

How to make a pair of coils (I'll call them mini-coils) suitable for low power pulsed magnetic procedures

Introduction

Spooky C has been launched. One of necessary components is a pair of coils. A lot of people are going to get equipped with one or two. But is this purchase always necessary? I don't think so. I think there is a good alternative for the purchase of commercially available coils, which are not cheap. This alternative may be especially interesting for people, who like to do a bit of DIY. Further on I'm going to suggest the way of making coils on our own.

We often take it for granted, that commercial products are based on a complicated research. We also tend to believe, that a text looking like information is... information. The truth is, that it is – in most cases - just a commercial, and nothing more. It relates to every single field of life.

A good example is the area of PEMF¹. People believe such things are difficult and very scientific. Yes, in terms of giving evidence, that PEMF is good for us, and we need it. But the bottom line is, that PEMF issue is very simple. Why? PEMF, as I see it, may help us in at least three basic ways.

1. As a kind of more and more necessary “magnetic supplements” – e.g. we desperately need Schumann and geomagnetic frequencies. I mean some particular frequencies here.
2. PEMF is a medium which can easily, safely and effectively transfer particular frequencies into the body, including the insides of cells, skull, bones, organs. It is difficult or impossible for electrode methods. As such, PEMF can definitely be perceived as one of electrotherapy pillars.
3. It may sound unscientific, but it seems, that PEMF is something our bodies desire in a wide spectrum of frequencies and intensities. If you read about parameters of different, offered commercially devices producing pulsed magnetic field, you may realise, that their parameters are so much dispersed, that it seems obvious, that there is no logical reason behind it. What is funny, some of the sellers claim, that only their device is effective, no other! Comparing claims of different sellers you will notice, that their arguments often exclude one another. And look at the prices of the devices, sometimes tens of thousands dollars.

Beauty often lies in simplicity. One can easily assemble a simple device (MA-2) feeding a 0.6 – 0.7 kg coil. Such a set produces quite intensive (comparable with those commercially available machines) pulsed magnetic fields (PEMF). Such a set, controlled by Spooky2 System, is easily capable of transferring freely chosen sets of frequencies into the inside of every single cell of the body. The intensity of magnetic flux

¹ Here understood as Pulsed Magnetic Field

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produced is, I'll repeat, comparable to that of commercial, very expensive devices. If you decide to build this simple, device², you will open, for yourself, a gate to a new array of interesting methods of regaining health.

MA-2, controlled by Spooky2, may prove to be much more versatile than many so called professional devices which cost thousands of dollars.

But we can also use much less intense pulsed magnetic fields applying mini coils. Using the coils opens, as I see it, new opportunities in the field of health.

A pair of small coils can come in handy

I'm going to present a way of making a pair of small coils, which, as I see it, can be a substitute for a commercial product. It may come in handy, as it seems, soon many Spooky C owners will be willing to have one. Such coils have a limited number of turns and, of course, low inductance and resistance. They can be only connected to devices with a built-in resistor. The resistor is necessary to limit current and preserve both the device and the coil from being burnt by a big current. Therefore, coils of such a kind, e.g. Alleva coils, can be directly connected to the output of a function generator, such as Spooky2 and other ones. Both the generator and the coil are safe due to the existence of the resistor limiting the current. It is practical to have a pair of mini coils. We can use them to "supplement" with pulsed magnetic field. It is also possible and easy to make a mobile device feeding such coils.

Fig 1. Coil wound on a "spool"



Making mini coils.

After collecting four used Tchibo coffee capsules, empty and wash them. Then carefully cut off their rims and put them together, getting two "spools" – necessary to wind the coils. A spool consists of two rims and is a suitable "base" for winding the wire on it. I use enamelled copper wire 0.22 up to 0.3 mm diameter; 65 or more turns. As I've mentioned before, the whole thing is really simple. We've been conditioned to believe, that things are complicated, which usually doesn't serve us. As Mark Twain used to say, if most people believe something is true, run

away from such a "truth", as it is usually a lie.

When winding of the coil is finished, it should be tightly tied up with some strong thread or small plastic self-gripping bands. The coil cannot be loose, as it lessens its inductance and, consequently, performance. During

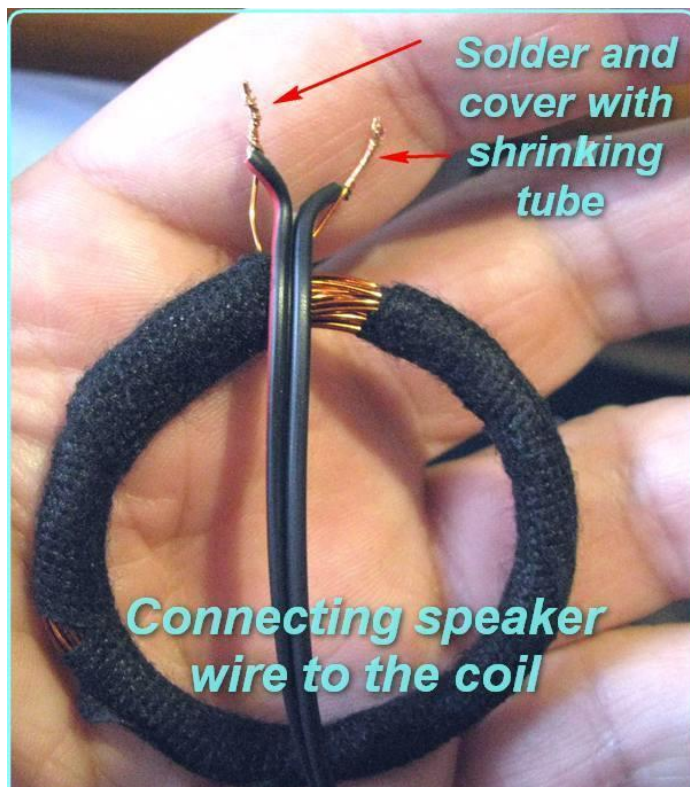
² I've written an e-book/Project on such a device/devices (in Polish language); I've just started to work on a similar e-book in English. It should be ready in several weeks' time (today is Jan 22, 2016); I will put an info here: <http://www.vibronika.eu/e-booki>

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the process of tying up, the plastic spool, now redundant, should be skilfully removed. The picture below shows a wound coil.



Fig. 2 A wound coil before tying up/removing the plastic spool. After the coil is tied up, it should be carefully wrapped with cotton glued tape. Again, it should be done tightly and carefully. The next step boils itself down to connecting a loudspeaker wire to the coil. It is shown in the picture below.



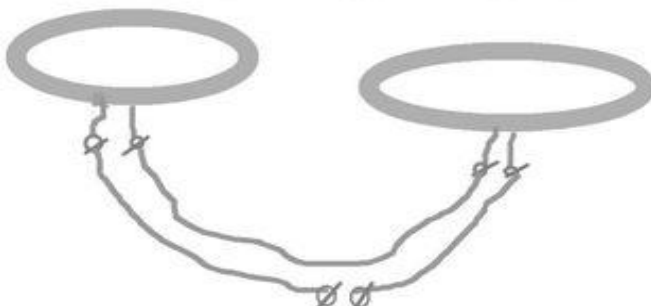
When the soldered connections are covered with shrinking tube and heated with a lighter, they should be fasten to the coil with another piece of glued tape. Now we have got one coil; we repeat the whole process to get the other, as we need two to create a pair.

When we have two coils, they should be connected in series with each other, at least this is what I do.

I in no way followed the way Alleva coils are connected. I even did not try to establish how those coils are connected. They are quite expensive and also H&S is not cheap.

Figure 3. Connecting the coil.

Connecting single coils in series to get a pair



Connect to minijack 3.5 mm

Connecting two coils to get a pair of coils

Figure 4. Connecting coils.

When both coils are connected to a mini-jack 3.5 mm plug, it is time to establish which side of a coil is N, since this is the side we will be generally using.

Establishing magnetic poles of a coil

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My “compass” ☺ is made up of neodymium magnets, a paperclip and a piece of thread, but yours may look decent ☺. To establish magnetic poles of the coil I observed the behaviour of the compass. The coil is connected to a generator. Ideally, the coil is fed with square wave, amplitude 15 – 20 Vpp, off-set 100% (DC signal!), frequency e.g. 100 – 200 Hz. When the compass stops moving, the coil should be put close (1.5 - 2.5 cm) to the magnet. Now we observe the magnet (its “N” magnetic pole). If it doesn’t “want” to be very slightly attracted to the coil, moving delicately to the sides instead, it indicates, that the side of the coil facing the magnet is also magnetic “N”. This side of the coil should be somehow marked, and, while using, should usually face the body.

To make sure the magnetic pole of the coil is established well, you can turn the coil around to check, how the pointed end of the compass behaves facing the opposite pole of the coil. It will be slightly attracted to side S of the coil. The above process of establishing magnetic poles should be repeated for the other coil as well, of course. Standard ways of applying mini-coils (I mean two coils constituting the pair) is going to be discussed further in the e-book which is going to be launched soon.

Figure 5. Establishing the poles of a mini- coil



Figure 6. Mini-coils and Alleva coils



Performance of mini-coils

I tested both mini-coils and Alleva ones, connecting them to several function generators, including Spooky2 function generator. They performed well, but I prefer to use mini-coils rather than Alleva ones, for several reasons. They are cheap (making them takes me about three hours; while winding coils it is advisable to have somebody’s help, as I haven’t got suitable winding equipment), and they emit really decent magnetic flux.

I’ve measured the resistance and inductance of one pair of my mini-coils. The resistance is about twice as big as that of Alleva one (the number of turns is just probably bigger). The inductance of mini-coils is significantly (several times) bigger, compared with Alleva ones. Since the current of the coils is mainly limited with the inner resistance of a generator which controls them (which is many times bigger than the resistance of the coils!), the difference in resistances of both pairs of coils is not of a big importance. However, the difference of inductances of the coils is. I compared the intensities of PEMF, generated by these two different pairs of coils, at the frequency of 100 Hz. The PEMF generated by mini-coils is more intensive. That is another reason I prefer using my mini-coils. However, I must add, that in no way do I mind the obviously casual looks of my mini-coils☺.

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A pair of mini-coils works well, fed with a simple generator (which may be as simple as a dr. Clark zapper, its frequency appropriately limited, and the pin 3 output resistor replaced for e.g. 220 Ohm / 5 W one. Remember you can use supply voltage up to 18 V, which means four times bigger power (for the time being, I do not advise that). It is really easy to build a mini generator feeding mini-coils. Possessing such a generator and a pair of mini coils means possessing a decent mobile PEMF set with its all potential health benefits. No need to pay hundreds of dollars or even more than a thousand for a professional set.

I also did some experiments using a small amplifier based on an n-type MOSFET transistor and a resistor 40 Ohm/50 W in the circuit of its drain; as a power supply I used a laptop universal adapter (which makes it possible to adjust the intensity of PEMF produced). But this is another subject. These things are going to be discussed further in the e-book I'm working on.

How to connect a pair of mini-coils to a function generator

As this may be an issue, I'll try to show the simplest ways. As I have written above, mini-coils as well as Allevea ones can be directly connected to most function generators – without an interface. It opens so many different ways of reaching this goal, that I don't know how to "bite" this 😊. So maybe let's allow pictures speak.

Figure 7. Connecting mini-coils to a generator.

The "Socket" in this picture is a particular mini-jack one which can be build-in to a casing of a generator. Of course, the mini-coils cable is soldered to a mini-jack plug.



There is a simpler way of connecting your mini-coils to, e.g. – a Spooky2 generator. Spooky2 is equipped with a cable (or two??) which enables the owner to connect the Output 1 of the generator to something. This cable ends with two alligator clips. These clips can be easily connected to the mini-jack plug which is the ending of a pair of mini-coils.

It is shown in the picture below. We don't need any additional equipment. The crocodile clips of the cables Spooky2 equipment should be connected to a mini-jack 3.5 mm ending of mini-coils. I used this kind of connection (shown below) for several weeks, I do not remember any problems; somehow shortcuts do not happen. Had it happened - it wouldn't have burned a generator, as it is shortcut proof.

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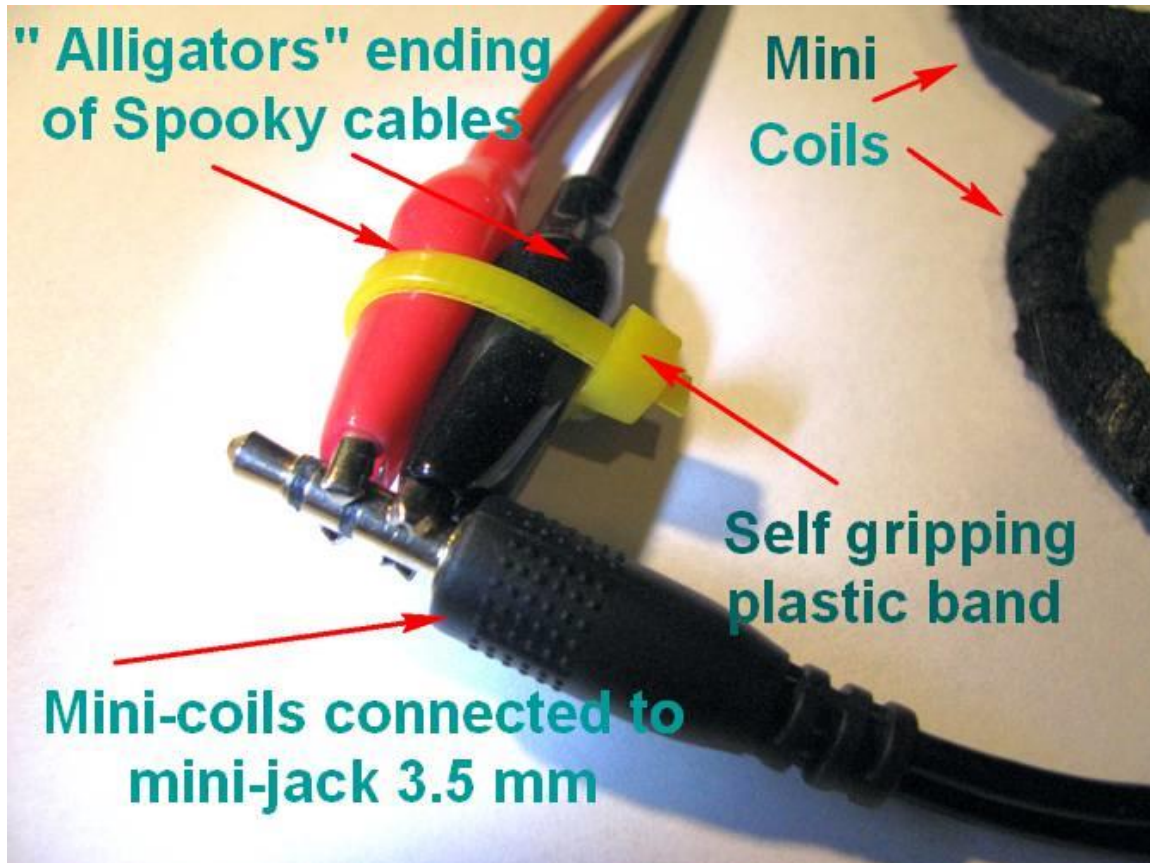


Figure 7. A simple way of connecting coils to a generator.

The above picture shows the simplest way of generator – mini-coil connection. If it disconnects while applying, one should just reconnect. Nothing else is required. A shortcut is not an issue.

Conclusion

To conclude, a pair of presented here mini-coils seems to be a simple and cheap alternative for expensive commercial one. Solutions presented here are available for people, who like to do some simple DIY and don't mind – to put it delicately, casual looks of mini-coils I present here. Others can always buy commercial coils, which look better but are really expensive.