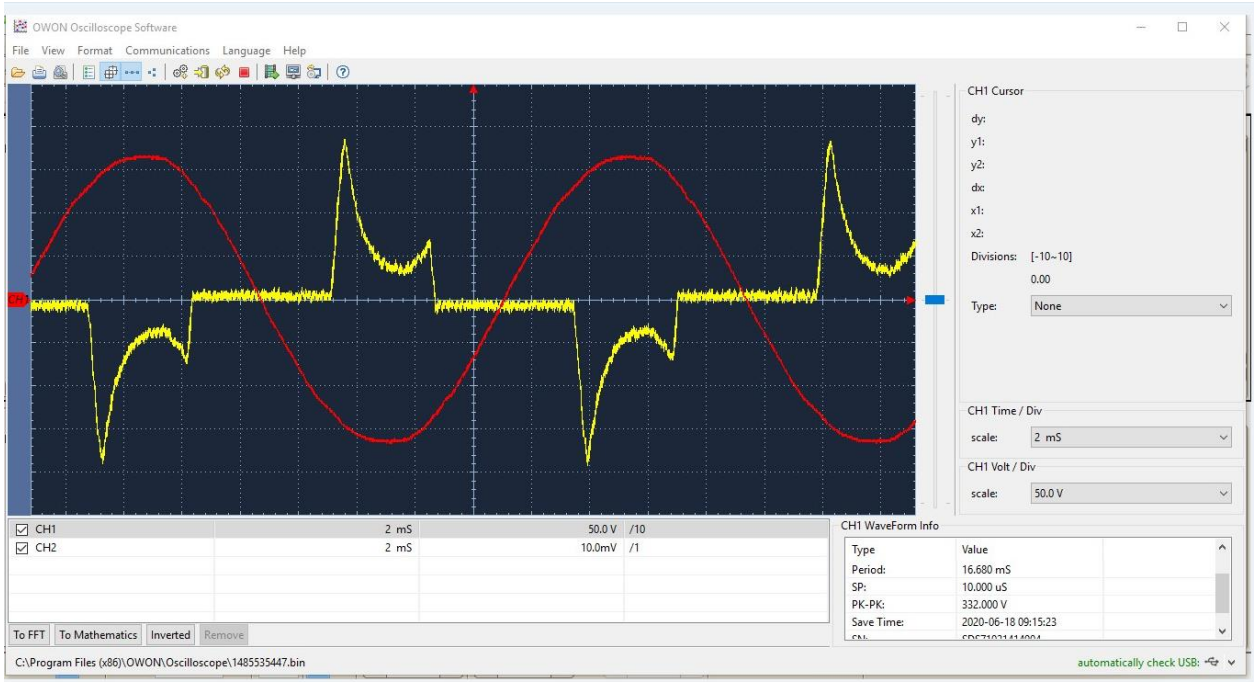
Here is an LED light bulb image. You note the waveform is very irregular. These surges in amperage are highly disruptive to the human body. In addition, this irregular pattern contributes to the flicker of the light. This flicker contributes to the development of Cataracts. Today children as young as 10 years old are being diagnosed with Cataracts, this is unheard of 8 years ago. In addition, the total number of Cataract cases has grown to levels unheard of. I consider the use of LED bulbs is a serious health risk. The LED bulbs light spectrum is skewed more toward the blue to UV light spectrum. There is very little yellow and red spectrum. Again, I want to emphasize there is no yellow or red spectrum. A Modified Incandescent has the full light spectrum from blue to red and everything in between and it is all balanced. It is proven high concentrations of blue to UV light does lead to Cataracts.

https://www.sciencedaily.com/releases/2014/06/140603161934.htm

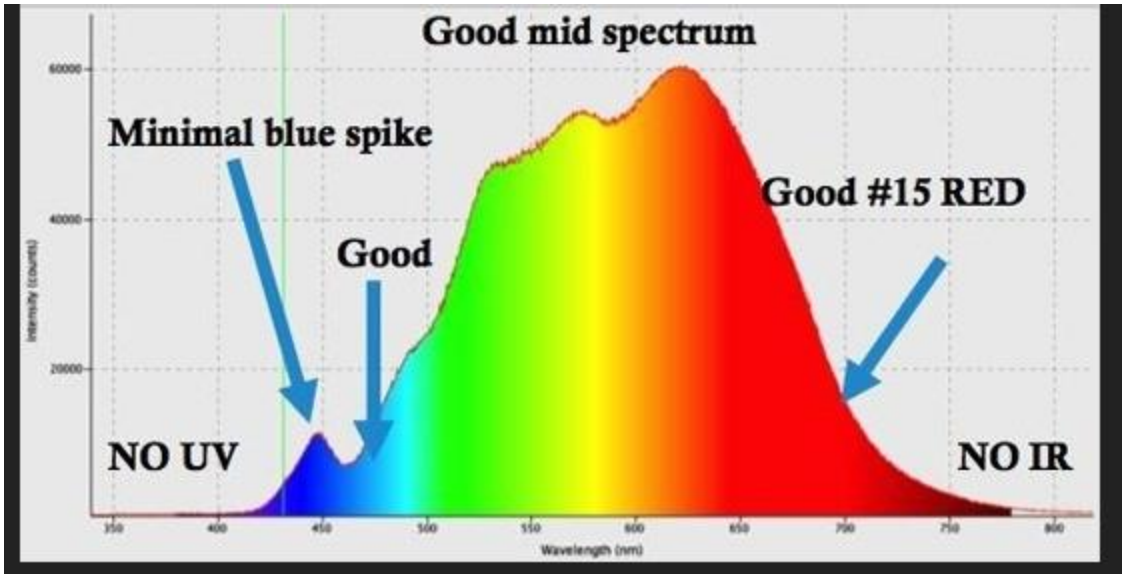
Also review this recent study on blue light from LED's and aging.

https://www.sciencedaily.com/releases/2019/10/191017101253.htm

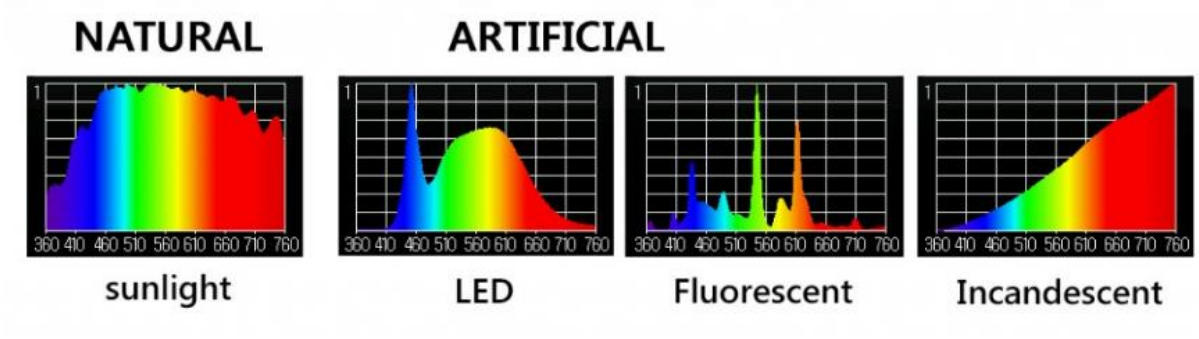
Here is an LED Bulb Scope Image, the Red is voltage and the yellow is current.



Typical Incandescent Bulb Color Spectrum Image



Color optical wavelength Images from LED bulbs and Florescent bulbs



Some Good Test results to compare.

https://youtu.be/WR-PHo3ZWn8

https://www.youtube.com/watch?v=YzovYO81Y3c

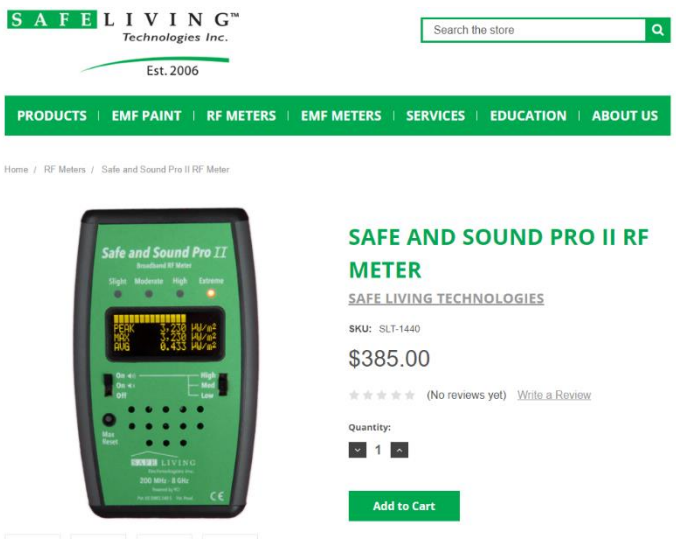
https://youtu.be/Tw3LJ94ALJ8

I hope you are coming to realize some of modern convivences and advertising on LED lights we are getting is deceptive.

RF Emissions

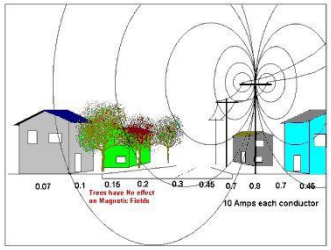
Here we measured the RF exposures as already documented. The Smart meters are very strong, I would keep yourself and any children as far away from this as possible. opt out of them, if possible, with the utility. If not then I would recommend you obtain my Iron Maiden to block this RF signal. I would get the unit that has the hole on the side, then mount it with the hole pointing down. Then you can safely walk near the meter. I would recommend the Safe and Sound Pro II meter and do your own tests. I would suggest any new appliance be checked before you buy one, especially if they are promoted as “Energy Efficient”.

https://safelivingtechnologies.com/products/safe-and-sound-pro-ii-rf-meter.html



Types of EMF Measurements

1. AC magnetic fields



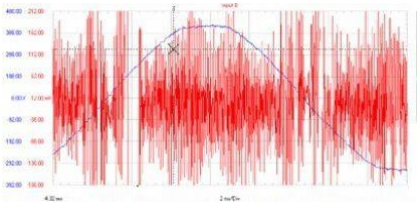
Magnetic fields are created by the flow of electricity through a wire or other metallic path. Generally, the higher the flow of electricity, the higher the levels of magnetic fields present. Levels are typically higher near large power lines, electric panels, and large appliances. They can also be created by stray currents on water pipes and wiring errors.

2. RF Radiofrequency radiation



RF radiation is emitted by wireless technology – cell and radio tower cordless phones, smart meters, Bluetooth, baby monitors, anything which transmits information through the air without wires. Wireless radiation does not drop off as quickly with distance and can travel through walls and buildings.

3. Dirty electricity

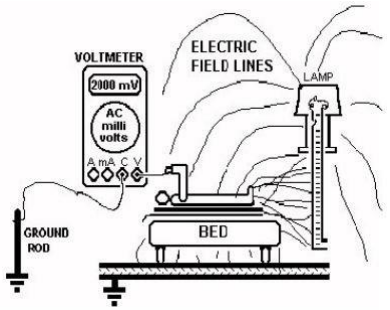


Dirty electricity is electrical pollution in the form of high frequency transients and other radiation found in the wiring. It is generated by fluorescent lighting fixtures, AC power supplies, dimmer switches, computers and other new appliances. Given that standard wiring emits an invisible but always present electric field into the room, these transients, “noise”, or other

unintended frequencies then reverberate throughout our surroundings.

4. Electric Fields

Electric fields are emitted from non-shielded electrical wiring. Whatever frequencies are present in the electric wires will be emitted for a distance of 10-20 feet in all directions. Our bodies absorb these electric fields and become “charged” with not only the 60 Hz cycle alternating current, but any and all dirty electricity that is riding on top of it. We try to reduce the electric fields as much as possible in sleeping and work areas.



Recommended Improvements and Building Biology Principles

Your dwelling is in need of remediation.

- In regard to Indoor Air Quality (IAQ) besides the lack of findings of mold in the lower level which has already been discussed, you have stored several cleaning products and insect sprays under the kitchen sink and in the garage. These materials still outgas harmful chemicals and residue even with the lids closed. It is advised that you remove these from storage inside the home and place them a sealed cooler such as a Yeti Brand Cooler. By storing these products in such a container will keep contained any out-gassing within the home, only open this type of cooler outside and not in the building or garage area. This particular unit has a stainless-steel shell and a very good latch that will not degrade over time.



- In your lower-level area that was not remodeled and there are some things that need to be addressed. The following needs to be addressed.
    - You should increase the size of the ground wire from the current #4 wire to a larger 1/0 size wire. A picture

is included here for comparison. A 1/0 wire is 4.66 times larger in outside diameter that the current ground wire. This would enable mitigation of DE to by creating a low impedance ground path to help remove the frequencies on the power system. DE Frequencies travel on the outside diameter of the wire not thru the center of the wire. Current runs thru the center of a wire and frequencies run on the outside of the wire frequently called the “Skin” of the wire. Therefore, increasing the size of the ground wire will have a very positive effect on removing DE and reducing contact current in the power system.



- You do not have the installation of a power disconnect at the meter location. This will enable you to separate the ground and neutral wires from the power panel, which then would become a sub panel and be a four-wire connection to the meter disconnect switch. Your home is affected by the ground system issues already identified,

To help guide you on how to think about your home use the following guidelines from the Building Biology Institute.

The 25 Principles of Bau-Biologie® The following list of twenty-five principles was developed by Anton Schneider, Ph.D., founder of the Institut fűr Baubiologie and Oekologie. These principles can be used while planning the construction of a natural and ecologically friendly home, or while remodeling an existing one.

All of these principles should be read and I recommend you focus on the ones I have highlighted here in **BOLD**:

1. Make sure the building site is geologically undisturbed.
2. Place dwellings away from industrial centers and major traffic roads.
3. Place dwellings well apart from each other in spaciously planned developments amidst green areas.
4. Plan homes and developments individually taking into consideration the human aspect and the needs of family life and nature.
5**.** Use natural and unadulterated building materials.
6. Use wall, floor and ceiling materials, which allow the diffusion of moisture.
7. Allow natural self-regulation of indoor air humidity using hygroscopic materials.
8. Consider sorption of building materials and plants (in- and outside), which allow filtration and neutralization of toxic airborne substances.
9. Design for a balance between heat storage and thermal insulation in living spaces.
10. Plan for optimal surface and air temperature.
11. Use thermal radiation for heating buildings employing solar energy as much as possible.
12. Promote low humidity and rapid desiccation in new buildings.
13. Utilize building materials, which have neutral or pleasant natural scents and which do not emit toxic vapors.
14. Provide for natural light and use illumination and color in accordance with nature.
15. Provide adequate protection from noise and infrasonic vibration or sound conducted through solids.
16. Use building materials that do not have elevated radioactivity levels
17. Preserve the natural (DC) air electrical field and physiologically beneficial ion balance in space.
18. Preserve the natural (DC) magnetic field.
19. **Minimize technical (AC) electric and (AC) magnetic fields.**
20. Minimize the alteration of vital cosmic and terrestrial radiation.
21. Utilize physiological knowledge in furniture and space design.
22. Consider proportion, harmonic orders, and shapes in design.

23. Use building materials that do not contribute to environmental problems and high energy cost in the production process.
24. Do not support products or building materials that over-use limited and irreplaceable raw materials.
25. Support building activities and production of materials which do not have adverse side effects of any kind and which promote health and social well-being.

Be cautious that any contractors you use are not using materials you have not approved of in advance and in consideration of the conservation of materials and are not wasteful of natural resources.

In referral to **Building Biology Principle 19**, you have an issue with AC electric fields on in the power systems and sleeping and working areas. These are in excess of building biology standards and should be addressed. You already have ROMEX power wiring you should consider changing to MC cable metal clad cabling in the walls and ceiling of the house and it is likely that the unshielded lamps and lamp cords are contributing to these electric fields. This can be addressed by using shielded wire, **I HIGHLY RECOMMEND THIIS** and it is easy to do.



POWER CORD, SHIELDED

"Shielded for Both Electric and Magnetic Fields"

Replace the power cord on your lamps, hair dryer, small appliances, power tools and more with these MuCord™ power cords to reduce electric and magnetic fields from the cord to nearly zero. Standard 3-prong (North American Style) plug is included. Patented wiring configuration inside the cable causes cancellation of the fields. Use whenever the power cord travels near a person's body. Very unique!

NEMA 5-15 plug (3-prong, grounded)
Up to 14 Amp, 120V

(Requires knowledge of how to properly wire the free end to your electric device. Instructions included.)
Plug style and color may vary from image.

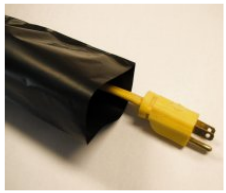
Power Cord, Shielded:

- 6 foot long (Cat. #A736-6) ..... $26.45 Add to Cart
- 12 foot long (Cat. #A736-12) ..... $36.95 Add to Cart

In addition, you can add the following to the wires leading to the lamps as shown above.

CONDUCTIVE TUBING

Reduces Electric Fields From Live Wires To Ground Zero!



Composed of electrically conductive black polyethylene and great for shielding electrical cords. It's easy to slide any electrical cord (even fits those giant dryer plugs!) through this 4" wide (when flat) sleeve without having to remove the plug from the end of the cord. Surface resistivity <1000 ohms/square. Only 4 mil thick, it won't hold up to tearing, heat or abuse, but it's tough enough to do a great job on the lamp cord by your bed, the air conditioner cord, or even cables in your car. Use a grounding cable, and please be careful when handling electrical cords. Specify desired length.
Conductive Tubing (Cat. #A1211) ..... $1.15 /lin ft Add to Cart
Roll Price [750 feet] (Cat. #A1211-roll) ..... $229.00 Add to Cart



The implementation of the shielded wire cords for the lamps and the conductive tubing are inexpensive to do and you can likely do this yourself or take it to a lamp store and have them retrofit the existing lamps.

In referral to Building Biology Principle 23, when you do the changes to the lower level consider the use of source that is domestically based in a radius of not more than 200 miles from your home. Avoid the use of plasticizers in the installation of these materials and oil derived materials in the sealing of air gaps and use inert natural materials such as clay, plaster, and some natural fibers, including cotton, sheep's wool, straw, and hemp as materials.

Occupant User Manual

As a guide in the future consider the following as a kind of "Occupant User Manual" to help you when shopping or planning for future home improvements and living in the home.

- Use natural, locally sourced materials. Avoid the use of materials high in hydrocarbon content derived from a refined oil product. Look at Material Safety Data Sheets (MSDS) of the products you are considering for hazardous chemicals and non-biodegrade content.
- Be very cautious on storing chemical-based products for cleaning and laundry. Use nature as a guide for cleaning product selection or make your own from natural materials.
- Assure house ventilation is maintained and fresh air is allowed to access the environment. You currently have fresh air combustion input to the furnace for heating, but you should consider leaving the master bedroom windows are open a small amount to promote reduction of CO^2 in the sleeping area and improve oxygen levels.
- Keep house plants out of inside the home.Consider cut flowers use, this is very good, you may not realize that plants with soil pots can be a means for all type of insects to enter the home, including mite, flies, ants, spiders and Gnats. Once these insects enter a home, they are extremely difficult to remove, they will even infest furniture and rugs.

Other Valuable Information that you should review

RF Radiofrequency radiation is emitted by wireless technology – cell and radio towers, smart meters, Bluetooth, baby monitors, anything which transmits information through







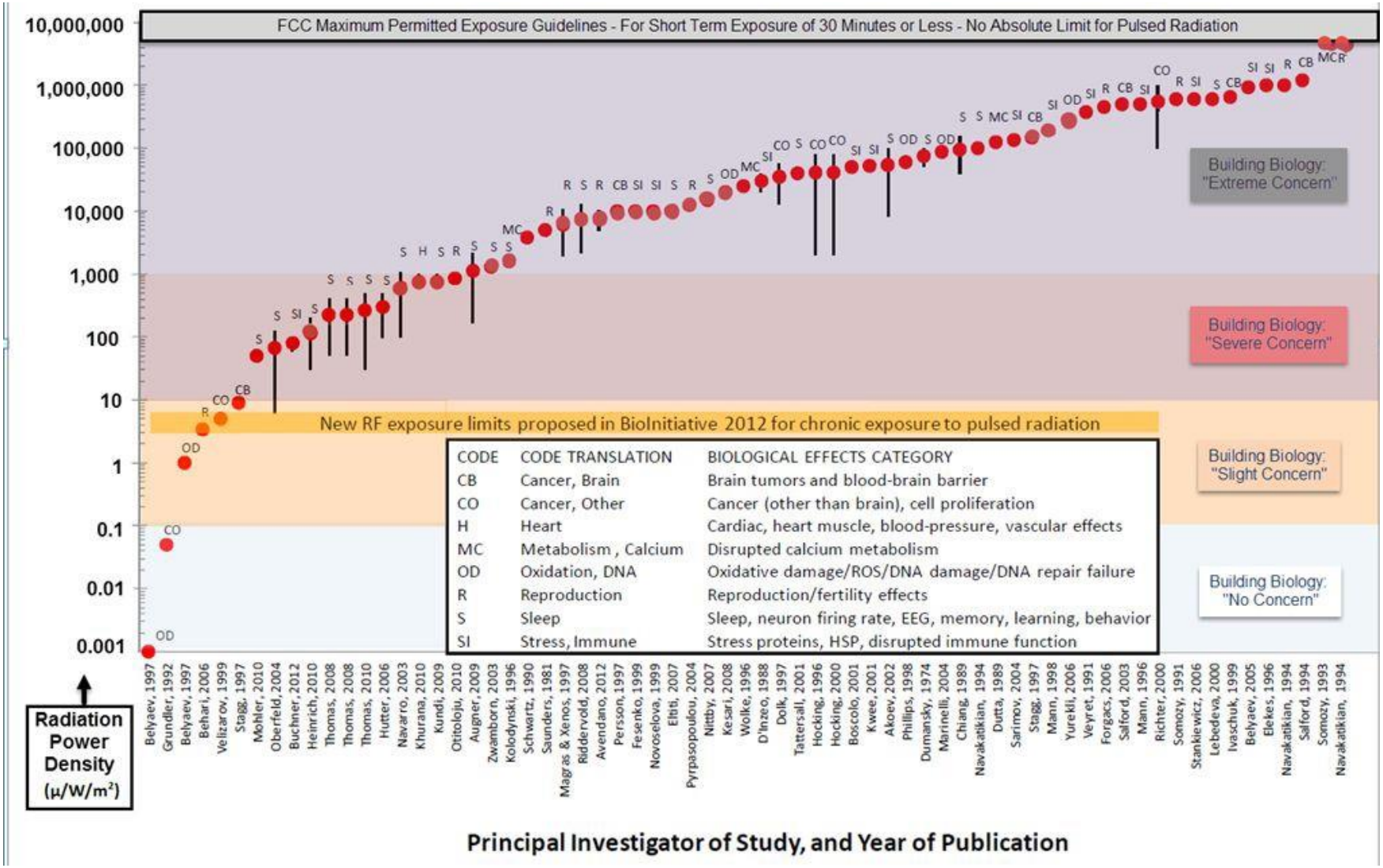




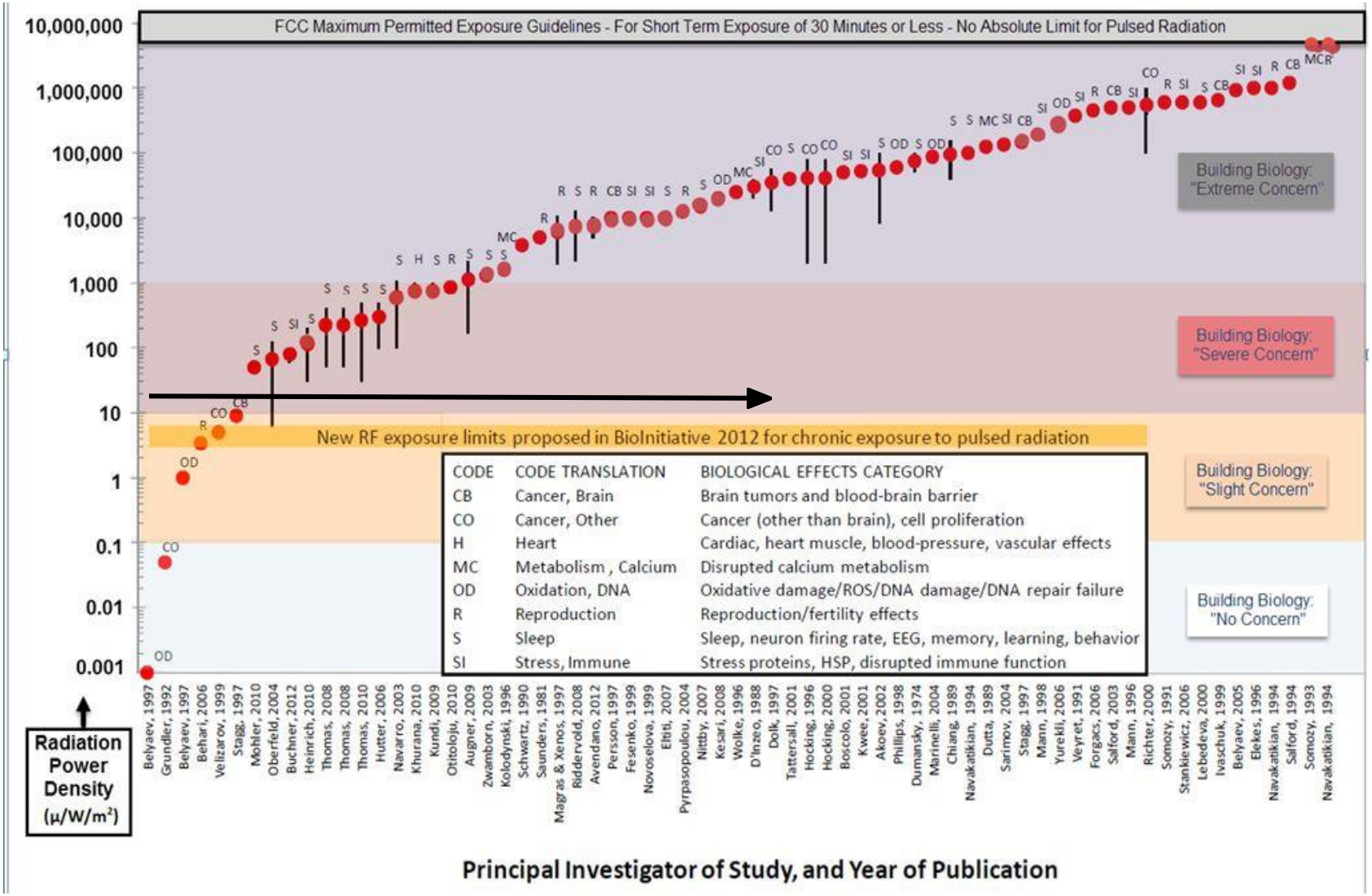




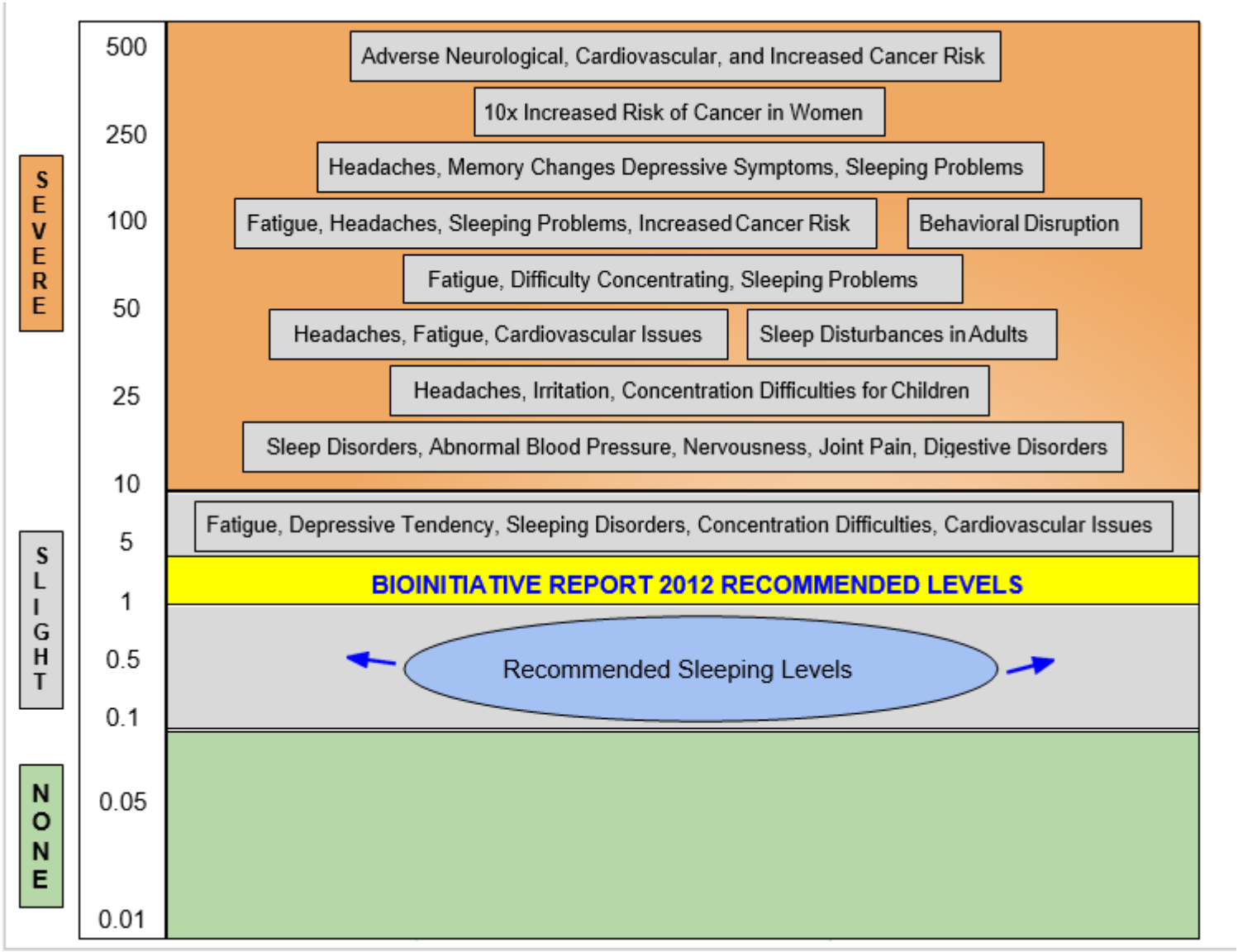
The Bio-Initiative Report on RF Levels (µW/M²)



CODE	CODE TRANSLATION	BIOLOGICAL EFFECTS CATEGORY
CB	Cancer, Brain	Brain tumors and blood-brain barrier
CO	Cancer, Other	Cancer (other than brain), cell proliferation
H	Heart	Cardiac, heart muscle, blood-pressure, vascular effects
MC	Metabolism , Calcium	Disrupted calcium metabolism
OD	Oxidation, DNA	Oxidative damage/ROS/DNA damage/DNA repair failure
R	Reproduction	Reproduction/fertility effects
S	Sleep	Sleep, neuron firing rate, EEG, memory, learning, behavior
SI	Stress, Immune	Stress proteins, HSP, disrupted immune function


FCC Maximum Permitted Exposure Guidelines - For Short Term Exposure of 30 Minutes or Less - No Absolute Limit for Pulsed Radiation
10,000,000
1,000,000
100,000
10,000
1,000
100
10
1
0.1
0.01
0.001
Building Biology: "Extreme Concern"
Building Biology: "Severe Concern"
Building Biology: "Slight Concern"
Building Biology: "No Concern"
New RF exposure limits proposed in BioInitiative 2012 for chronic exposure to pulsed radiation
CODE | CODE TRANSLATION | BIOLOGICAL EFFECTS CATEGORY
CB | Cancer, Brain | Brain tumors and blood-brain barrier
CO | Cancer, Other | Cancer (other than brain), cell proliferation
H | Heart | Cardiac, heart muscle, blood-pressure, vascular effects
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R | Reproduction | Reproduction/fertility effects
S | Sleep | Sleep, neuron firing rate, EEG, memory, learning, behavior
SI | Stress, Immune | Stress proteins, HSP, disrupted immune function
Radiation Power Density (μ/W/m²)
Belyaev, 1997
Grundler, 1992
Belyaev, 1997
Behari, 2006
Velizarov, 1999
Stagg, 1997
Mohler, 2010
Oberfeld, 2004
Buchner, 2012
Heinrich, 2010
Thomas, 2008
Thomas, 2008
Thomas, 2010
Hutter, 2006
Navarro, 2003
Khurana, 2010
Kundi, 2009
Otitoloju, 2010
Augner, 2009
Zwamborn, 2003
Kolodynski, 1996
Schwartz, 1990
Saunders, 1981
Magras & Xenos, 1997
Riddervold, 2008
Avendano, 2012
Persson, 1997
Fesenko, 1999
Novoselova, 1999
Eltiti, 2007
Pyrpasopoulou, 2004
Nittby, 2007
Kesari, 2008
Wolke, 1996
D'Inzeo, 1988
Dolk, 1997
Tattersall, 2001
Hocking, 1996
Hocking, 2000
Boscolo, 2001
Kwee, 2001
Akoev, 2002
Phillips, 1998
Dumansky, 1974
Marinelli, 2004
Chiang, 1989
Navakatikian, 1994
Dutta, 1989
Sarimov, 2004
Stagg, 1997
Mann, 1998
YureMi, 2006
Veyret, 1991
Forgacs, 2006
Salford, 2003
Mann, 1996
Richter, 2000
Somozy, 1991
Stankiewicz, 2006
Lebedeva, 2000
Ivaschuk, 1999
Belyaev, 2005
Elekes, 1996
Navakatikian, 1994
Salford, 1994
Somozy, 1993
Navakatikian, 1994
Principal Investigator of Study, and Year of Publication

RF Levels in µW/M²



Magnetic Fields and Health Effects



Biological Effects of
AC Magnetic Fields.

Biological Effects of AC Magnetic Fields

Biological Effects of AC Magnetic Fields Measured in Milligauss (mG)
By Stephanie Sage Kerst, EMRS

9040 mG	Institute of Electrical and Electronics Engineers (IEEE) Recommended Limit for Public Exposure (there are no US federal standards for limiting ELF-EMF AC magnetic field exposure).
2000 mG	International Commission on Non-Ionizing Radiation Protection (ICNIRP) Recommended Limit for Public Exposure.
16 mG	**Intermittent** exposure to AC magnetic fields results in an 80% increased risk of miscarriage for pregnant women (Li et al 2002).
> 5 mG	Building Biology Severe Concern Level
≥ 4 mG	A 560% increased risk of all major cancers in Danish children living near high voltage power lines (Olsen et al 1993).
3-4 mG	In 2001, ELF-EMF (AC magnetic fields) classified as a Class 2B possible carcinogen by the International Agency for Cancer Research (IARC) of the World Health Organization based on an increased occurrence of childhood leukemia (Kheifets, 2005).
≥ 3 mG	Children in remission from leukemia had a 450% increased risk of dying when recovering in homes with 3 mG or greater (Foliart 2006).
> 3 mG	An 87% increased risk of hematological cancer in adults living near high voltage power lines (Youngson 1991).
> 2 mG	Magnetic field exposure during pregnancy results in a 3.5 fold increased rate of asthma in child (Li et al 2011).
≥ 2 mG	A 710% increased risk of childhood leukemia in children under four years of age sleeping in 2 mG or above (Michaelis 1997).
1.9 mG	A 70% increased risk of acute myeloid leukemia and chronic myeloid leukemia for adults living near high voltage power lines (Feychting 1994).
≥ 1.4 mG	A 570% increased risk of leukemia in children under six years of age than for children with exposure under 0.3 mG (Green 1999).
≥ 1.3 mG	A 200% increased risk of ADHD diagnosis in children living in homes ≥ 1.3 mG; a 338% increase when ADHD persists into adolescence (Li et al 2020).
1-5 mG	Building Biology Severe Concern Level
1 mG	BioInitiative 2007 Precautionary Target Level
0.2-1 mG	Building Biology Slight Concern Level
< 0.2 mG	Building Biology No Concern Level

Sage Living www.sageliving.us

References:

IEEE SCC 28 (now ICES). IEEE C95.6-2002.

ICNIRP statement—guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz)" Health Physics vol 99 pp 818-836 2010.

US Environmental Protection Agency (EPA) on Lack of Federal Standard: https://www.epa.gov/radiation/radiation-resources-outside-epa#powerlines.

Li DK, Odouli R, Wi S, et al. A population-based prospective cohort study of personal exposure to magnetic fields during pregnancy and the risk of miscarriage. Epidemiology. 2002;13(1):9-20. doi:10.1097/00001648-200201000-00004.

Building Biology Institute Guidelines SBM2008. https://buildingbiologyinstitute.org/wp-content/uploads/2019/03/SBM-2008C-v3.6.pdf

Olsen JH, Nielsen A, Schulgen G. Residence near high voltage facilities and risk of cancer in children. BMJ. 1993;307(6909):891-895. doi:10.1136/bmj.307.6909.891.

Kheifets L Shimkhada R. 2005. Childhood Leukemia and EMF: Review of the Epidemiological Evidence. Bioelectromagnetics Supplement #7, 1-7.

Foliart DE, Pollock BH, Mezei G, et al. Magnetic field exposure and long-term survival among children with leukaemia [published correction appears in Br J Cancer. 2006 Mar 27;94(6):940]. Br J Cancer. 2006;94(1):161-164. doi:10.1038/sj.bjc.6602916.

JHAM Youngson et al. A case/control study of adult haematological malignancies in relation to overhead powerlines. Br J Cancer 63:977-985. 1991.

Li, D. K., Chen, H. & Odouli, R. Maternal Exposure to Magnetic Fields During Pregnancy in Relation to the Risk of Asthma in Ofspring. Arch.Pediatr.Adolesc.Med. (2011).

Michaelis J, Schüz J, Meinert R, et al. Combined risk estimates for two German population-based case-control studies on residential magnetic fields and childhood acute leukemia. Epidemiology (Cambridge, Mass.). 1998 Jan;9(1):92-94. DOI: 10.1097/00001648-199801000-00014.

Feychting M, Ahlbom A. Magnetic fields, leukemia and central nervous system tumors in Swedish adults residing near high voltage power lines. Epidemiology 1994. 5:501-509.

Green LM, Miller AB, Agnew DA, et al. Childhood leukemia and personal monitoring of residential exposures to electric and magnetic fields in Ontario, Canada. Cancer Causes Control. 1999;10(3):233-243. doi:10.1023/a:1008919408855.

Li D, Chen H, Ferber JR, Hirst AK, Odouli R. Association Between Maternal Exposure to Magnetic Field Nonionizing Radiation During Pregnancy and Risk of Attention-Deficit/Hyperactivity Disorder in Offspring in a Longitudinal Birth Cohort. JAMA Netw Open. 2020;3(3):e201417. doi:10.1001/jamanetworkopen.2020.1417

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors. BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF) at www.bioinitiative.org, August 31, 2007.

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors. BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Radiation at www.bioinitiative.org, December 31, 2012.

For further reading: Briefing Report on Electromagnetic Fields: Health Effects, Public Policy and Site Planning by CL Sage, MA and SA Sage, BS. J. Aust. Coll. Nutr. & Env. Med. Vol. 25 No.2 (August 2006) pages 3-6 & 9.

One Possible RF solution is a Bed Canopy

A bed canopy blocks over 99% of RF radiation.
This can make for a large improvement in the quality of sleep.

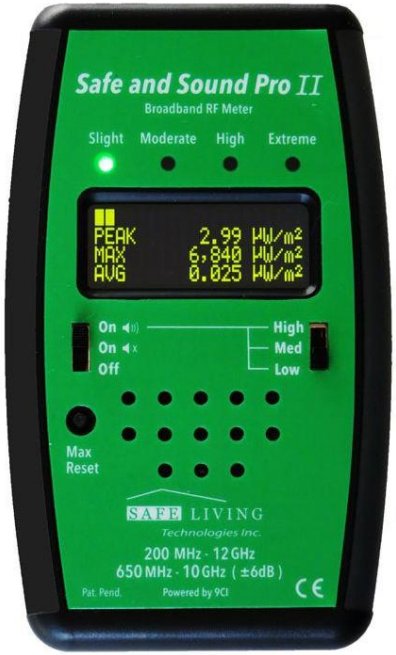
A high-quality bed canopy made of Naturelle material, which is a soft ecological fabric from Europe, and is comfortable for even the most sensitive, you can buy this at Safe Living Technologies.



RF Meters (Wireless Radiation)

Best Overall

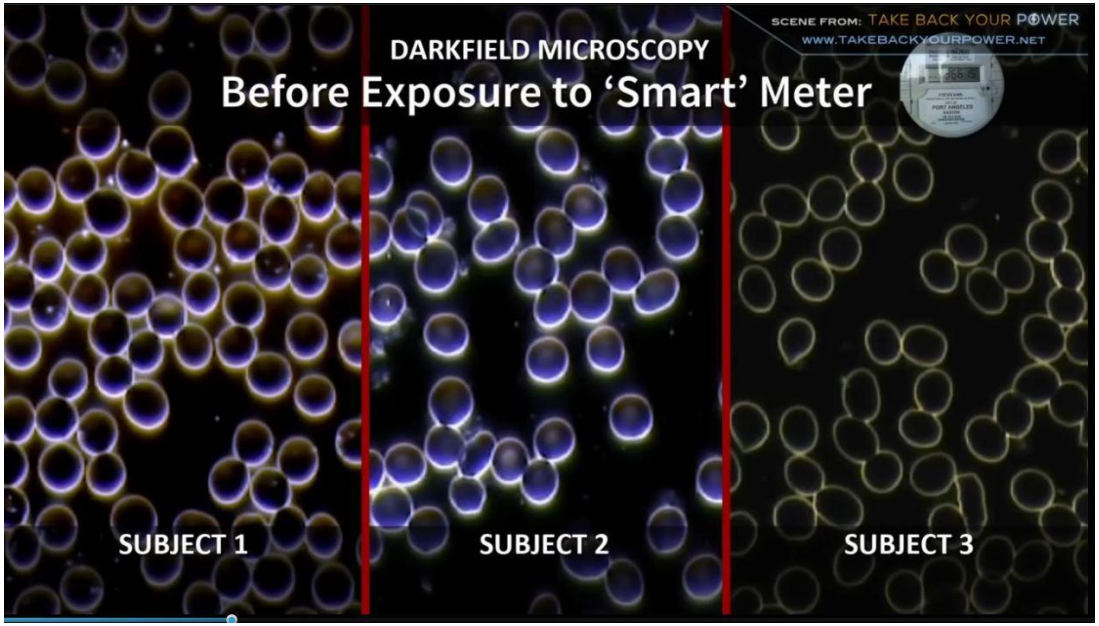
Safe and Sound Pro II

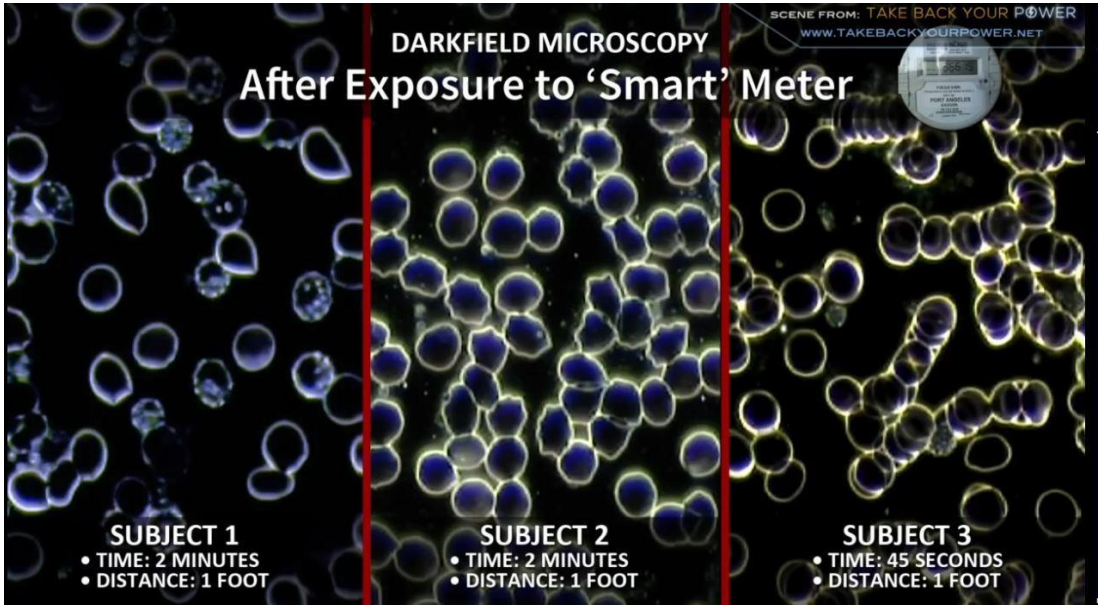


These photos show before and after images of blood exposed to wireless radiation.

Although the source of radiation were smart meters, it would be expected that the same reactions would occur to other sources, such as cell phones or Wi-Fi devices.

See video (Link)

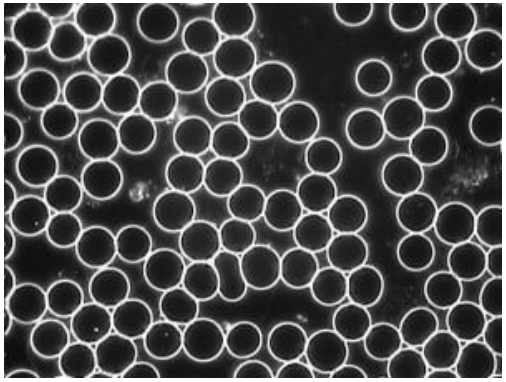



DARKFIELD MICROSCOPY
After Exposure to 'Smart' Meter
SCENE FROM: TAKE BACK YOUR POWER
WWW.TAKEBACKYOURPOWER.NET
SUBJECT 1
• TIME: 2 MINUTES
• DISTANCE: 1 FOOT
SUBJECT 2
• TIME: 2 MINUTES
• DISTANCE: 1 FOOT
SUBJECT 3
• TIME: 45 SECONDS
• DISTANCE: 1 FOOT

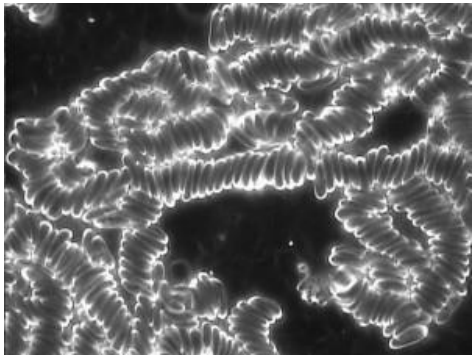
Short-Term Exposure to Cell Phone Radiation Effects on Blood

Weston A Price Foundation Study

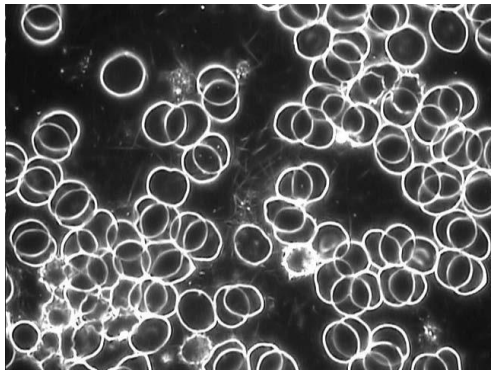
Effects of carrying a smart phone in a backpack



Before exposure



After carrying smart phone in backpack – (not in airplane mode).

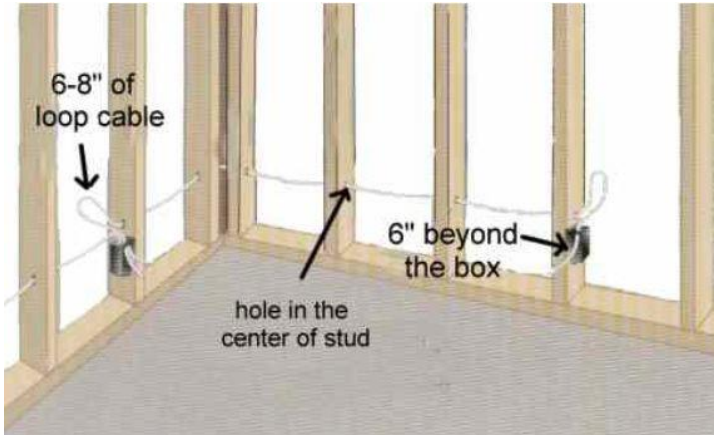


45 mins after turning off cell phone

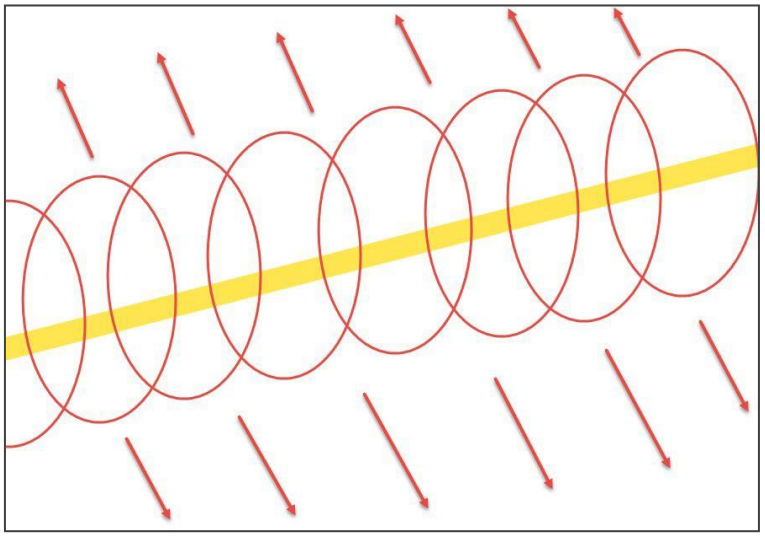
AC electric fields are emitted by standard non-shielded electric wires that are electrified (carrying electricity).



Standard Romex wiring



Wires are throughout the walls, ceilings, and floors of our homes.





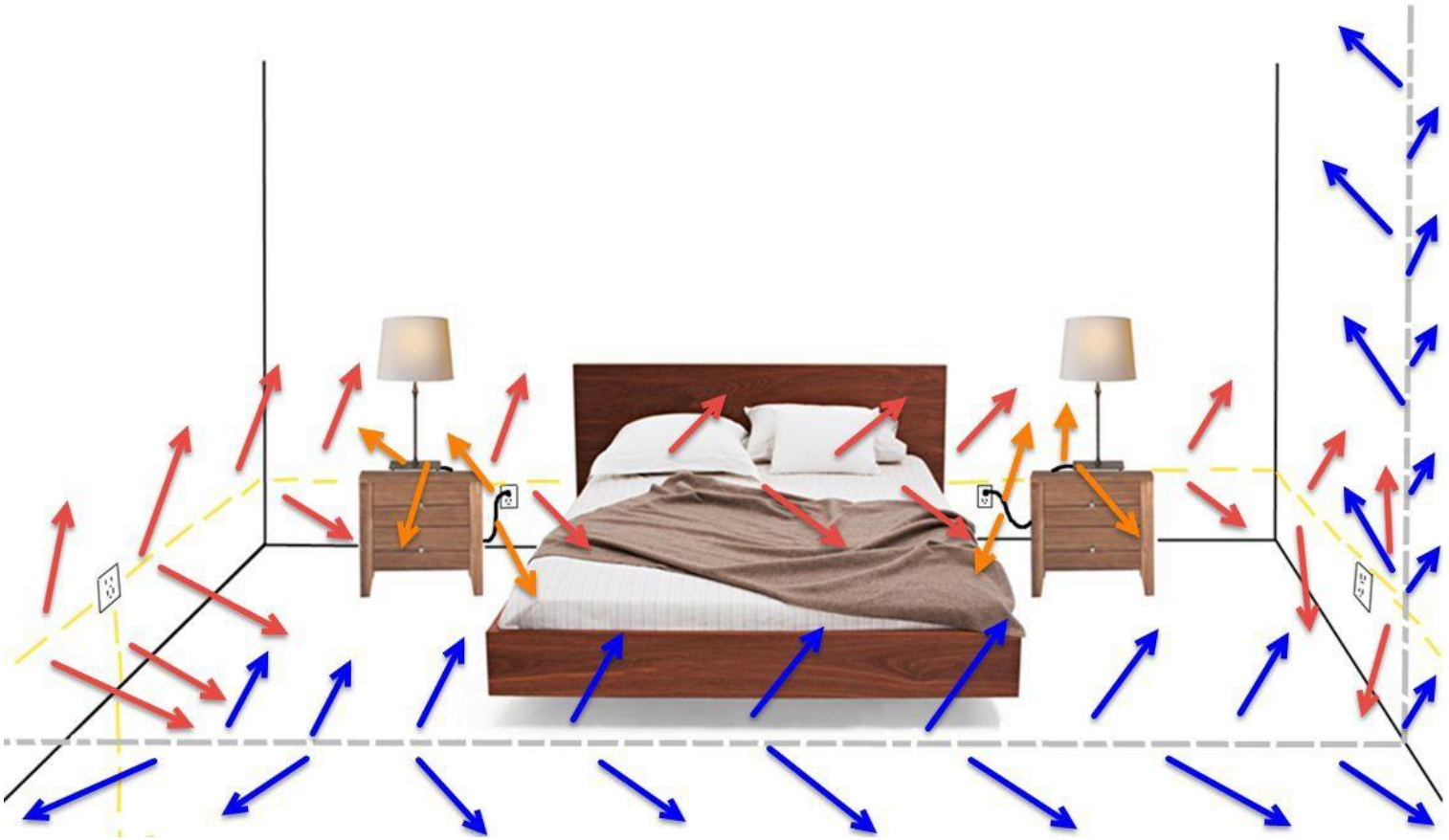
When electricity is running through unshielded wires, they give off an electric field for about 15 feet in all directions.

A bedroom

A bedroom if you could see the hidden wires.



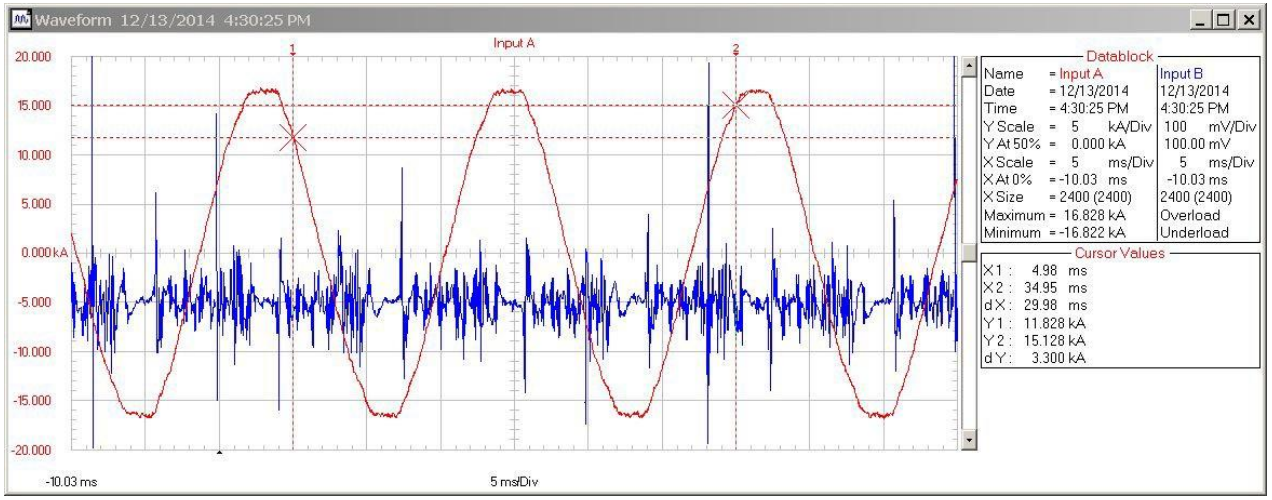
The wires constantly emit electric fields, throughout the bedroom even while we sleep.



Any frequencies that are present in the wiring, such as

dirty electricity, will be emitted within these electric fields.





Some consider this type of EMF to be the most harmful.

If we shut off the breakers to these circuits, no electricity flows from the panel through them, and the electric field EMF's stop being emitted.



This allows our bodies to rest free of these electromagnetic fields, which can have many benefits such as deeper sleep.

Hardwiring Cable Internet
Comcast, COX, Spectrum

Modem (Arris 6183)

Coaxial Cable



6 Foot CAT 7 Ethernet Cable

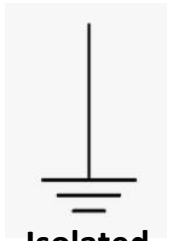


TrendNet Router



Ethernet Grounding Adapter





Isolated Outside Ground

25 Foot CAT 7 Ethernet Cable





Note: If adding other computers or other devices, simply plug another CAT 7 cable into the router and connect it to your device.

Without an Ethernet Port?

Laptops and Devices with USB Ports



USB



[Grounded Ethernet Adapter – Electra Health EMF]



[Shielded Ethernet CAT6 or CAT 7 Cable]

Some MacBook’s Require a Different Adapter



Newer MacBook’s have a USB-C port.

You will need an adapter to plug in a wired mouse or a wired keyboard.

.



$45



Signal Tamer

Reduces levels by 60%+

$110



JRS Eco-wifi 01A on Asus

. On/Off button for WIFI

90% reduced pulse frequency

Radiation levels can be reduced by as much as 99%

Timer for scheduled powering down.

$300



JRS Eco-WiFi 100 D2

WIFI doesn't transmit when not being used

On/Off Button for WIFI

90% reduced pulse frequency

Radiation levels can be reduced by as much as 99%

Timer for scheduled powering down.

Low EMF Computer Resources



1. Use laptop with wired internet
2. Make sure to disable the Wi-Fi on the laptop
3. Don't use the laptop on your lap.
4. Use a wired external keyboard and mouse.
5. Move the laptop further away.
6. Run the laptop on battery power when you can
7. Ground the laptop with a grounding plug from ElectraHealth EMF
8. Used Shielded ethernet cable and grounding adapter.
9. You can even connect the laptop to an external monitor.
   Preferably the monitor would be several years old.

See article for additional information.

ElectraHealth EMF Grounding plug

Home > Networking

Ultimate Grounding USB to Gigabit Ethernet Adapter with USB 3.0 Hub

Part Number usb-gige-hub

★★★★★ 2 Review(s)



Ultimate Grounding USB to Gigabit Ethernet Adapter with USB 3.0 Hub

Write a Review Questions about this item? Ask here. (See 2 Questions)

PRICE

Retail Price: $79.97
Your Savings: $34.97
Your Price: $45.00

Availability: In Stock - Ready to Ship

CHOOSE OPTIONS

Choose a Color: (•) White ( ) Black

Quantity 1 Add to Cart

Add to Gift Registry Add to Wish List

Reducing Cell Phone Radiation Exposure



Air Tube Headset



Wave Cage

Place this on the car seat or in the house when cell phone needs to be on



Corded Telephones:

Reach out and touch someone without radiating yourself.



Best black telephone without answering machine: AT&T 2940

Best white telephone without answering machine: AT&T 2909

Best white telephone with answering machine: AT&T 4940





Best 2-line telephone with backlight display AT&T 17929

There are also a variety of other styles of phones, including retro – Princess Phones.

Long white cord



Long black cord

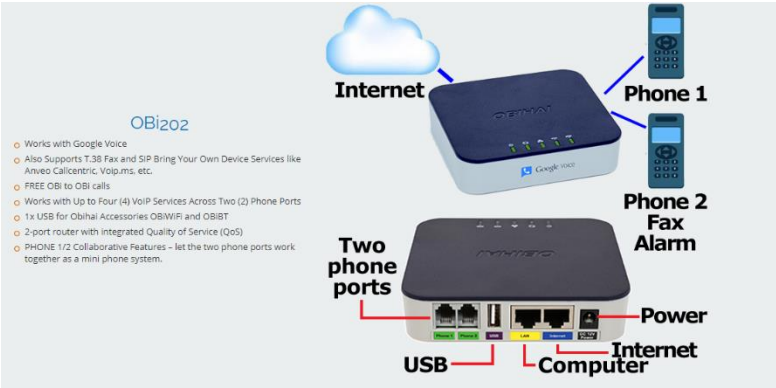


The best thing is to have an electrician install a wall plate.

This way the phone can be securely mounted on the wall and
you can stretch the cord without the phone falling off a counter or desk.



How to use your Cell Phone to make calls on an Ethernet Cable Connection





1. First, I will say I find this works very well! I use this every day.
2. Get a Google Voce account phone number (you need a Gmail Account)
3. Use an Android cell phone – Apple will not work, do not even bother trying
4. Get an Obi202 Device
5. Hook up the OBi202 to your router via a cable, use a regular corded phone for initial configuration. There are You Tube tutorials on how to set this up. You now have a free two-line home phone service!
6. Install Google Voice app on your phone
7. Obtain a Pluggable or equivalent cell phone to Ethernet adaptor (model USBC-TE1000 or equivalent) https://www.amazon.com/gp/product/B087QZVQJX/ref=ppx_yo_dt_b_asin_title_o01_s00?ie=UTF8&psc=1
8. Configure Google Voice to ring your cell phone when you are not home to answer your home phone. So, if you are mobile and using the cellular service you can get all the calls that ring at your home phone on your cell phone.
9. To place calls, use the Google voice app on the Cell Phone.
10. Voice mails can be heard on the Google Voice account or in your Gmail email.

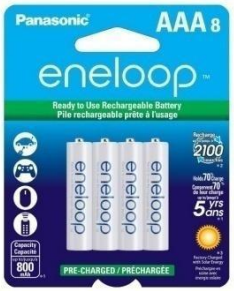
Resources for Turning Out the Lights



[Headlamp]



[Battery-Powered Alarm Clocks]



[AAA Rechargeable Batteries]



[Battery Charger]

Light Bulbs



[Halogen Filled Incandescent Light Bulbs]



[BR30 Halogen]

Recommended EMF Meters

Motorola

MB-8600

Modem

($150)



AC Magnetic Fields
$310



Dirty Electricity
$130



AC Electric Fields
$140




EMF is the
Elephant in the room

What are EMFs?

Human beings are exposed to both native (natural) and non-native (man-made) energy sources known as EMFs--electromagnetic fields or forces. The natural ones include such things as the earth's Schumann resonance, sunlight and cosmic radiation. **All man-made EMFs are dramatically increasing: wherever possible it is best to limit or reduce exposure.** The entire spectrum of energy is referred to as the electromagnetic spectrum as shown in the diagram above.

Reducing EMF exposure basically comes down to a simple strategy: **measure** with the appropriate meter to **understand** the environment, **mitigate** - remove or reduce exposure time with distance and shielding, so you can **mend.** Categories of EMF with some basic recommendations are outlined below:

ELF/VLF: Extremely low frequency and Very low frequency EMFs are basically the “corded” EMF category and include electrical wiring, all electronics, appliances, computers, etc. Measuring these fields utilizes a body voltage meter and achieving acceptable levels given here. *The EMFSafe Switch effectively addresses limiting this category.*

MF: Magnetic fields are a type of EMF typically generated in conjunction with the ELF/VLF fields whenever electricity is flowing through a wire or path. *If you use The EMFSafe Switch, this will most likely be addressed.* However, it is a good idea to test your home with a gauss meter as there can be sources distant from your bedroom that would need remediation. This would typically be external power sources requiring shielding or faulty home wiring.

RF: Radio frequency fields include cell phone, radio and microwave energies. Sources include anything wireless from cell phones, to blue tooth, to smart meters and appliances, to cordless phones, to baby monitors, to WiFi . . . Avoiding/limiting usage indoors as much as possible is primary. Blocking sources from outside your home is more involved: options include shielding paints, fabrics and in extreme circumstances the construction of a faraday cage. *The EMFSafe Switch should be used in conjunction with these shielding solutions where ever external originating EMF is an issue.* The meter used to assess RF fields is an RF meter.

The EMF Sleep Switch

(Use Discount Code DE Filters for a 5-10 % off https://emfsleepsafe.com/)

https://youtu.be/miRDr2KY6p0



The NP-06, other models are available (Includes turning Off Power and Neutral wires- Recommended)

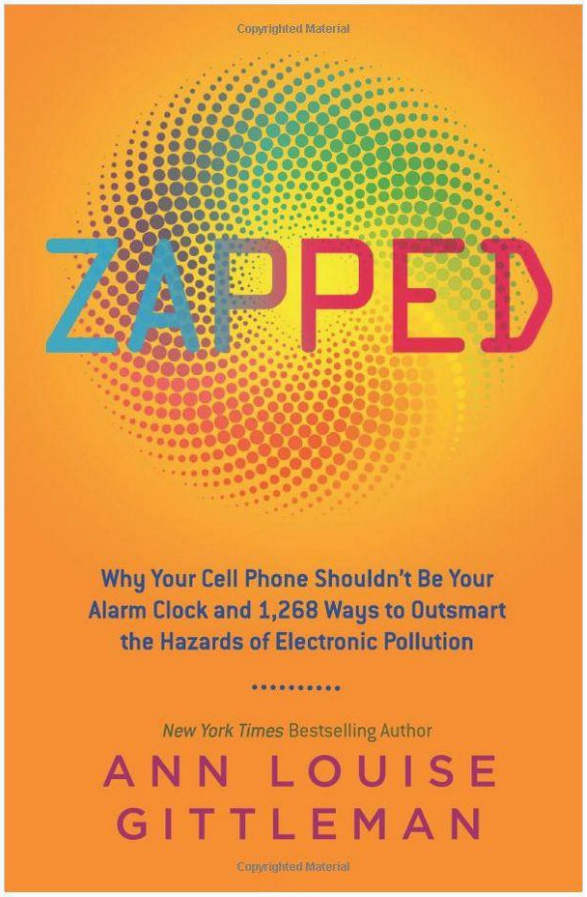
Body Voltage Measurement kit



BVKc (with "E" Pen)

- EMFSafe "E" Pen
- Color OLED screen "BV" meter
- Handle with adjustable cord
- Circuit tester
- 2x grounding cord
- Hard shell case
- FREE shipping

Nutritional Aspects for EMF's and Health



The book "Zapped" has a number of really helpful suggestions on what kinds of foods and other supplements are useful for increasing our resiliency to EMF's.

The author, Anne Louise Gittleman, is a health guru with years of experience in health and nutrition. Her insights are valuable.

She recommends, among other things, eating foods that are high in glutathione, which is a "free-radical scavenger, protects DNA, keeps you energized, reduces inflammation and pain, and neutralizes heavy metals and toxins."

This is found in asparagus, artichokes, brocolli, walnuts, blueberries, and a variety of other foods.

This is a great book – very informative.

You can also rent a video online of her 2014 interview.

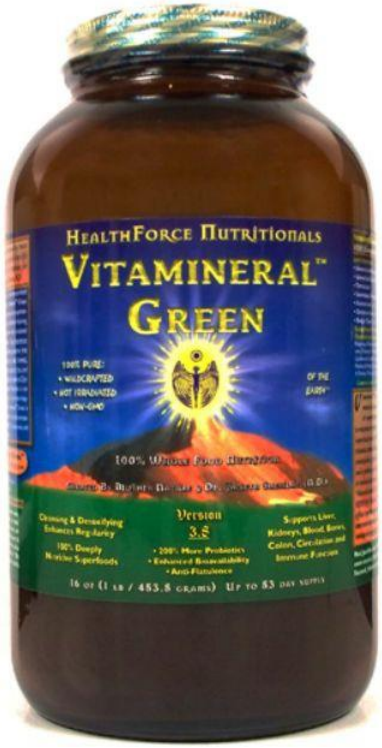
http://emfsummit.com/

Preview: Link

Nutritional Aspects for EMF's and Health (cont'd)



Liquid Minerals



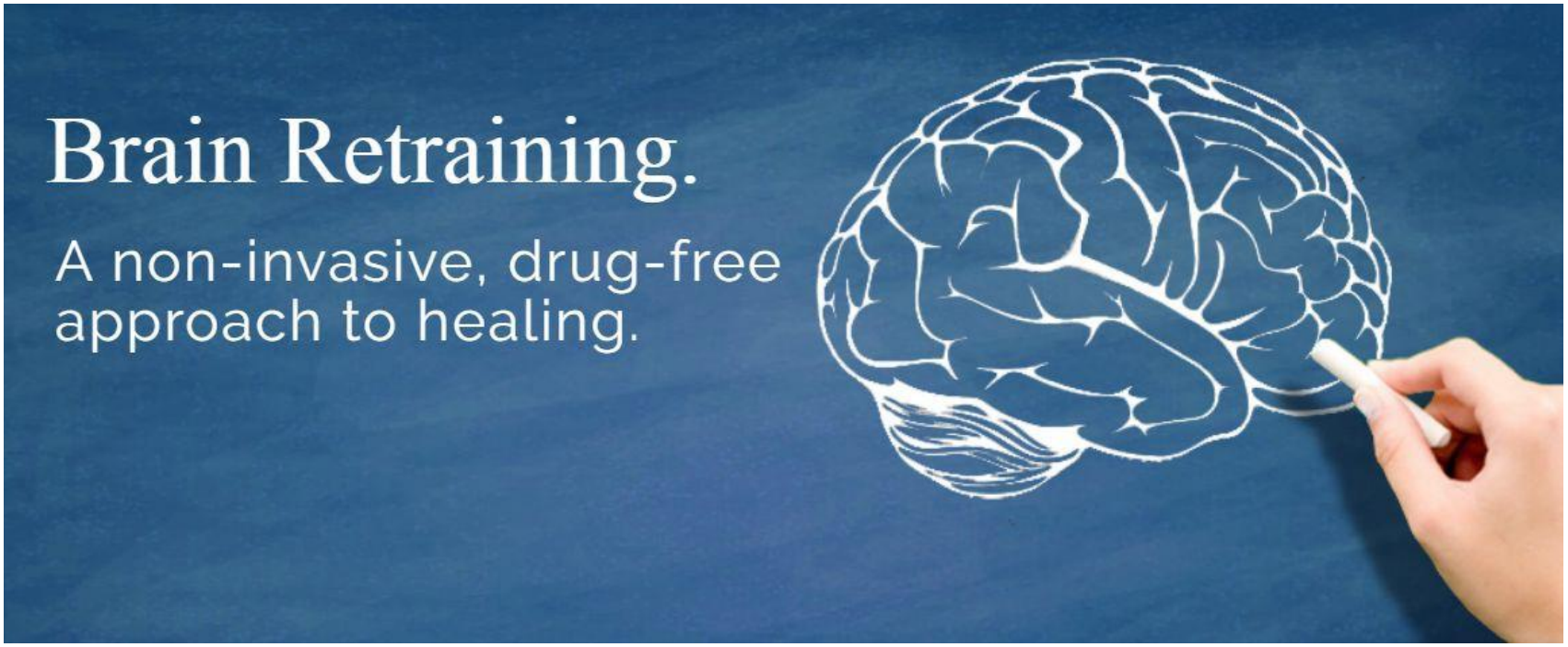
Green Drink



Liquid Vitamins

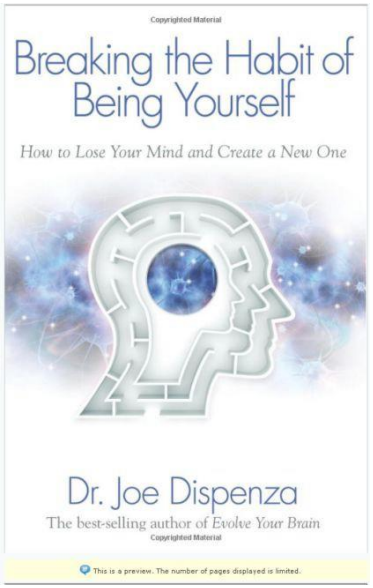
Dynamic Neural Retraining



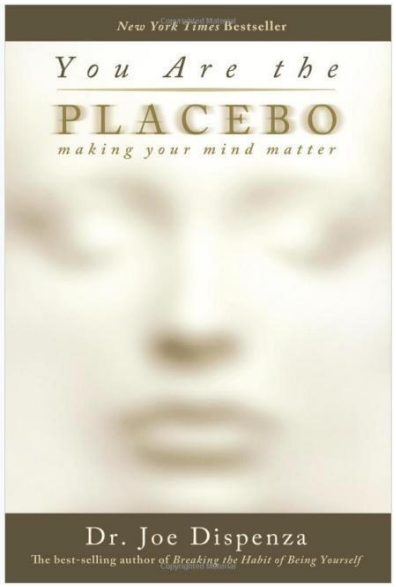


Several of my clients have tried this and were thrilled with the results.

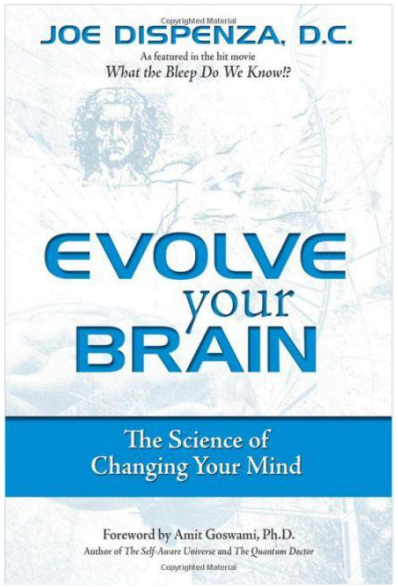
Dynamic Neural Retraining



Amazon



Amazon



Amazon

Equipment Utilized in the Assessment



Gigahertz Solutions
HF59B RF Meter
w/ UBB27
Isotropic Antenna



Gigahertz Solutions
Directional Logarithmic
Periodic Antenna



Gigahertz Solutions
HFW59D

Siglent 3032X Spectrum Analyzer



AAronia V4 HF-60100 V4 is suitable for Pre-Compliance and EMC/EMI tests.
9KHz to 9.4 GHz Frequency Range



AAronia 4060 Log Periodic Antenna (400 MHz to 6 GHz)





Gigahertz Solutions
NFA 1000
Gaussmeter/Electric Field
Meter



Sperry
DSA600TRMS
Digital Clamp
Meter Ammeter



General Technologies Corp GTC
CM100 1 mA to 100 Amps
AC/DC low current clamp meter

Stetzer
Dirty Electricity
Meter

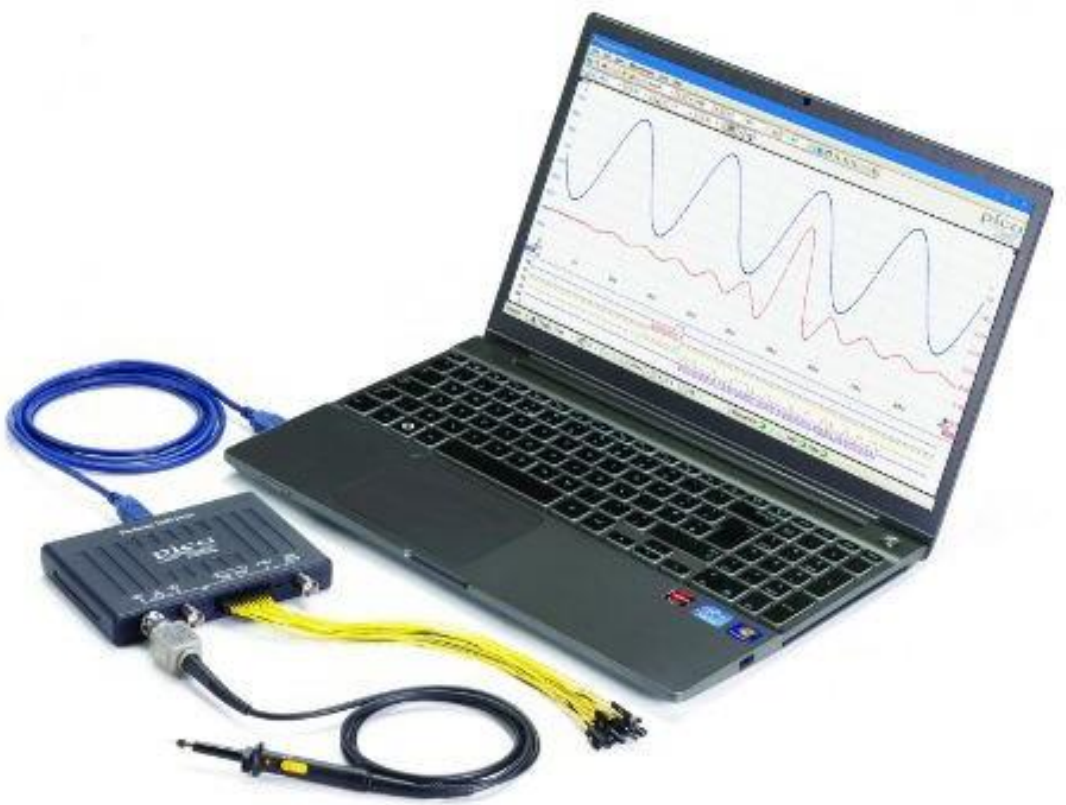




Extech 382252
Ground Resistance Meter

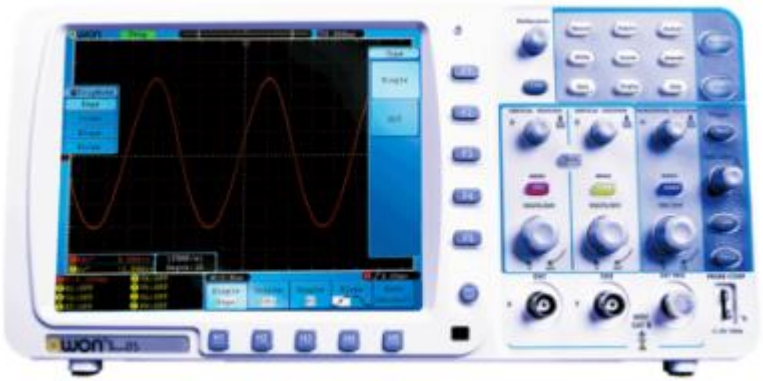


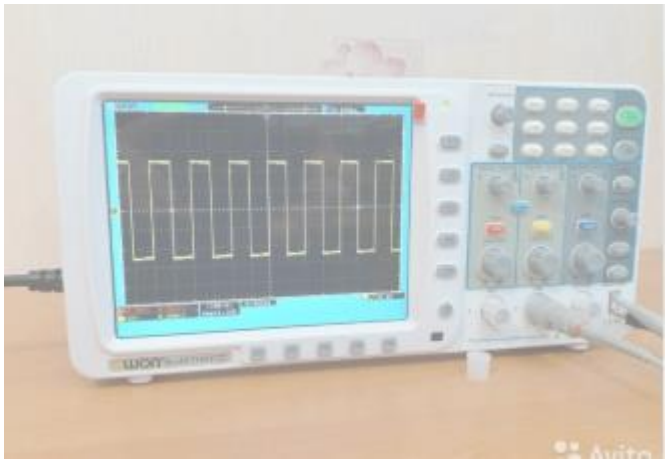
- For measuring Contact current.
- Fluke 287 True RMS Logging Multimeter
- Auto and manual ranging, datalogging digital multimeter measures voltage, current, resistance, frequency, capacitance, temperature, conductance, pulse width, and duty cycle
- True RMS meter provides accurate readings when measuring linear or nonlinear loads where the current or voltage has a sinusoidal or non-sinusoidal waveform
- Datalogging features include minimum, maximum, and average, on screen graphing, real time clock, data hold, and data export to a computer



Pico 2408B

Oscilloscope/Spectrum Analyzer
w/interface kit.





OWON SDS7102V 100 MHz 2 Channel Oscilloscope

Warranty

Limited Warranty

DE Filters LLC warrants that this analysis was performed using substantially the methods that are referenced and described in this report. DE Filters LLC uses the principles of the Building Biology Intitule for the basis of recommendations made.

DE Filters LLC disclaims all other warranties, either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose or use. In no event will DE Filters LLC be liable to you or by any other person for damages, including any loss of profits, lost savings, or other special, exemplary, punitive, incidental or consequential damages arising out of your use or inability to use the analysis whether such claim is based on breach of warranty, contract, tort or other legal theory and regardless of the causes of such loss or damages.

In no way will DE Filters LLC be liable for any claim of injury for COVID or SARS-2 or any other infections as the result of contact with DE Filters LLC or other personnel engaged in conducting this survey. By way of agreeing to this survey effort you agree to this liability limitation.

In no event shall DE Filters LLC entire liability to you under this Agreement exceed an amount equal to the price paid to for the analysis.

Acceptance of this warranty by you is under the terms of “acceptance upon submission” and not on approval or your signature.