

Rythmia

Master Plan for an Electromagnetically Healthy Resort



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EMFanalysis.com

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Executive Summary

Rythmia has the unique opportunity to be one of the first luxury retreat centers in the world to purposefully provide an electromagnetically healthy environment for guests and staff. With the growing global awareness of the importance of electromagnetic fields (EMF) on our health, this will further position Rythmia at the forefront of the development of human health and consciousness.

This report will provide a roadmap to lessen the overall EMF exposures at Rythmia and show how certain areas at the resort can have almost no EMF pollution with a few simple actions. Having this option available for guests will be a positive marketing/sales point for your audience.

There are two phases to this roadmap. The Phase 1 includes the most important items that should be made as soon as possible so that staff and guests are not exposed to high amounts of EMF pollution. Phase 2 includes a review of the low-EMF features already in place at Rythmia along with a look at longer-term actions that can be done in the coming years that will solidify Rythmia as a truly low-EMF destination.

There are three primary actions that deserve special mention in this summary. The first is the creation of low-EMF sleeping rooms. During my stay at Rythmia, I measured the EMF levels on the entire property. What I found is a naturally low-EMF (RF) area where casitas 58-61 are located. These casitas will be your initial low-EMF accommodations for guests that make such requests. Within the report, I outline further steps that will make these rooms ideal for electrically sensitive/health conscious guests.

The second action is reviewing the placement of WiFi routers. Rythmia has excellent WiFi coverage throughout the property. Most guests consider this to be positive and it does not have to be diminished. However, there is a problem with having the routers within a few feet of where guests and staff spend a lot of time. This is happening in a few locations and is actually a dangerous situation because biological damage can take place at such close proximity to a wireless access point. By moving the routers to 20-30 feet from staff and guest locations, the power levels are thousands of times lower and biological harm is less likely over time. I provide router placement suggestions, along with a map and pictures, in Phase 1 of this report.

Finally, as a world-class health and consciousness expanding destination, I would like to offer a basic online EMF education course for Rythmia guests. I propose a simple 30 minute online lesson that includes my TEDx talk and the 6-minute video that Kimberly Gamble and *Thrive* created last year that includes the basic solutions that will help everyone. This would open up your guest to the EMF topic without overwhelming them. It will provide the solutions that people can implement in their lives and also help educate your guests as to why it is so important that Rythmia is creating an electromagnetically healthy environment.

Jeromy Johnson
EMFanalysis.com
December, 2016

Section 1

The EMF Basics



(Low EMF readings near my casita at Rythmia)

Setting the Stage

I want to acknowledge upfront that this can be a scary, overwhelming subject matter for many people. I believe this is the primary reason why most people do not even want to consider the health effects of man-made electromagnetic fields. Rythmia is truly at the forefront of human consciousness by taking on this important topic. In doing so, you will ultimately shift the world in a positive direction.

The purpose of this report is to provide Rythmia with a roadmap to make the resort a healthier destination from an EMF perspective. There are a few actions that will have immediate benefit and others that can be done in the coming years. While the EMF situation at Rythmia is already quite good, a few key actions will make it much healthier for its staff and guests.

The following pages will give you a basic understanding of electromagnetic fields and help you realize the effect they can have on our health.

Common EMF Symptoms

A German medical doctor by the name of [Erwin Schliephake](#) first published an article in 1932 noting that his patients were reacting to a military radar tower that had been installed nearby. Since that time, the condition of electromagnetic sensitivity (ES) or electro-hypersensitivity (EHS) has become a global phenomenon. The Swedish and Spanish governments officially recognize the condition as a “functional disability”, similar to being blind or in a wheelchair. It should be noted that Sweden was one of the first countries to implement cell phone technology and there are now approximately 250,000 Swedes who are electrically sensitive. Other countries such as France, Norway, Austria, Canada and the United States are moving toward recognizing this condition as well. France recently [granted disability income](#) to an electrically sensitive woman and the EMF working group of the Austrian Medical Association has [guidelines](#) to help physicians treat electrically sensitive people. The European Academy of Environmental Medicine also recently announced their [guidelines](#) for the prevention, diagnosis and treatment of EMF related illness. It appears that there is movement within the medical community to recognize this problem. This will be critical as medical experts I speak with expect an increasing tide of affected people the next 5-10 years as the rollout of wireless technology explodes.

Research points to 3-5% of the global population currently being moderately affected by EMFs and this appears to be growing quickly. Nearly 30% of the population is slightly affected (usually without knowing the reason for their symptoms) and may experience one or more of the following symptoms when exposed. At this time, less than 1% of the population is severely affected. As I mention above, this can be an extremely debilitating condition. It is important to point out that all people are affected by EMFs, but only some individuals experience immediate signs of injury.

Here are the most common signs of EMF injury that are discussed in published literature:

- Headaches (tension or pressure on sides of head/temples)

- Insomnia/Sleep Disturbance
- Tinnitus
- Cognitive Impairment/Brain Fog (during and directly after exposure)
- Heart Arrhythmia/Palpitations
- Fatigue
- Skin Rashes (particularly redness and/or burning sensation on face/arms)
- Vertigo/Nausea
- Inner Tension/Agitation
- Depression/Mood Disturbances

Neurological disorders such as Tourettes syndrome and restless legs syndrome can also be exacerbated by EMFs. Anecdotally, several people with these conditions have contacted me to report that their conditions worsened and that they became electrically sensitive after having a significant electromagnetic exposure.

A simple way to test if you are affected by electromagnetic fields is to visit a low EMF environment (such as real, off-grid, nature) for a period of time. Typically, within 24-72 hours of being in a clean environment, your symptoms will begin to diminish and possibly vanish. My symptoms are often gone within 24 to 48 hours of sleeping in a forest far from cell towers or electricity. It's like a switch is flipped and my sleep becomes deep and my mental clarity and energy returns. Severely affected people may take longer - up to a few weeks. Unfortunately, the symptoms typically reappear upon coming back into a high-EMF environment. However, the more time you spend in a good environment, the stronger your body will become. People who live in low-EMF homes typically see their level of sensitivity decline and their health improve. That is why I created this guide.

Another good test is to see how you feel when the power goes out after a storm. Most electrically sensitive people feel great! I learned this in 2012 when we rented a home in Bali far away from any cell towers or wireless technology in a protected valley, yet I still didn't feel well. Then, one evening the electricity in our village went out after an intense tropical thunderstorm and I finally slept deeply and awoke feeling amazing. After that night, we kept off most of the circuits in our home, my wife got used to certain lights not working and my health continued to improve.

What Exactly Are Electromagnetic Fields?

There are four types of artificial electromagnetic fields (EMFs) that are important to consider. At Rythmia, the primary type of EMF pollution that needs to be address is the microwave radiation / RF component listed below.

Magnetic Fields: Magnetic fields occur when there is electrical current running through a wire, metal, appliance or the ground. If we make an analogy with water, it's like water running through pipes. If the faucet is closed, then there is no water current flowing through the pipes. Typically, if nothing is plugged-in and using electricity, then there should be no electrical current and no magnetic fields. You always need to measure to know for sure

though because you can have stray current on water/gas pipes or other metal in your home. Magnetic fields usually occur through simple home wiring errors (such as neutral wires from different circuits being connected) or from a power line outside the home. Depending on the type of electrical distribution system in your area (Delta vs. Wye, which is explained below), you may experience more ground current. Wye served areas have more ground current, which typically creates higher background magnetic fields. I list low-frequency magnetic fields first because they are also likely the most dangerous to biology. Here is a [video](#) by Karl Riley, an expert in finding and fixing magnetic fields within homes. You will measure magnetic fields with a Gauss meter.

AC Electric Fields: These fields are created by voltage within 50 or 60 Hz AC (alternating current) electrical wiring. To keep with the water analogy, voltage is like the water pressure in pipes. The higher the water pressure, the more force the water will have when it comes out. The higher the voltage, the higher the electric fields. 60 Hz AC Electric fields can typically (though not always) be alleviated by turning off the circuit breakers to a part of the home (no more electrical force available) and by using shielded electrical wiring (EMT conduit with compression fittings or MC cable rather than the standard Romex). It is very important for people to sleep in environments with low electric fields (sleep is typically diminished by high electric fields). I outline the safe levels later in this guide. You can identify the 60 Hz electric fields in your home electrical system using body voltage method or with a digital AC electric field meter. Higher frequency electric fields (see the EMI section directly below) can most readily be identified with a carefully selected AM radio, EMI meter or spectrum analyzer. I will explain how to measure these later in the book. A special note about circuit breakers can be seen in Appendix B, Item #6 regarding the risks of constantly turning circuit breakers on and off. Please read this if you turn off your breakers.

Microwave Radiation / RF (Radio-Frequency Radiation): All modern wireless technology now uses pulse-modulated microwave radiation (also known as radio-frequency radiation – RF). Unlike the older analog radio towers that we grew up with, this new digital technology is especially damaging to our biology. We simply do not know all the ways in which the modulated frequencies affect the cells in our body and it could be years until this is fully understood. Common devices that use this type of artificial high frequency EMF are smart phones, cell phone towers, cordless phones, Wi-Fi, Bluetooth, iPads, Wi-Fi enabled computers/tablets, wireless baby monitors and wireless smart meters. You will measure microwave radiation with a RF meter.

Electromagnetic Interference (EMI): Dimmer switches, compact fluorescent & LED lightbulbs, solar inverters, powerline arcing, air conditioning and heating systems, and new electronic items with switching mode power supplies (SMPS) create high frequency electric fields on your home wiring. The proper engineering term for this is electromagnetic interference or EMI (this is part of the well-established field of electromagnetic compatibility (EMC) engineering). Some EMF consultants use the term “dirty electricity” for this form of pollution. Powerline “harmonics” is yet another term that is used for this growing EMF problem. These higher-frequency electric fields conduct along the copper wiring in your

home (including the neutral/safety ground even when the circuit is turned off) and can then radiate into your living environment. This can create an incoherent and biologically damaging form of electromagnetic radiation in your home. Homes with high amounts of EMI will feel like they have a distinct buzz and the inhabitants often have frequent headaches, fatigue, brain fog, ringing in the ears and poor health in general. You can most easily detect EMI with the Radio Shack AM radio I suggest later. The Alpha Labs Line Noise EMI meter and Gigahertz Solutions digital electric field meter mentioned later are also good meters for this form of EMF pollution. I don't recommend the Graham-Stetzer meter because of its limited frequency range compared to the Alpha Labs EMI meter.

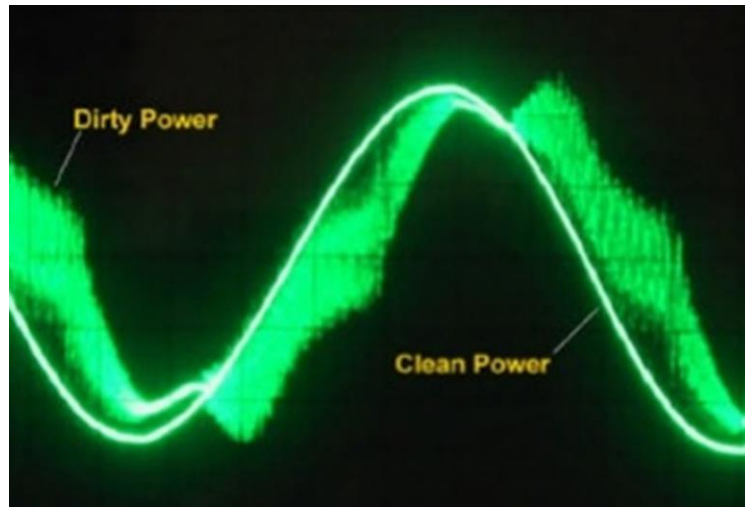


Image credit: The National Foundation for Alternative Medicine

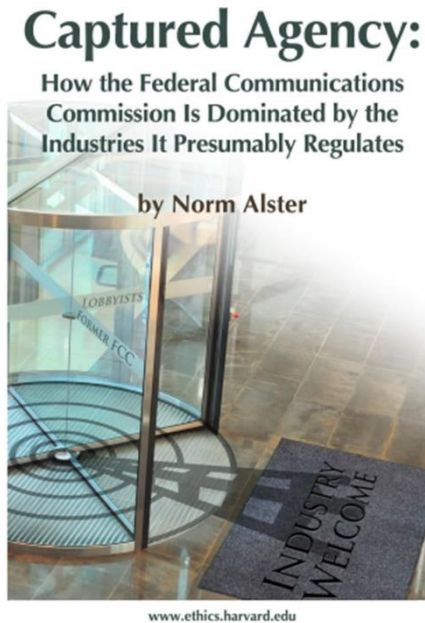
EMI or “dirty electricity” can create serious health effects. Later in this guide you can determine how to measure this. I also encourage you to read my [article on EMI](#) that has solutions and videos to help you remedy this form of pollution.

What Are Safe EMF Levels?

Government regulations and the safe levels proclaimed by utility and telecommunications companies are not meant to be protective of biology. They are simply meant to make sure the technology works and can grow unimpeded. Due to economic interest, the regulations ignore considerable science and evidence that shows that much lower EMF exposure levels are necessary for good health. The reason for this is that government regulations are based on the idea that “if an EMF source does not heat you, then it can't harm you.” This is a concept that dates back to the 1950's and 60's when it was only possible to measure thermal effects. The safety regulations were last updated in 1996 and even that update was based primarily on a document from 1986. Since that time, there have been hundreds of high quality, peer-reviewed, [published studies](#) that show biological effects from low-levels of EMF exposure – so called non-thermal effects. One of the most expensive studies ever, the \$25 million National Toxicology Program (NTP) cell phone study, released its [preliminary results](#) in May 2016. The researchers found that cell phone radiation does

indeed cause cancer and DNA damage in rats. This study is so important that even the American Cancer Society said it marked “a paradigm shift in our understanding of radiation and cancer risk.” Yet, the FCC, which sets the safety guidelines for the United States, and the wireless industry are calling for even greater levels of exposure to power our devices and networks – especially with the planned 5G rollout and autonomous vehicles.

To understand how our official EMF safety guidelines don’t actually protect humanity, I highly recommend reading “[Captured Agency](#)”, which was published by the Harvard School of Ethics and investigative journalist Norm Alster in 2015. This book lays out how the wireless industry essentially



regulates itself by putting its top lobbyists in charge of the FCC. You need to look no further than the current Chairman of the FCC, Thomas Wheeler, who was the chief wireless lobbyist in the United States for twelve years. It should be noted that Norm Alster also wrote about the DotCom Crash and the 2008 Financial Crisis before they happened. That he would now focus on the wireless safety issue is very telling.

This is why it is critically important that you protect yourself and your family now while the political, economic and technological solutions are determined in the coming years and decades. This is the wisest thing you can do at this time and I do believe our society will eventually evolve to acknowledge and remedy this situation – just as we did with DDT, smoking and asbestos.

I am now going to outline two sets of readings for the four types of EMFs – one for a typical healthy family (Typical Safe) and one for a family with someone whose health is compromised in one of the ways I mention above (Sensitive Safe). If you have a family member with Lyme, autism, a neurological condition or who is already electrically sensitive, then you want to pay attention to the lower levels.

Please note that these are general guidelines. You may find that you need even lower EMF levels or that you can handle higher levels. Every person and every family is different, but these are the levels I recommend based on my research, personal experience and work with many different people in this field.

Magnetic Fields:

Typical Safe: 1.0 milliGauss (mG) in living areas of home.

Sensitive Safe: 0.1 mG or below in sleeping area with electrical breakers off.

AC Electric Fields:

Typical Safe: 5.0 V/m with digital meter or 1.0 Volts through body voltage.

Sensitive Safe: Below 1.0 V/m with digital meter or 0.1 Volts through body voltage.

Microwave Radiation (RF):

Typical Safe: Below 10 microwatts per meter squared ($\mu\text{W}/\text{m}^2$) in home.

Sensitive Safe: 1.0 – 5.0 $\mu\text{W}/\text{m}^2$. Preferably below 1.0 $\mu\text{W}/\text{m}^2$ in sleeping area.

- Note that people often initially become sensitized to one particular frequency (such as WiFi, smart meters or 3G/4G cell towers). This frequency will need to be much lower than the overall RF power density measurement.

Electromagnetic Interference (EMI):

Typical Safe: Below 400 mV with EMI meter.

Sensitive Safe: Below 100 mV with EMI meter and minimal static with AM radio.

To help you navigate all these measurements, here is a handy EMF [unit conversion chart](#).



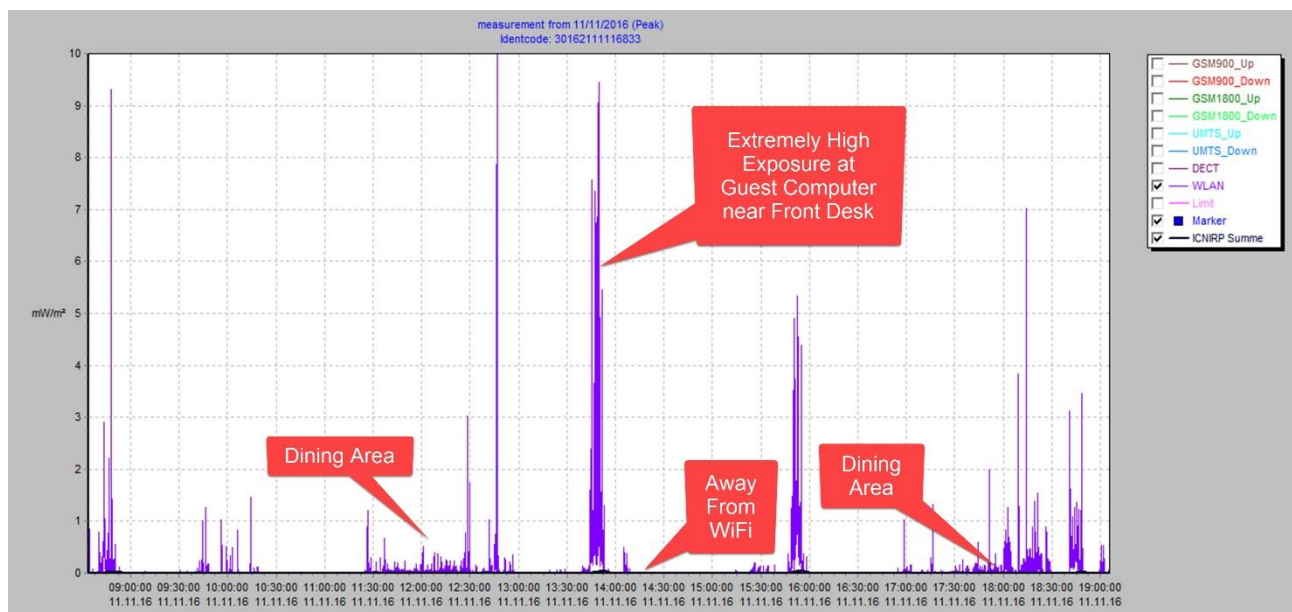
The above EMF meters were used to measure the four types of electromagnetic fields at Rythmia. This picture was taken in Room 61, where the EMF levels were very low (e.g. healthy).

Common EMF Myths

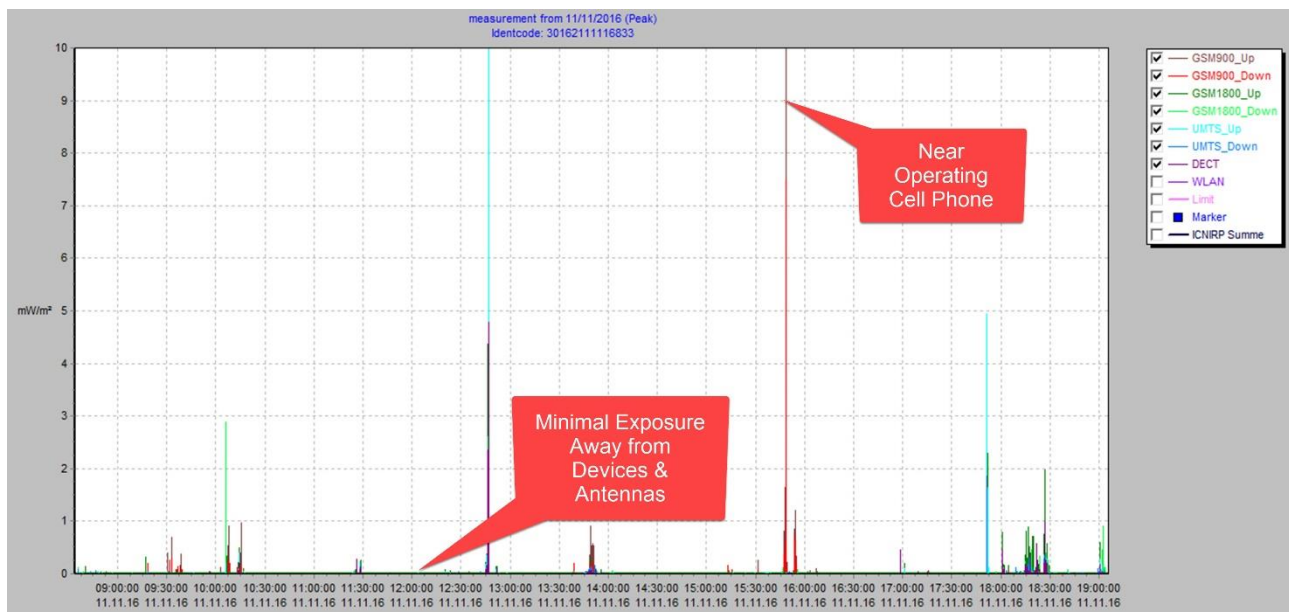
There are many myths in the EMF realm. The most pervasive is that non-ionizing radiation (wireless technology) cannot harm biology because it is not strong enough to knock an electron off of an atom. As mentioned above, this has been proven to be untrue. Research now shows that the biological damage is done indirectly through a chemical process that is initiated by low level EMF exposures.

Another common myth is that “EMF is everywhere, so there is nothing we can do.” This is true on one level because all of life is electric or frequency, so EMF is indeed everywhere. However, it is simply not true that our new, potentially harmful, wireless technologies are everywhere. Because the power density of microwave radiation drops exponentially with distance, there are many areas that have almost no exposures. This is true even in major cities. My home in San Francisco has minimal amounts of microwave radiation in it. Shielding and simple wiring techniques have made this flat better than many homes in rural areas.

I spent a full day measuring my RF exposures at Rythmia. This was done using a dosimeter from Germany that was attached to my arm. It measured the frequency and power density of exposure as I moved around throughout the day. As you can see in the images below, there were times that my exposure level was very high (when near a WiFi router) and many times where my exposure level was nearly zero (in rooms and areas that had no WiFi router).



The above image shows my exposure to WiFi radiation throughout a ten hour period on November 11th, 2016. You can see that there are several one hour periods where I had no exposure. However, there are several peaks of nearly 10 milliwatts (mW)/m². Anything over 1 mW/m² is considered a very extreme exposure. After looking at this graph, I quickly figured out why I didn't feel well at certain times of the day and became more sensitized to wireless radiation after these exposures. What is most important is that this type of exposure is near zero when guests are sleeping and doing healing activities and that such high exposures as seen above are avoided.



This image shows all of the other RF frequencies that I was exposed to that day at Rythmia. This includes nearby cell towers, individual smart phones and cordless DECT telephones. As you can see, there are hardly any other exposures. The few spikes are when I was near someone who was making a cell phone call. The activity around 18:30 was at the dining area where smart phones of other guests would have been pinging the network as we sat at the dinner table. In comparing the two charts, we can see that WiFi is the predominant microwave radiation EMF pollution source at Rythmia.

Can We See EMF Pollution?

The invisible aspect of microwave radiation makes it a difficult toxin for humans to believe is harmful. Most other pollutants we can see or sense in some way. This is why we have laws against cigarette smoke, car exhaust and chemicals such as flame retardants.

What if we could see microwave pollution with our own eyes? Would this make it more real? The truth is that these waves exist on a physical level, but our eyes are not able to perceive them (even though our cells are affected by the frequencies).

The following image is what WiFi radiation would look like if we could see it. This is what the energy is around every WiFi router at Rythmia (within about 40 feet). It's a form of electromagnetic soup that eventually can cause health to diminish. If we could see WiFi with our own eyes, humanity would completely re-think its relationship to wireless technology.

In Phase 1 of this report, you will also hear what pulsed microwave radiation sounds like with EMF measurement devices. By seeing and hearing RF exposures, it makes this much more real.



Image Credit: Nikolay Lamm

Are Personal Protection Devices Beneficial?

Before we move on to EMF reduction solutions for Rythmia, I want to address personal protection devices. This includes chips, pendants, negative ionizers and whole-home devices that supposedly “neutralize” or “absorb” the negative effects of electromagnetic fields. This conversation is typically of great interest when people are first introduced to this topic. With our culture being so focused on “quick fixes” and with the belief that we can consume our way out of big problems, it is only

natural that people will initially gravitate towards these devices. Because of the invisible, hard-to-quantify nature of this pollution, and the importance of EMF pollution being relatively new in our collective consciousness, this field is ripe for disinformation. It is also filled with products that may have excellent marketing, but little in the way of good science backing their claims.

As an example, I was at the Green Festival in San Francisco some years back where a vendor was selling a chip with a special mix of both orgonite and sacred geometry that was supposed to protect cell phone users. He proceeded to verify his claims with a \$30 gauss meter, which caused my eyebrows to rise. I then pulled out my RF meter (it comes in handy sometimes) and showed him how the chip did nothing to reduce the RF emissions from his cell phone. Flummoxed, he quickly encouraged me to move along to the next booth and away from his potential customers.

Several clients have also said that their medical doctor recommended a certain pendant or chip when they brought up their concerns about EMF pollution or serious symptoms from wireless technology. While I understand that the physicians were doing their best to help to their patients, what would you think if your medical doctor recommended a special crystal necklace to protect you from second-hand tobacco smoke, asbestos or foods for which you were allergic? They would instantly lose all credibility.

Devices that are marketed or recommended in a way that encourages people to use wireless products next to their body are dangerous. Giving someone a false sense of security that a chip or any product will protect them is unethical and could cause harm if they continue to put a microwave device next to their body for hours each day (See Section 3 for tips to use technology more safely).

I am open to there being some benefit to personal protection devices. They may help on an energetic level that is difficult or impossible to quantify. However, after experimenting with nearly two dozen products, either through my own investigation and curiosity or because companies wanted me to try (and promote) their products, I can state that none have helped to reduce my electrical sensitivity symptoms. Other people report that there can often be a short-term placebo benefit, which as Dr. Bruce Lipton points out has biological benefits. However, for electrically sensitive people, the symptoms typically return over time with these devices.

If you do utilize any one of the hundreds of personal protection devices available on the market, I would lean toward something that is less expensive that also has meaning to you. No need spending hundreds of dollars on something that cannot be verified – other than by dubious studies or anecdotal reports only from users who had a positive experience. However, before purchasing any device, I recommend that you first put your focus and attention on actually reducing and eliminating your exposure. There is so much you can do in this regard and, without a doubt, this is the most important factor in your health when it comes to electromagnetic fields. Solutions that reduce and eliminate EMF exposures at Rythmia are the focus of the remainder of this report.

Section 2

Steps to Reduce EMF Pollution at Rythmia



(WiFi Router locations in Dining Area)

Phase 1: Initial Steps for Rythmia

There are two primary actions that will provide immediate health benefit for both staff and guests of Rythmia. The first is to designate several casitas as “Low-EMF Rooms.” This will allow you to market this to guests and provide this option to people who are EMF sensitive and/or health conscious. The second action is to move several WiFi routers that are uncomfortably close to where staff and guests spend a lot of time. This will reduce the chances of EMF injury and poor health outcomes for all involved.

The following is a map of Rythmia in which I have designated the low-EMF rooms (circled in light blue). You will see that Rooms 58-61 are the lowest EMF options, with Room 61 being the best option. I have also circled in red the areas where a WiFi router is too close to where your staff spend their time. The dark blue circle is the electrical meter room and primary telecommunications area (mostly fiber optics). Because this area is not near where staff and guests spend time, it is of little consequence.

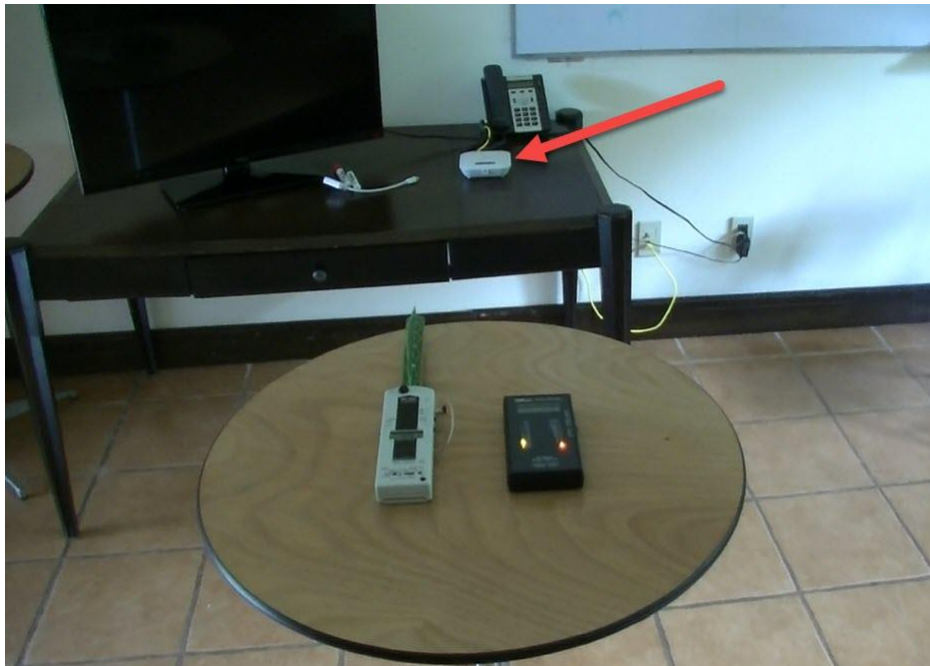


Creation of Low-EMF Rooms

In the process of measuring the entire Rythmia property for man-made electromagnetic fields, I found that the area around Casitas 58-61 were naturally protected from the RF exposure from a nearby cell tower. These rooms also had low levels of magnetic, electric and EMI field pollution. Thus, they are the natural areas to put guests who desire a low EMF sleep accommodation. Here is a video where I measured each type of pollution within Room 61 – all of the EMF levels were quite low: <https://www.youtube.com/watch?v=7FbYMBX2CEc>

To truly make these rooms EMF healthy, I would suggest that you also do the following:

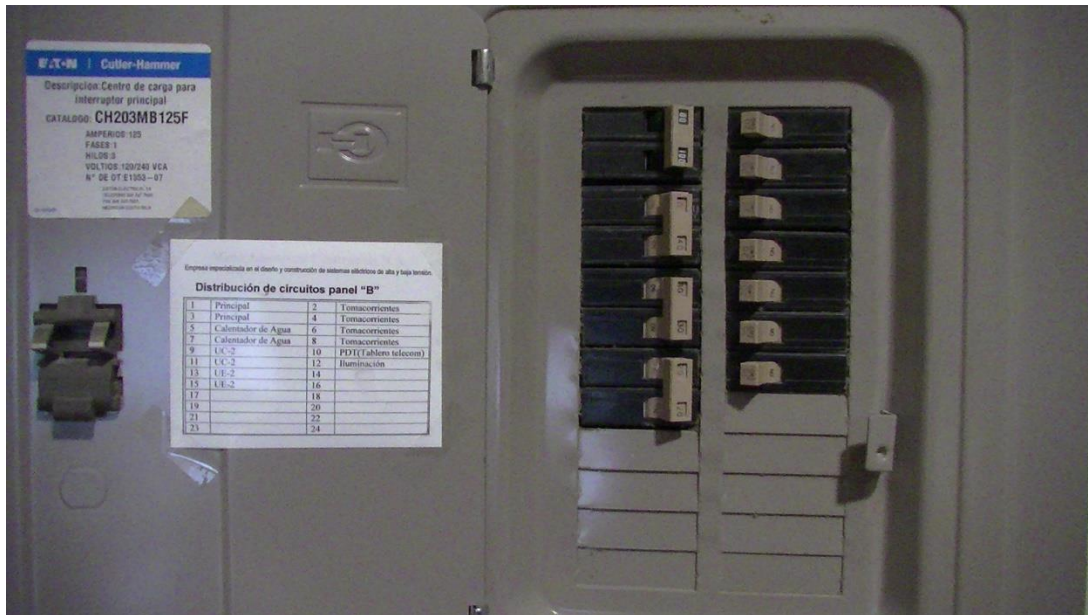
- 1.) Take the WiFi routers out these casitas or put them on timer so they are off at night when people sleep. This will not only provide people from a much needed EMF respite, but also a psychological rest from always being digitally connected (even though they could simply walk outside to pick up a signal from a neighboring casita or go near the front desk area).
- 2.) Provide the option for EMF sensitive guests to turn off the circuit breakers in their casita at night. This will be an easy option for rooms 58 and 60 because the breakers only control their rooms. Casitas 59 and 61 have breakers that also turn off the electricity in 59A and 61A.
- 3.) Replace the current Power over Ethernet (PoE) phone and internet system in these rooms with a basic internet switch that does not put electricity on the Ethernet cables in the wall. The PoE systems put a lot of electromagnetic interference (EMI) in the wall right behind where guests sleep (see video below). I discuss this further in Phase 2.
- 4.) These rooms are already wired with Ethernet ports. You can provide Ethernet cables to guests with laptops and Ethernet to Lightning Port adapters to guests with iPads. They will then have healthy, secure and fast internet connections. Guests in these casitas can easily walk to a nearby area for better WiFi reception if they need it for their smart phones.
- 5.) Many people who are sensitized to electromagnetic fields are also sensitive (or allergic) to chemicals. It is important that these guests have the option to sleep with their windows open. This helps air out the room at night so that scents and chemicals from the bed, bedding and cleaning supplies/detergent used in the room do not affect people while they sleep. I recommend that you provide this option to guests – especially in casitas 58-61. We did not have this option in Room 49 during our stay at Rythmia. Instead, we left our front door open.



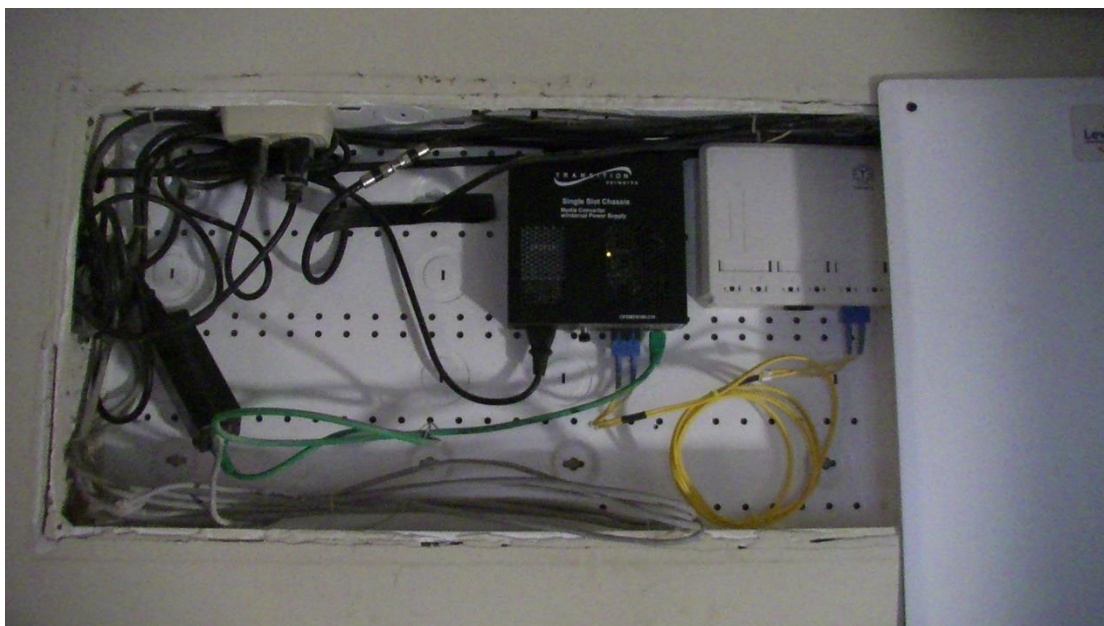
The red arrow above points to a common WiFi router used at Rythmia. There is one of these in every casita, typically right next to someone's bed. I encourage you put these on a timer for the low-EMF rooms and possibly for most rooms at a later date (See Phase 2). As the rooms are already wired

with Ethernet ports, there is no need for WiFi. Guests can be provided with Ethernet cords for their laptops and an Ethernet to Lightning Port adaptor for guests that use an iPad. I left both of these as examples for Brandee. You can see how powerful these routers are in this video:

<https://www.youtube.com/watch?v=qR43b8AMwug>



Each casita has its own circuit panel. For EMF sensitive people, it is best to switch off the breakers at night. This reduces EMF exposures and gives people a feeling of sleeping in a natural setting. Rooms 58 and 60 have their own breaker panel. Rooms 59 and 61 could also have this option, provided that nobody is in room 59A or 61A.



Rythmia already has a state-of-the-art internet system with fiber optics hardwired into each casita. This is an incredibly fortunate circumstance that the original developers had this foresight. The white

box at right is where the fiber optics comes into each casita. The yellow fiber optic cables then move to a converter that changes the light from fiber to electric data that can be used on Ethernet cables and our computers (green cable). The black box at left is used to put low-voltage power on the Ethernet cables in the walls in order to power the phone in each casita. This box should be replaced by a basic switch that does not induce power onto the Ethernet cable. The phone in the room should then simply be plugged into an electrical outlet. This will greatly reduce the EMI pollution in the casitas.

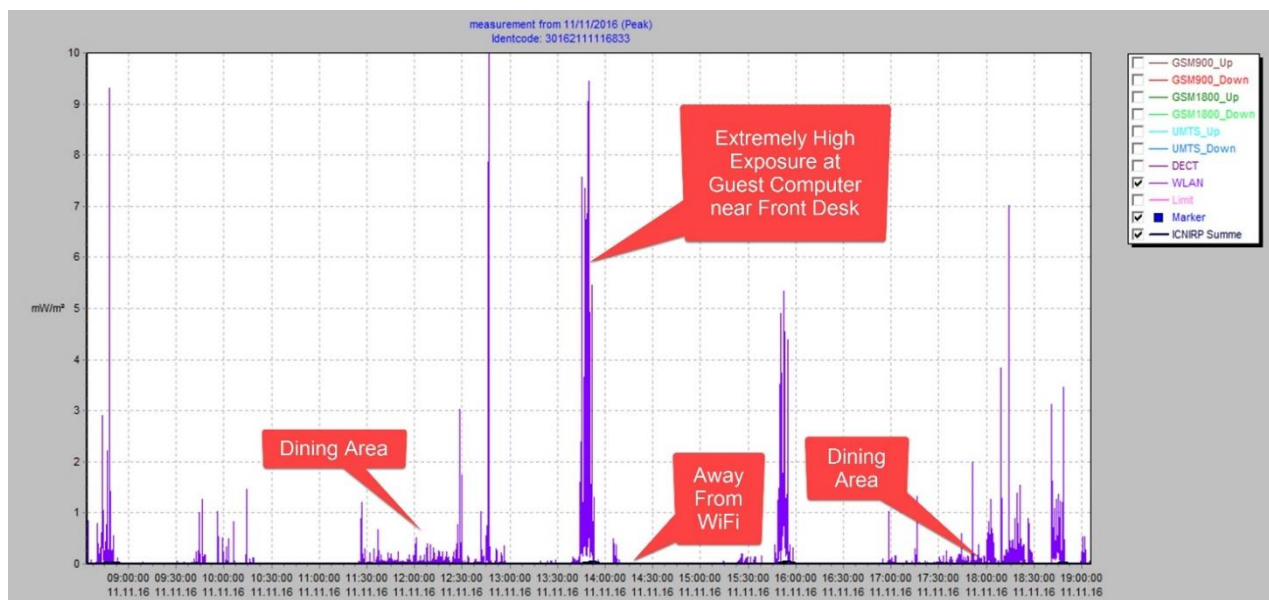
Here is a video that shows the EMI pollution caused by Power-over-Ethernet systems used at Rythmia:

<https://www.youtube.com/watch?v=GbwXLJm18Q>

Placement of WiFi Routers

Another important action that I recommend for Rythmia is to move several of the WiFi routers. Many of the routers are placed right next to where staff and guests spend their time and this actually poses a health risk for people. The best path to take if you are going to have WiFi available is to place the access points on walls or the ceiling away from where people are located. Just 20-30 feet of distance exponentially decreases exposure levels.

To make this point clear, I want to revisit the image that shows my exposure to WiFi during a 10-hour period on November 11th. In the chart below, I was always within excellent WiFi coverage. However, you can see that my exposure levels were extraordinarily high when I was accidentally sitting near a router. I actually didn't know these routers were there until I charted my exposures for the day and did my measurements of the Rythmia grounds. All of the highest peaks in the chart below when I was near the front desk and the guest computer station. You can see there were several hour long periods where I had almost no exposure (but still had very good WiFi reception).

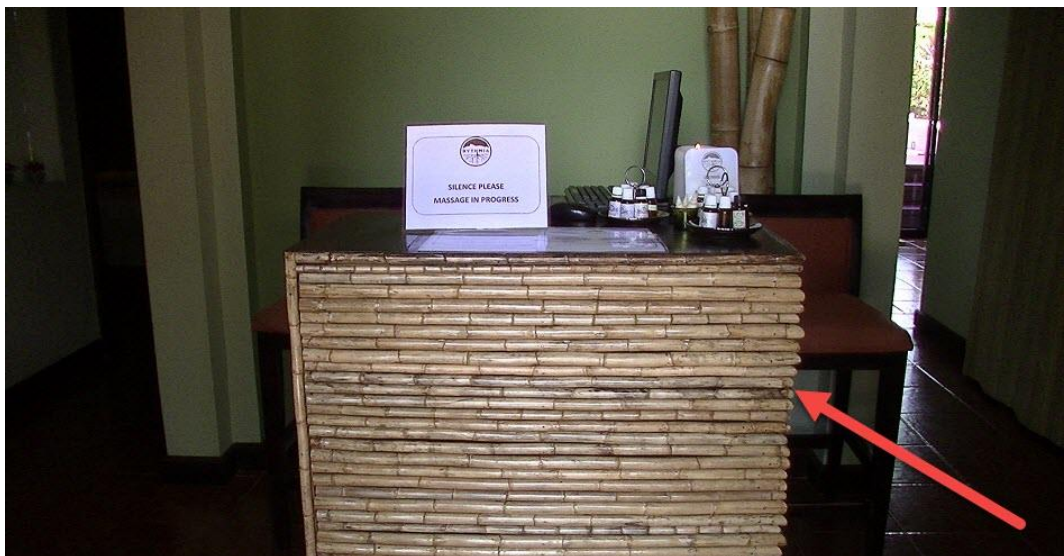


In the Rythmia map below, I have circled *in red* the locations where I suggest that you shift the router locations or make adjustments. It is ideal that you move these routers so that they are at least 20-30 feet from where people spend their time. This is especially important for certain locations where your staff is located all day.



I will now show pictures with videos and recommend changes for the various locations circled above. They include:

- Massage Area
- Front Desk Area
- Restaurant Area
- Gerry's Casita
- Dr. Tiny's ICU and Cleanse Areas



The massage desk has a WiFi router within it (red arrow). As this is a place of healing and relaxation, I suggest that this router be removed from this building and moved across the walkway to the gym.

This will still provide WiFi coverage for that area (if you actually need it) and will lower the EMF exposures for your massage staff and guests.



There are two WiFi routers in the dining area. The one on the ceiling (left arrow) is not a huge issue. However, the one at right above is very strong and is at the station where your employees spend time. I would like to see you create an area of the dining area with good reception (perhaps the front area) for guests who want to use their devices. Then I would like to see the area in the back that has very poor reception. Guests, like myself, would appreciate being able to dine without being radiated. I usually had a headache after spending too much time toward the front of the dining area. The link below is a video that illustrates the RF levels in the throughout the kitchen area. You will see that you are already close to having a high-EMF section and a low-EMF section. However, I would put both routers on the ceiling so that your employees are not so close to an access point.

<https://www.youtube.com/watch?v=z6Bfi3BiUY8>



The above image shows the WiFi antennas in the Front Desk area. There are two routers (in the front desk and behind the back wall of the guest computer room). The other two antennas are actually wireless printers, which I will show you in pictures below. Ideally, you will move the router underneath the front desk to the ceiling. This will move it away from your employees, where they are currently experiencing high exposures.



The second WiFi router in the front lobby area is in the control room behind the building. The red arrow above points to where the WiFi router is located within the control room. The issue with this router is that it is just a few feet from where guests sit at the computer station. Guests will experience dangerous microwave exposures in that location and I suggest that you move this router or turn it off. This router appears to serve the yoga area. You could instead put a router in the control room of the yoga building. Here is a video that shows the exposure from this router:

<https://www.youtube.com/watch?v=gxwPIbIJKmw>



Wireless printers are actually very high emitters of RF. The good thing is that you can either wire them (using Ethernet cables) or you can put them on standby with the WiFi function turned off until you actually need to use them. The value of “1” means the meter is maxed-out.

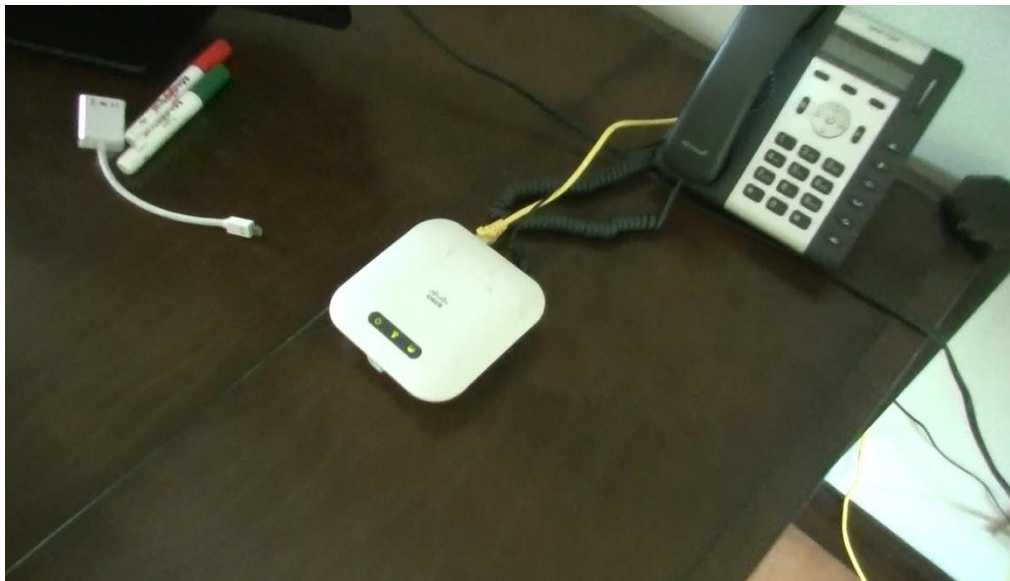


This is the wireless printer in the main office. You can see in the video below how strong of an RF emitter this device actually is. I encourage you to connect to this printer using your Ethernet system or keep the WiFi functions (or the printer itself) turned off until you actually need them.

<https://www.youtube.com/watch?v=l-QdT7vmLv4>



While measuring the Rythmia grounds, I noticed that there was a particularly high-powered WiFi router in Gerry's casita (Room 75). The above picture shows the RF levels outside of the casita. I typically measured much lower WiFi levels outside most casitas (less than $1 \mu\text{W}/\text{m}^2$ on the device pictured). My suggestion is for putting this router on a timer so that it is off while Gerry and Brandee sleep. This will reduce the exposures during the most important time (during sleep) and at a time when the WiFi is not needed.



The above white Cisco router is the common WiFi access point used in casitas throughout Rythmia. My suggestion is that they are not placed on staff desks or next to guest's beds. In some room situations throughout Rythmia, these routers are under or directly next to guest's beds, which can affect sleep quality. I also noticed that there was a router right next to Dr. Tiny's computer station in the ICU. Ideally, this will be moved away from where she and her patients spend time. Shielding methods such as the Signal Tamer and Router Guard could be used to reduce the RF output of certain routers (such as the one in the Cleanse Unit). This reduces the exposure levels, with only minimal reduction in the coverage area of the router.

Phase 2: Longer Term Solutions for Rythmia

Once steps in Phase 1 are completed, Rythmia will have done what few resorts in the world have attempted – to create a healthy electromagnetic environment for both staff and guests. I sincerely applaud you in taking the time and resources necessary to complete these actions.

This section will look at various aspects of Rythmia’s electromagnetic environment that are either already quite good or that can be improved as Rythmia develops and makes capital improvements.

Low-EMF Features Already in Place

I was very impressed by many aspects of Rythmia that are already healthy from an electromagnetic perspective. Here are ten reasons why Rythmia has the potential to be a low-EMF resort:

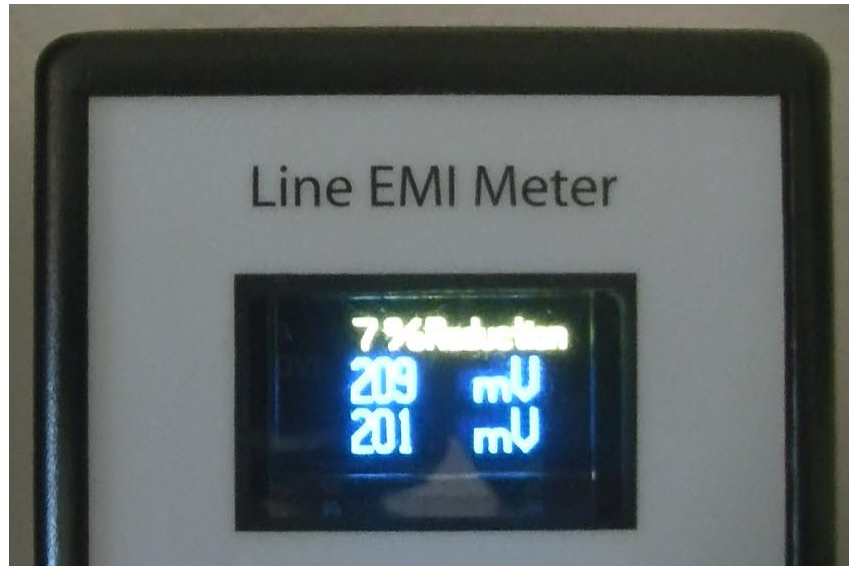
1. Fiber optics and ethernet are already installed throughout the resort and rooms
2. Low ambient magnetic fields from electricity (less than 0.1 mG)
3. Low ambient electric fields from electricity (less than 1 V/m)
4. Low EMI on powerlines or “dirty electricity” (less than 200 V/m)
5. Relatively low RF exposures from nearby cell tower
6. Electricity meters that only transmit when utility employee arrives once per month
7. Very few wiring errors were found within measured rooms
8. Natural setting of property that provides ample ability to control EMF exposures
9. Meditation, Yoga and Pool areas that have low EMF exposures
10. Certain room areas that have very low EMF exposures for guest who request such facilities

The following are images related to the above ten points:



The picture above shows that Rythmia has low EMF levels when a person is away from a WiFi router. At left is a low background RF level (below 1 microwatt per meter squared). The middle meter is a

low magnetic field reading (below 0.1 mG). At right is a low electric field reading (below 1 Volt/meter). The EMI (dirty electricity) readings at Rythmia were also in the safe range.



The above image shows the typical EMI (electromagnetic interference) levels on the wiring at Rythmia. A low reading would be below 100 mV. A very high reading would be over 1,000 mV. At 200 mV, Rythmia has healthy power quality. At various locations throughout Costa Rica, I measured EMI levels anywhere from 100 mV to over 1,500 mV (Nosara has bad power quality, while Tamarindo has healthier power quality). No remediation of EMI needs to be done at Rythmia at this time.



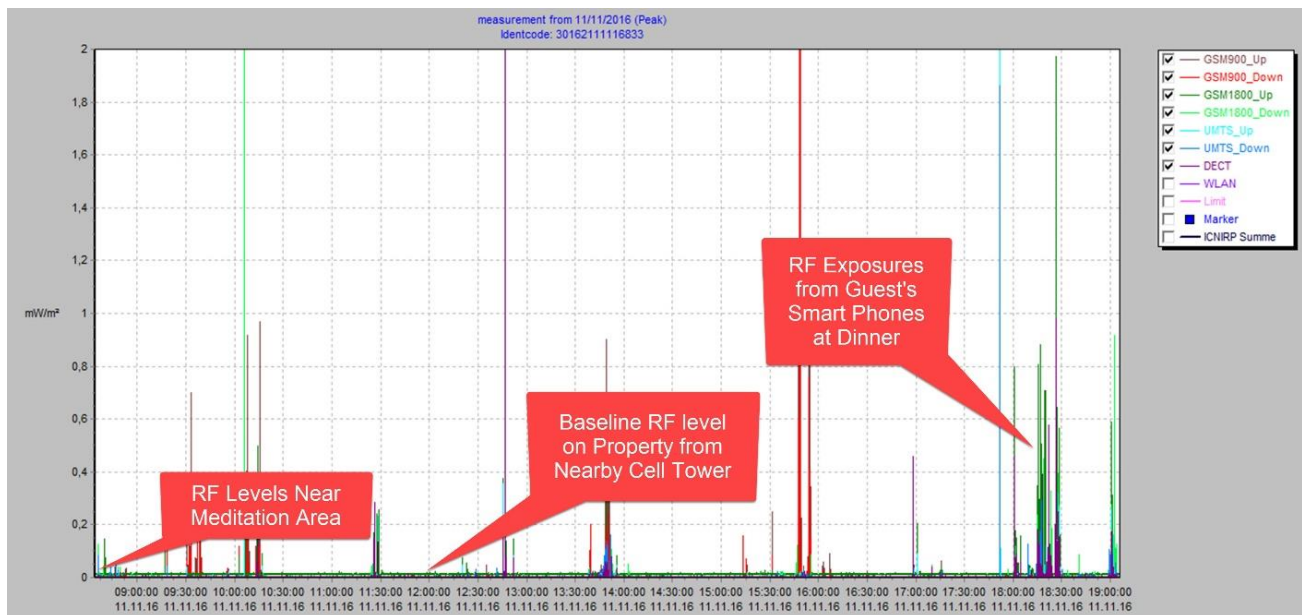
This is the electrical meter room at Rythmia (dark blue circle in Rythmia map above). It serves most of the newer casitas. This type of AMR electrical meter is likely a “bubble up” type, which only transmits when the utility employee comes to Rythmia once per month and triggers the meters to transmit. This type of electrical meter is the safest type of digital meter and is not something for Rythmia to be concerned about. These are not “smart” meters as we have in the United States.

Longer Term Low-EMF Improvements

The following actions are not critical, but will help Rythmia improve its electromagnetic environment in the coming years. They are solutions that can be implemented through the normal capital improvements that take place at the resort.

Cell Tower Remediation:

There is a nearby cell tower (to the north east of the property) that is pictured below. Even though the tower is relatively close, the RF levels are not high on the property. This gives guests decent 3G cellular reception without having high 4G RF exposure levels that are common in city environments in the United States. You can see from the following chart that there is a low-level RF exposure (the light green line at the bottom) that is usually present throughout the property:



The following picture is what the cell tower looks like when zoomed in with a video camera:



Most of the casitas have relatively low RF exposure levels (below 10 microwatts per square meter and much less inside the rooms). Units 58-61 have the least exposure (nearly zero with my RF meters). The meditation and yoga temples are more exposed, but this is not a major issue because people do not spend a significant amount of time in these areas and the exposure levels are not high.

The Rythmia staff member that showed us around the property did note that a new herbal therapy temple was being proposed to be built in the red circled area in the map below. This area is much less exposed to the cell tower and this is a great location for any new temple buildings.

Note that the red arrow is the direction toward the local cell tower approximately 1 km off property.



Healthier WiFi Use at Rythmia:

In addition to the WiFi suggestions in Phase 1, I would add that the WiFi routers in all casitas be placed on timers so that they are off when guests sleep. This is the healthiest solution, both on a physical and psychological level.

Timers could be set to turn off the WiFi routers from 11:00 PM to 7:00 AM. This will keep the microwave radiation from impacting sleep quality through the reduction of melatonin. For guests who insist on having WiFi access in the middle of the night, they can easily walk to a common area such as the front desk or restaurant that could have 24/7 WiFi access. Wired internet access can always be available through the Ethernet ports in each room.

Rythmia clientele may actually be quite grateful for this WiFi timer policy. Many spiritually-evolved and health-conscious people are already aware of the importance of this issue and likely have such a timer policy at home or have completely eliminated wireless devices from their home. For guests who have never heard of this issue, they will now have a simple action that they can take home with them.

The expense of this solution will be approximately \$7 per casita (the price of each timer).

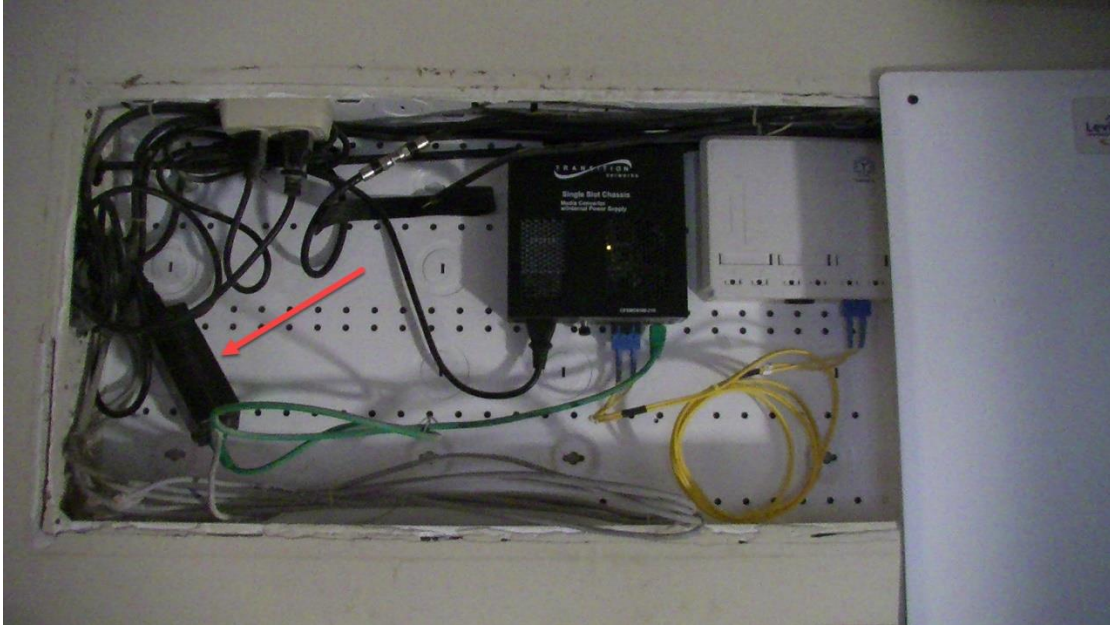
Bonus Idea: Encourage guests to turn their phones to Airplane mode when they sleep. This will keep the phone from radiating next to them while they sleep (many people use their phone as a clock / alarm).

Power-over-Ethernet in Casitas:

It is so fortunate that Rythmia was built with fiber optics to the casitas and Ethernet ports built into each room. This makes providing wired internet service to guests a snap. However, as mentioned in Phase 1, Rythmia is currently using a Power-over-Ethernet (PoE) system that sends electricity on the Ethernet cables within the walls to power the phone. These Ethernet cables were not meant to carry electricity (even small amounts), so the EMI on the cables radiates into the living space of each casita. This is a significant EMF health issue and could be a primary cause for sleep quality issues of guests due to the proximity of these in-wall Ethernet cables to the beds.

There is a simple solution for this. Rather than using a switch that injects electricity onto the Ethernet cables (pictured below), simply use a switch that only send internet data on the cables. You will then power the phones by plugging them into an electrical outlet (pictured below).

This is an important EMF reduction step for all of the sleeping casitas. I recommended that you fix this in Rooms 58-61 initially to make them your low-EMF accommodations. However, you could easily take this step for all casitas over time with minimal expense. 4-Port Internet switches that do not inject electricity onto the Ethernet cables are only \$10 and will allow for each Ethernet port in the rooms to function (currently only one wall port works in most rooms). This is less expensive than your current system and is much healthier.



The above picture shows the current switch that injects electricity onto the Ethernet cables (red arrow). This is the device that needs to be changed in each casita with a simple 4-port switch that just send internet data.



This picture shows a phone that is plugged into the wall (arrow at right). You can still send data to the phone through Ethernet cables (yellow chords), but by supplying the electricity to both the phone and the WiFi routers through electrical outlets, you will dramatically improve the EMI levels within each room and the sleep quality of your guests.

Lighting Improvements at Rythmia:

One final point is to consider changing out any CFL (compact fluorescent lighting) bulbs as they expire. CFL lighting creates high amounts of EMI on the electrical wiring (“dirty electricity”). The bulbs are also not healthy because of the mercury component. I encourage you to use incandescent bulbs in rooms and LED lighting in common areas that have lights on for most of the night. There are lower-EMF LED lights that are both healthier and emit a more natural light.



This is a CFL lightbulb used at Rythmia. LED and incandescent lighting are much better options.

Special Note: Lighting is always improving and more people are becoming aware of the importance of blue light in our circadian rhythm. We do best when we have a lot of it during the day (from the sun and other light sources) and very little of it after dark (blue light disrupts melatonin production). I left a pair of blue light blocking glasses at Rythmia that are great for reducing blue light at night. Free downloadable software such as F.lux also diminish blue light from computer screen after dark. You could put these on the computers at the front desk area. Other new solutions include lamps that mimic the sun (high blue light during the day and a red/orange light at night). As these solutions become less expensive (currently they are around \$200), they can be a great addition to the overall health at Rythmia.

Section 3

Online EMF Education Course for Rythmia



(My TEDx talk could be an accessible EMF introduction for Rythmia guests)

Electromagnetic Education Course for Rythmia

Rythmia is a leading education/life advancement center. It helps people develop their consciousness, both through herbal therapy and practices that encourage a healthy diet and body.

As people evolve in both consciousness and overall health, they often become more in-tune with their environment. This can be seen as a sensitivity, but it is really just an ability to sense when things are off in the environment. It is not an illness, but a sixth sense that develops for some people. Many people on this path are now sensitive to the non-native EMF pollution in which we are increasingly surrounding ourselves and would benefit from having solutions.

You will be doing your guests a service by giving them this basic knowledge so that they can learn to use technology in a way that is safe and still effective. To this end, I would suggest that you create a simple page on your website that will explain the basics to your guests. By simply making this option available to guests, the people who are ready will naturally gravitate toward this information.

The lesson could include the following two videos:

“Wireless Wake-up Call”: TEDx talk that promotes wired technology and provides solutions to reduce EMF exposures:

<https://www.youtube.com/watch?v=F0NEaPTu9oI>

“Reducing Your EMF Pollution – Exploring Practical Solutions”: A Thrive video that outlines the basic technology solutions:

<https://www.youtube.com/watch?v=VmnnuLSjKm4>

Beyond that, you could point people to my website, which is very user-friendly and filled with solutions, research and ways for people learn more. My book on finding and creating a low-EMF home is also available there:

<https://www.emfanalysis.com/>

You could also provide a basic solutions section like what is seen on the following pages. If this is something that interests Rythmia, I could package this directly for your guests and create a printed handout for them.

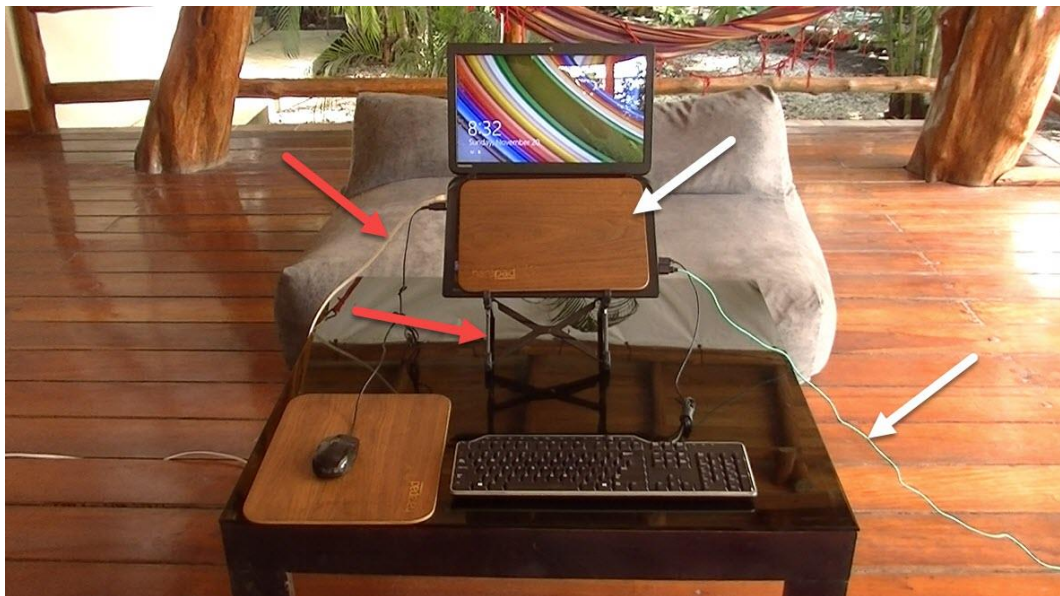
Steps to Reduce EMF Exposures in Your Home

The following are solutions that you can implement in your home in order to create a low-EMF home. They are arranged in four sections, which signifies the four types of EMF pollution found in homes. This includes Microwave Radiation (wireless technology), Magnetic fields, Electric fields and Electromagnetic Interference or “Dirty Electricity”.

It is usually best to have some basic EMF meters or hire a professional to come measure your home in order to determine your home’s EMF levels. However, many of these actions can be taken without measurement devices and will reduce your overall EMF exposure.

Microwave Radiation (Wireless Technology):

- Move to wired internet. You can start by putting your WiFi router on a Christmas light timer so it is off when you sleep. However, this is really just a first step. I highly recommend that you don’t use WiFi at all in your home or only have it on for one or two hours each day when you need it. Be sure to turn off the WiFi in your home printer as well. Here are several articles from my website that give you simple, step-by-step instructions to have a wired home:
 - <https://www.emfanalysis.com/the-basics/>
 - <https://www.emfanalysis.com/how-to-install-wired-internet-in-your-home/>
 - <https://www.emfanalysis.com/how-to-wire-an-ipad/>



The above image is my preferred computer setup. It includes an external keyboard and mouse and a low-EMF Toshiba PC laptop. The top red arrow is a CAT 7 ethernet cable (WiFi functions are turned off). The bottom red arrow is a “Roost” laptop stand for better ergonomics. The top white arrow is a Harapad to reduce the lower frequency EMFs coming from the laptop. Finally, the bottom white arrow is a ground wire for the laptop, which is running on battery power to reduce electric fields.

- Remove your cordless phones. This especially holds true if they radiate 24/7 (as many DECT cordless phones do). A simple corded phone near each phone jack is best. I really like this inexpensive [AT&T speaker phone model](#) for its simplicity and excellent sound quality.
- Use a safer baby monitor. DECT wireless baby monitors are often one of the highest RF emitters in a home and are placed just a few feet from a sleeping infant. I explain a few alternative options in this article: <https://www.emfanalysis.com/safe-baby-monitor/>
- Keep your older appliances or disable the “smart” functions in new items. Whether you have a new “smart” refrigerator, television or car, they have wireless antennas in them that will constantly pulse microwave radiation. I have felt ill around these new appliances after an hour of exposure (without knowing they were radiating). Smart appliances and the new artificial intelligence “home assistants” are simply not wise for your family in the long term and I advise that you avoid them. Here is an article that will show you how to disable many of these items: <https://www.emfanalysis.com/how-to-disable-smart-appliances/>
- Opt-out of the wireless “smart” meter program if you have one installed on your home. Some electrical and gas utility companies will do this if you demand it. Watch the film “Take Back Your Power” and see this article if you are unsure if you have a smart meter: <https://www.emfanalysis.com/do-you-have-a-smart-meter/>

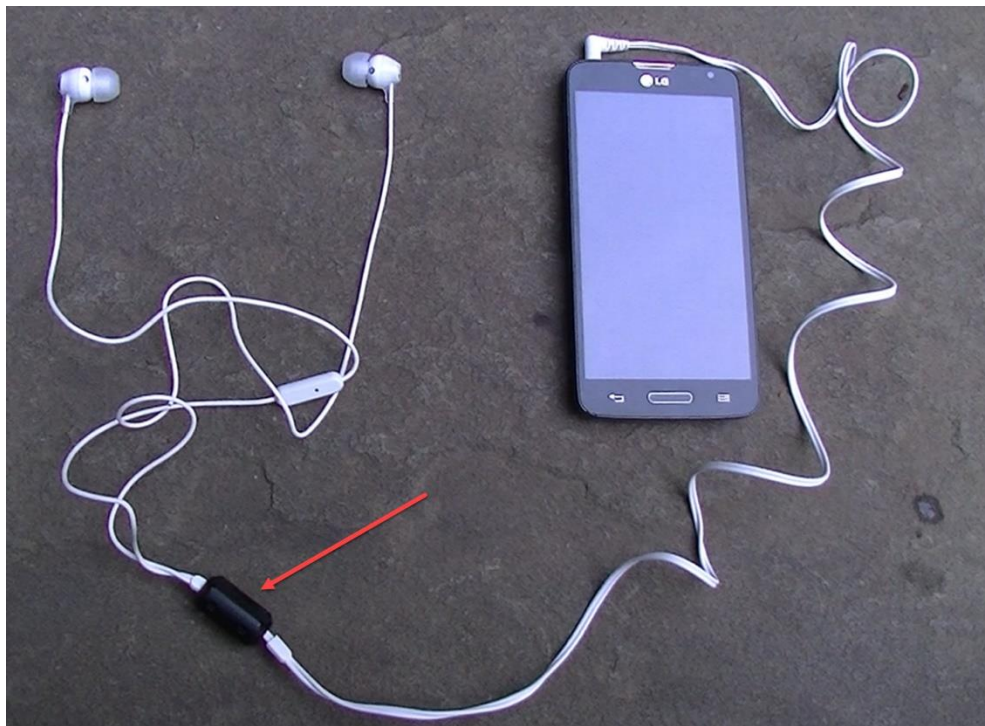


Image Credit: Karen Nevis

Unfortunately, many multi-unit buildings now have banks of wireless smart meters like the one above. If you live near a bank like this, your primary option is to move and find a safer home. Even

if you opt-out, all of your neighbor's smart meters will still be there. Fortunately, some forward-thinking building owners in California now require all tenants to opt-out.

- Use your smart phone wisely. This is often your biggest source of microwave radiation exposure. Use speaker phone and an Airtube headset when talking. Also, turn off as many antennas as possible in your phone settings (such as WiFi, Bluetooth and Cellular Data) and utilize "Airplane Mode" often (it will stop radiating). Never put a phone on your body (pockets, under bra, near head) unless it is on Airplane mode. It is best to just use cell phones for occasional text messages and emergency calls. I use a wired computer and wired home phone for everything else. I find this is better for both my physical and mental health to not always be connected. I have laid out my favorite tips for safer cell phone use here: <https://www.emfanalysis.com/guide-to-safer-cell-phones>



Basic cell phone safety tips include using speaker phone or a headset with a ferrite snap bead to minimize conducted radiation (red arrow above). I also encourage turning the antennas off most of the time (utilize Airplane Mode and turn off the Cellular Data and WiFi/Bluetooth antennas in your phone's settings). Use the phone primarily for text messages and critical emails. Save your high data activity, such as video and most internet activity, for a wired computer at home.

- If a cellular tower/antenna is installed near your home or a neighbor installs a powerful WiFi router or wireless antenna, the simplest and most effective solution is often an [EMF Bed Canopy](#). You could also utilize shielding paints and fabrics on bedroom walls, but a high-quality canopy is often the most versatile solution because it is not permanent.

Magnetic Fields:

- For low-frequency magnetic fields from 60 Hz electrical wiring, you will need a gauss meter to see if you have problems in your home. With the gauss meter, you can find if there are particular areas in your home that have high magnetic fields (over 2.0 mG). You want to test this with all lights turned on and all appliances plugged in. The most common reason for such high magnetic fields is a simple wiring error made by your electrician (most homes have 2 to 3 errors). If neutral wires from separate circuits are improperly connected or if you have stray current flowing on metal pipes, there will be a current imbalance that causes elevated magnetic fields. The good thing is that this situation can often be easily fixed – typically with just an hour of time from your electrician or a handy friend who understands how electrical wiring works. See step #3 in Appendix B for further instructions on this process.
- If you measure elevated magnetic fields throughout your entire home, then it is possible that you have a major powerline nearby, high stray current from your neighborhood electricity distribution system or your home has so many wiring problems (such as older knob-and-tube wiring) that it needs to be completely replaced. Other than having a major cellular tower placed near your home, this situation is one of the only times where the best solution is usually to move. Fixing such a problem will either be incredibly difficult, prohibitively expensive or just plain impossible.

Electric Fields:

- Low Frequency electric fields from your 60 Hz electrical wiring can be a problem for people. Years of exposure to unshielded (Romex) wiring can wear down your health and cause sleep disturbances. Outside of re-wiring your home (see item #2 in Appendix B for more on this), you can reduce your exposure by turning off the circuits to your bedroom. There are very important safety caveats to this (see item #6 in Appendix B). However, by having your electrician install a contactor with a remote control switch, you can easily accomplish a significant reduction in your electric field exposures while you sleep. If turning off your breakers at night is not possible, then aluminum foil shielding can also be effective. Be sure to measure the reduction in electric fields with either your digital electric field meter or a body voltage/digital multi-meter mentioned earlier in Section 3 of this book.
- Higher frequency electric fields can also be present on your electrical wiring. This is typically what we refer to as electromagnetic interference (EMI) and is explained next.

EMI (Dirty Electricity):

- Higher frequency electric fields (EMI) will be present on your home wiring and can radiate into your living space if you have items such as dimmer switches, CFL bulbs, LED lighting, certain heating and air conditioning systems, and new electronic devices with switching mode power supplies (such as televisions, printers and laptop computers). One poorly designed appliance or the wrong lighting can send high amounts of EMI throughout an entire home. The good thing is that if the EMI is coming from within your own home (rather than a neighbor's home or a polluted grid), then you can find the offending sources and fix or eliminate them. The easiest way to find this type of EMF pollution is with the AM radio mentioned above. You can also use the digital AC electric field meter and the Line Noise EMI meter to understand the overall EMI situation in your home.
- Solar systems can produce high levels of EMI. The current design of grid-tied solar typically includes roof-mounted micro-inverters and MPPT voltage boost converters that produce a tremendous amount of EMI. I have already had dozens of families contact me with health problems after having a solar system installed on their home or a neighboring home. Almost all were unaware of this problem until after the fact. If you do go with solar, you will want to do professional filtering of the EMI to make your home healthier. With the right filtering of inverter harmonics and the proper engineering of the solar system, there are ways to make a solar system much safer for your family. Another option is the use DC (direct current) from the solar panels. This will also take some engineering for existing homes, but will alleviate the need for the inverter and the EMI it creates. Properly filtered DC solar systems that use items such as a Tesla battery pack could be a healthy way for our society to move forward with solar technology. If you would like additional information on safer solar systems, please contact me as I am continually researching developments in this area.



Solar technology can be a much healthier renewable energy solution if proper EMI filtering is utilized and the panels are placed away from the home.

About the Author



Jeromy Johnson helps people mitigate the negative impacts of Electromagnetic Field (EMF) exposure. He has a website on the topic (www.emfanalysis.com) and works with individuals, families and organizations around the world to implement solutions that reduce and eliminate EMF pollution. He has demonstrated that simple changes in our daily practices can go a long way to ensuring a healthier life.

Jeromy has an advanced degree in Civil Engineering and has worked in Silicon Valley for 15 years. He became what medical doctors call electrically sensitive (ES) in 2011 after being injured by extensive exposure to EMF radiation. Through the process of improving his own health, Jeromy immersed in the available data on the impacts of EMF exposure, personally vetted many of the possible solutions, and created a user-friendly presentation which he has delivered throughout the world to inform others about how they may protect themselves. You can watch his TEDx talk “Wireless Wake-up Call” and read his book *How to Find a Healthy Home* online.