DIRTY ELECTRICITY Explained

Information on DIRTY ELECTRICITY

[also known as Intermediate Frequencies (IF) or as High-Frequency Voltage Transients]

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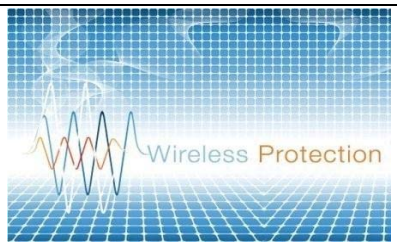

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CONTENTS:

If you would like some specific information to be added to this brochure, or if you think you have found a mistake, please send an e-mail to bernhard@wireless-protection.at. Your help is appreciated.

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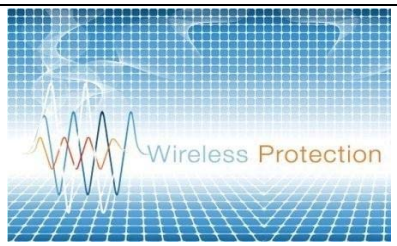


1) What is Dirty Electricity (DE)?

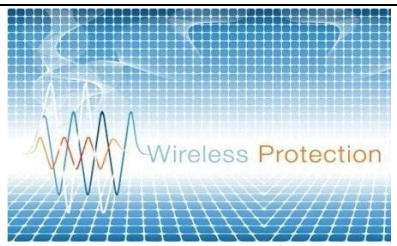
The term Dirty Electricity is used for the sum of all (unwanted) mid-frequency and high-frequency pulses which are travelling on the electrical installation wiring. These DE pulses are generated by electrical appliances as a by-product of their operation. Most of the DE is produced by electronically controlled devices, as the electronic circuits often used for energy saving will switch on and switch off the electric power within those devices at an immense speed, and each one of those switching operations creates a DE signal. Typically you will find ***thousands of those DE peaks on the electrical wiring in any given second***. As those mid- and high-frequency pulses are generated directly in the electrical wiring, they travel on the electric wires like on an antenna and can be transmitted throughout the whole building, and even into neighbouring buildings, depending e. g. on the power of the original impulse.

These pulses may not amount to much in a vacation home somewhere in the countryside, where you have only got a fridge and some light bulbs. But now think of a New York high-rise apartment building with hundreds of air conditioning units, heaters, dishwashers, lots of power converters used by electronic gadgets like DVD players and laptops, and many other appliances with electronic control circuits. This may give you an idea of the vast amount of DE pulses which will travel on the electric wiring in a building at any given time. You may easily find ***more then 10,000 DE peaks per second***. Many workplaces in business and industry are subject to high levels of DE, as electronic equipment and machinery used at work often create massive amounts of electromagnetic pollution on the electrical wiring.

2) Why is Dirty Electricity (DE) on the rise?

The number of electric appliances in the average household is still increasing, and where we had 10 appliances per household a few decades ago we now all have numerous electronic gadgets, most of which need charging devices or power transformers, which can create huge amounts of Dirty Electricity. A major increase in the amount of Dirty Electricity created is to be expected over the next few years, as the use of energy saving light bulbs will become mandatory. Most of those energy-saving lights create significant amounts of Dirty Electricity, due to the electronic circuit that creates and controls the light.

So the rise in the amount of Dirty Electricity we are exposed to is not only due to the increasing amount of electric appliances, but also due to the more widespread use of electronic controls, which are the major source of the electromagnetic pollution propagated on the electrical wiring in your home or office.



3) How can you measure Dirty Electricity (DE)?

A special meter has been developed for the measuring of DE, by Martin H. Graham, a former Professor at the department of Electrical Engineering and Computer Sciences at the University of California at Berkeley.

This meter is very easy to use. You just put the plug attached to the meter into the different power outlets, and get the Dirty Electricity level shown on the display.

By switching off the different power circuits in your home you can locate the sources of Dirty Electricity. The readings should ideally be below 25 GS units (GS units indicate the change of voltage measured per a certain amount of time).

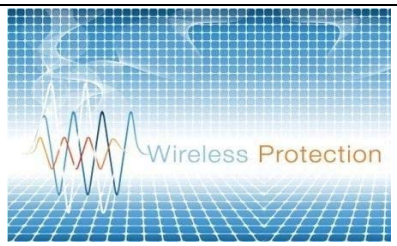
Picture:
Dirty Electricity monitor

4) What are possible impacts on your health and wellbeing caused by DE?

The power of the DE pulses is usually not so very high (compared to e. g. microwave radiation from cell phone towers), but Dirty Electricity is thought to be a very biologically active form of electromagnetic pollution. The reason for this is that the power and the frequency of the DE signal on the wiring are constantly changing, and that these changes occur very rapidly.

Research carried out so far indicates that Dirty Electricity may be a major contributor to cancer, and many other health problems.

Canadian research on Dirty Electricity found that the health of persons afflicted with multiple sclerosis and diabetes improved when Dirty Electricity was removed from the electrical wiring.



5) What do we at Wireless-Protection think about possible health impacts?

The electrobiological environment is of the utmost importance for human health and human wellbeing. As a species we have evolved in the presence of a multitude of ultra-weak natural electromagnetic fields, which have its origin in space, in the atmosphere, and also from earth itself. Over the last 100 years we have been exposed to increasing levels of technical EMF, first from electricity, and later also from radio, television and wireless communications.

On the other hand public health is dramatically declining in western civilized nations, see e. g. the recent paper by Örjan Hallberg and Olle Johansson on the decreases of Swedish public health indicators after 1997. Environmental doctors and scientist, along with many doctors associations around the world have long issued warnings about the total lack of precautionary measures in connection with microwaves from mobile phone towers and other sources of microwaves (see e. g. www.bioinitiative.org). Essentially the same absence of precautionary measures applies for low-frequency EMF's, although some standards (like the Swedish TCO) have found wide recognition and have improved workplace environment in many countries.

The situation concerning Dirty Electricity is somewhat different. Whereas an abundance of studies have been done that show microwave radiation from cell phone towers to be a potential health hazard, comparatively few studies have been done on the topic of Dirty Electricity. However, the studies which have been done show dramatic results, and give great cause for concern. In addition, the widely used German SBM (Standard of Building Biology Testing Methods) states in it's section for low-frequency AC electric fields, that "… higher frequencies and predominant harmonics should be assessed more critically."

What this means for us: DE seems to be a contributing factor to many kinds of modern health problems.

Not much is known about the mechanisms which cause these adverse reactions in the human body. It is essential that more research be done on the subject, and to find the mechanisms causing the health problems. In the meantime we advise to take precautionary measures, and to eliminate DE, especially in environments for children, and chronically ill persons.

6) How to “clean up” your Dirty Electricity (DE)?

The good news is that with the right equipment Dirty Electricity is easy to get rid of. The electronics industry regularly has to deal with the unwanted high-frequency signals which are produced by electronic devices, as these signals can lead to problems with - and even the destruction of - electronic components. For this purpose capacitors are used, which literally absorb the Dirty Electricity signals. This is basically what the Dirty Electricity filters used in the home and office environment to get rid of the Dirty Electricity on the electrical wiring perform: they absorb the mid and high-frequency peaks from the wires, thus effectively cleaning your electrical installation system from unwanted frequencies.

The filters are very easy to install, they just have to be plugged into the usual power outlets. Usually a few filters have to be plugged into the power outlets where the electricity enters your house or apartment, to clean up the Dirty Electricity signals which come into your place from the outside.
As a general rule, the Dirty Electricity filters should always be installed as closely as reasonably possible to the DE source.

Picture: Dirty Electricity filter

How Dirty Electricity Filters work:

Picture 1:
Dirty Electricity monitor and CFL
(energy saving light) switched OFF

Picture 2:
Dirty Electricity monitor and CFL
(energy saving light) switched ON

Picture 3:
DE monitor and CFL
(energy saving light)
switched ON
plus DE FILTER
(reduction from
55 to 22 units.)

7) How many filters will you need to clean up your Dirty Electricity?

How many filters you will need mainly depends on two parameters:
a) How much Dirty Electricity enters your home or office from the outside; this is DE that is put on the wires by neighbours, the power supply company, etc.
b) How much Dirty Electricity is produced by the electric and electronic appliances you have in use in your own apartment or office.

This is how it works:

First you want to find out how much DE actually comes into your place on the wires from the outside. To determine this you shut down all power circuits, except the one power circuit directly where the power enters your place (this will usually be near the entrance or the hall). Into this circuit you put enough filters to reduce the DE to recommended levels (approx. 25 GS units).

Then you switch on the other power circuits one by one, and find out how much DE the appliances connected to those circuits produce. The filters which are necessary to bring DE levels down to recommended levels are best put in close proximity to the DE sources. However, to help keep reactive current to a minimum, we recommend limiting DE filter use to not more than one filter per 10 square meters or 100 square feet of living space (for further details please refer to Appendix A, FAQ).

The result should be that throughout your home, but especially in children's rooms, bedrooms and the living room Dirty Electricity levels are below recommended guidelines.

Appendix A
Dirty Electricity FAQ (Frequently Asked Questions)

What are the differences between the various brands of DE filters?

Well, of course we like to think that our Electropulse DE filters are the best ones. How do we support that?

1) Our filters have an average energy consumption of 4.5 watts. That, to our knowledge, is the lowest of any DE filter currently available. We achieve this by using only very high quality electronic components. You can measure the consumption of each individual filter with a simple power consumption meter. The current used by the DE filter is "reactive current", which you do not have to pay for, but which is still desirable to keep to a minimum.

Pictures:
Our Wireless-Protection DE filters consume only 4 watts.

2) Our filters are made in the UK with electronic components of excellent quality. This is why we can give a **full three year guarantee** on the filters.

Why do some DE filters have a power outlet and others not?

Apart from personal preferences and questions of mechanical stability, this is also a question of production cost. The housings with the power outlets attached have to be specially manufactured, and this is a significant cost factor. This is why we at Wireless-Protection currently use a filter housing which is used for e. g. cell phone chargers, and thus readily available, and less costly.

How many DE filters will I need to clean up the DE in my bedroom / office?

The only way to know is to measure the amount of Dirty Electricity with a monitor.

Average DE pollution of about 50 to 200 GS units will take anywhere between 5 and 10 filters to get rid of, depending also on the size of the location you want to clean up.

Bad cases of pollution ranging from 1000 GS units to overflow of scale on the monitor will take 10 or more filters, again also depending on location size, but mainly on the actual level of DE pollution found. Please keep in mind that we recommend limiting filter use to not more than one filter per 10 square meters or 100 square feet of living space, in order to keep reactive current to a minimum. (See also Appendix A).

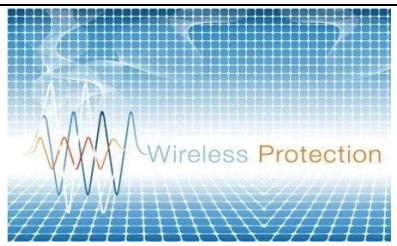
In case the culprits are in your apartment, another effective way to get rid of the DE pollution is to install adaptor plugs with an ON/OFF switch, which allows you to comfortably take the electrical device in question off the line when you are not using it. This of course will not work for the fridge and things like that, but it works nicely for the laptop which is used at home, and other devices which are used only occasionally.

I have heard that DE filters do cause magnetic fields, is that true?

In DE filter design there are three types of magnetic fields that need to be kept in mind:

a) There are not only electric DE signals or spikes, but also magnetic DE signals to be found on the wires (also referred to as magnetic transient activity). The DE filters should ideally also remove those magnetic transients from the wires. The topic of magnetic transients is much discussed, as the magnetic transients tend to be more local phenomena, whereas the electric transients tend to travel extensively on the wires. Magnetic transients are not caused by the DE filters, but should be removed by the DE filters.

b) A local low-frequency magnetic field directly at the filter, which is caused by the electronic components in the filter. A good DE filter is designed to keep this magnetic field at a minimum level. This field can be measured with a low-frequency combination meter or a Gauss meter. Our filters have a very low magnetic field, and this field dies down within half a meter or two feet of distance from the filter. So if you keep a minimum distance of one meter or three feet of our DE filters, you are very safe.



c) The reactive current caused by the DE filters produces a low-frequency 50 hertz magnetic field on the wiring. As the reactive current drawn by one of our DE filters is only 4 watts, this field is negligible. Other DE filters brands may draw more power, and thus can produce higher low-frequency magnetic fields.

Why should I not use more DE filters than necessary?

The power companies do not like the reactive current (or reactive power) caused by the DE filters, because it uses power grid capacity (which they have to provide), but the power companies do not get any money for this power. In order to keep this unwanted power to a minimum, we recommend to not use more DE filters than necessary. In fact we recommend limiting DE filter use to not more than one filter per 10 square meters or 100 square feet of living space.

Appendix B
Summary of the different types of EMF (electro-magnetic fields)

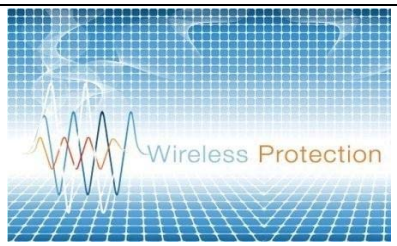
There are three basic types of electromagnetic fields:

1) High Frequency Radiation,

which is also known as microwave radiation or radio frequency radiation (RFR).

You will find this type of radiation wherever wireless communication takes place, but it is also generated by your microwave oven in the kitchen, by wireless computer networks, by cordless computer accessories, and from radar, etc. Some of those signals are analogue (e. g. classic terrestrial TV and radio), but more and more often we find digital "pulsed" signals , which are used by GSM cell phones , by 3G mobile communication standards (e. g. UMTS signals), TETRA, etc.

Picture:
Microwave detector for audio-assessment of microwave radiation levels



2) Low Frequency Electromagnetic Fields,

also referred to as ELF - EMF (extremely low-frequency electro-magnetic fields).

Low frequency EMF encompass all the different **electric fields** and **magnetic fields** which origin from household electrical installations, power lines, transformer units, railway lines, and all the different types of electric and electronic appliances.

3) Dirty Electricity (DE),

also known as Intermediate Frequencies (IF), or high frequency voltage transients.

Dirty electricity is the sum of all the high frequency signals which are generated when electrical appliances or electric power within those appliances is switched on and switched off. As those high frequency pulses are generated directly in the electrical wiring, they travel on the electric wires and can be transmitted throughout a whole building, and even into neighbouring buildings.

An electro-biologically safe and clean environment requires that all three types of EMF be kept in mind, and that you clean up the high- and low-frequency fields as well as the Dirty Electricity on the wires!

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