Additional EVP Research Techniques

Free Air Conductance Experiment

In an attempt to measure changes in free air conductance, we will be using a capacitance meter that will measure the capacitance of two sheet metal plates spaced very close together, establishing a capacitive reactance. Our initial experiments duplicated the Princeton study in which they measured the Zero Point Energy Field between two conductive plates. We actually had an induced magnetic field form around the plates, with no charge applied to them (no meter connected either, so it wasn't battery induced, and it had frequency, it was not DC in nature). The resulting electromagnetic field was spontaneous, measurable energy from an unknown source. This was done in my basement lab, which is isolated underground from stray RF radiation, and is a relatively clean room noise-wise. We have set it up as a control environment for our experiments in an attempt to establish control readings.

Figure 1 - Prototype

What we are trying to prove is this:

Noise is all around us. We are not focusing on actual audio noise, but on noise of a much higher frequency range, specifically, noise in the radio frequency, microwave to light bands of the electromagnetic spectrum. We have extended our research into the light spectrum because light is associated with many paranormal events. There is an abundance of high frequency electrical and electromagnetic noise all around us. There are also natural magnetic fields all around us to some degree, depending on the geomagnetic conditions of our locale. Normally, these sources of noise do not interfere with each other. I believe, in a paranormal event, they do indeed interfere with each other and could possibly result in some of the phenomena documented. In order for them to do that, the propagation medium that normally separates them must also alter as well. In other words, the air that doesn't conduct electricity so well normally, increases in its ability to do so, much like what occurs when lightning strikes by traveling through the air from sky to ground (and the current flows from the ground to the sky). Ion counts increase, as others have previously noted in independent research, confirming our own observations, so therefore conductivity must increase, allowing the frequencies to beat together. What we are attempting to confirm is the correlation between increases in air conductance, and increases in ion count. To do this, we need to construct a large area air capacitor, which I have designed specifically to do just that. We also need to know the frequency of the fluctuations of the air conductance, because that is also a key piece of the puzzle. If the conductance fluctuations are simplistic in nature, then the noise frequencies MUST be complex in nature, and this would indicate that Frequency Modulation is the medium of transport for the noise frequencies. However, should (as I suspect) the conductance is complex in nature, then the noise will be simplistic or Amplitude Modulated. I suspect it will be Amplitude Modulated, because many of the EVPs recorded over the years show evidence of mild amplitude modulation on them. This allows them to move through the air, much like radio waves are transmitted.

Beat frequency is a phenomenon that occurs when you have two frequencies interfering with each other. The result is the difference between the two frequencies. If both frequencies are fluctuating, then the result will be fluctuating, and that result may be an electromagnetic fluctuation in the audio frequency range. You wouldn't hear it, but the coil in your microphone will react to it, possibly generating the recording of an EVP.

A working example of this would be such:

If you have a 1 GHz signal, and a 1.01 GHz magnetic field, the resulting frequency would be 1 kHz, clearly an audio spectrum signal. The next question would be what causes the noise fluctuations to occur with such precision as to generate an intelligible voice, responding to a seemingly just asked question? That is for another days work.

Device Construction

The materials selected for the support material for our device had to be carefully chosen from material that did not conduct electricity to the point of being a good insulator. Because it would be transported to remote locations, weight was also a factor. I chose a non-conductive polycarbonate for its high electrical resistance and light weight properties. The material resembles Plexiglas, but is far tougher. Polycarbonates are a unique group of thermoplastic polymers. They are easily worked, molded, and thermoformed. Features include temperature resistance (up to 125℃), impact resistance (almost unbreakable) a nd superior optical properties (excellent clarity) which places them in position between commodity plastics and engineering plastics on the materials engineering reference. Polycarbonate is often used to replace glass or metal in demanding applications when the temperature does not exceed 125℃

While the device as designed needs two precision placed conductive plates to function properly, but the plates also required a suitable base and mount that was easily adjustable. We began with measuring and cutting our material to form the framework for the detection plates. Cutting was achieved by using a standard 71/2 inch skill saw with a plywood blade. Rough edges were smoothed over by lightly sanding the edges with fine grit sandpaper. Additional hardware required were two galvanized steel “L” brackets, machine bolts, washers and wing nuts. The protective covering was left intact during the cutting and drilling phase of the project. I decided to assemble the pieces first to insure everything would work as planned. Mounting holes were drilled in the plate supports to allow fastening them to the “L” brackets. The holes were countersunk to keep the bolt heads below the contact plates and to prevent adding the brackets to the plate area and altering the readings. The mounting slot on the base was created by drilling two large holes at each end of the base on a center line, then cutting the slot using a jig saw and plywood blade to perform the cuts. Rough edges and plastic slag were sanded smooth.

Two plywood “feet” were attached to provide a clearance gap between the mounting base and the surface in which it would be placed for operational purposes. These feet were attached by using two JBL Uniball® speaker mounts that I had laying around to act as handles, but any handle you have will suffice. The base and feet assembly were then firmly secured to the work space to limit movement and maintain a sturdy structure during the assembly phase. I then mounted both brackets to the base and tightened the mounting bolts on the brackets using the wing nuts enough to secure them but not limit movement. I then tested the smoothness of the bracket movement. The idea was to have an easily adjustable gap control without the need for special tools in the field. The brackets moved smoothly and the set up was easy to adjust.

I then mounted one of the plate supports to a bracket. I tested the movement again and while the addition of the plate support made adjustment a little more cumbersome than before, it was still relatively easy to maneuver. The important thing was to make sure the plate supports were aligned properly before securing them for use.

Figure 2 – Mounting a plate support to the base

As you can see from this perspective, the right plate support is shown mounted to the “L” bracket and slid to one side to allow work on the opposing support. Since this was a “design build” to establish procedures for assembly, I wanted to fit everything together prior to final assembly to insure the device would go together properly prior to mounting the detection plates.

Figure 3 – Plate supports and base configuration

With the protective wrapping peeled away, you can clearly see how the plate supports go together with the base. Once the adjustment capability is confirmed we can move forward with mounting the plates. Remove the brackets from the base and lay plate supports with brackets firmly mounted out flat so you can attach the conductive plates to the plate supports. I used some scrap wood blocks to rest the plate supports on. Now we can cut the conductive material that will be used as the actual sensing plates. For the actual plate material, I used HVAC sheet metal from the local Home Depot. The sheet metal worked fine for our purposes, as it was thin, was flexible and easy to cut.


Figure 4 – Cutting the sheet metal

Lay the plate on the material and trace out the area to cut. Care must be taken to insure the cuts are as straight as possible, and that both plates are exactly the same size. I used a set of aviation tin snips and took my time following the markings. Metal working is very unforgiving, so don’t be in a rush when cutting the metal.

Figure 5 – Cutting the Sheet Metal

Once the plates have been cut out, stack them together to insure uniformity and trim them to the exact same size. Any imperfections can be removed with a common Dremel type tool. Once the plates are an exact match we can mount them onto the plate supports.


Figure 6 – Applying the adhesive between the plate and plate support

Uniformity is vital in sealing the plate to the plate support. I used a “Liquid Nails” adhesive and laid a thick bead down on the plate support. I then placed weights on the plates to insure an even seal. Now we are ready to mount the plate support and bracket back on to the mounting base. I would wait at least twenty-four hours prior to continuing to insure the adhesive securely sets up. Also make sure that the seal is even and the plate is even all the way across the plate support. The secret in accurately measuring the conductance of the air is to maintain exact distances. Keeping everything exact will insure a quality, precision measuring device as the construction outcome.

Inspect the plates after the adhesive dries to insure you have a solid bond all the way across the plate support. Now we can proceed to mount the plate supports to the base.

Figure 7 – Mounting the Plate Support Assembly to the base

Mount the first plate support assembly as shown. Slide it all the way to one side and leave it loose in order to easily assemble the other side. At this point we discovered that without the protective covering, adjusting the plate support assembly became difficult. We solved this by rubbing the base as well as the mounting bracket contact points with common ivory bar soap. This resolved the problem and made for smooth adjustments.

Figure 8 – The business side of the plate

After mounting, you should inspect the edges of the plates to insure there are no rough edges and that the plates are properly aligned with the plate support. Also, insure the plate is sealed at fairly uniformed level over the face of the plate support. The idea will be to maintain an equal distance between the plates to insure accurate readings.

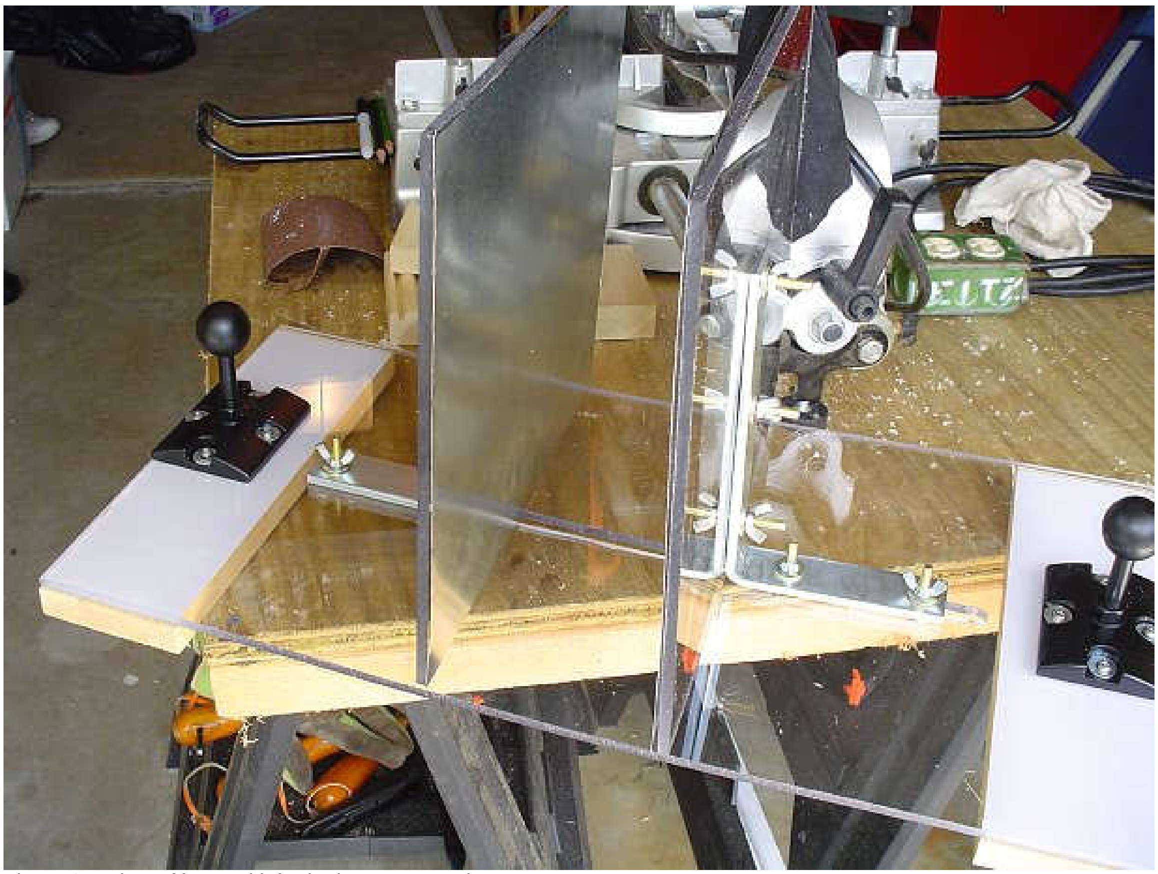
Figure 9 – View of base with both plates mounted.

Once both plates are mounted, retest the ease of adjustment. Remove the last of the protective film from the polycarbonate sheeting.

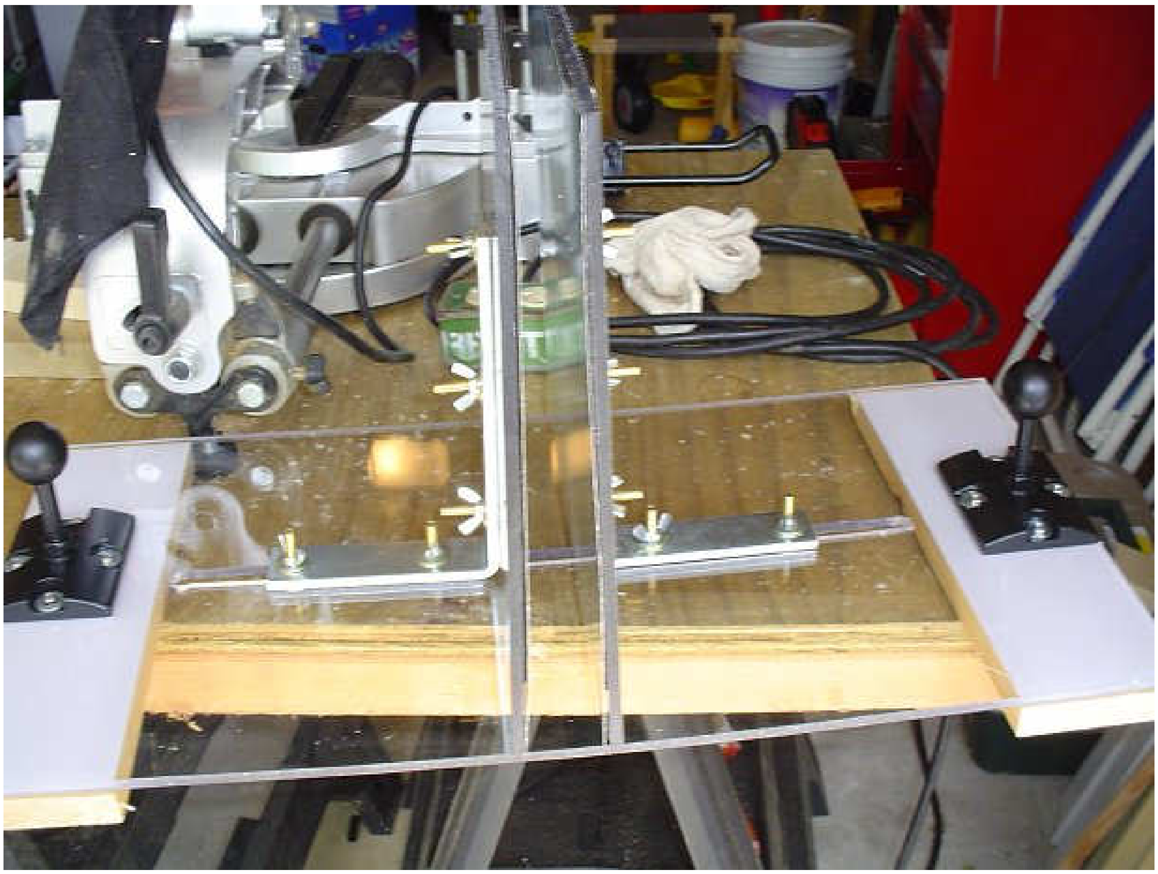
Figure 10 – Final adjustment of gap prior to testing

Prior to function testing, move the plates closer together. We settled on a distance of about 1.5 inches before locking it down. Care must be taken in positioning the plates in order to maintain uniform equal distances in the gap. We found that the top leaned slightly inward causing the gap to narrow at the top. We resolved the issue by adding a piece of soft foam scrap as a spacer to keep the plates even.

Figure 11 – Initial testing of the ambient air for conductance

The initial static testing involved hooking up the B&K capacitor sorter by hooking the test leads via alligator clips to each plate. By finely adjusting the gap further, we established a stable reading of 51.7 pf (picofarads). We now had a base reading for normal air conductance and confirmed we had achieved operational status.

Figure 12 – Enhanced air reading

Now we had to simulate an increase in the air conductance. First we misted the area with purified distilled water and noted no change in the readings. This is because pure distilled water is a very poor conductor of electricity, in spite of what you may have been led to believe. Electrical conductivity of water is determined by foreign particles in the water such as the amount of total dissolved salts (TDS), or the total amount of dissolved ions in the water. Purified distilled water has very few of these particles present. By injecting iron rich water into the gap using an atomizer, we will artificially increase the conductivity of the air by adding conductive particulate mass into the air suspension between the plate gap. The enhanced reading after applying iron rich water vapor jumped to 276.1 pf, proving that we had indeed increased the conductivity of the air, and that the device was capable of measuring this change. We were now ready to take it into the laboratory and repeat these steps under more stringent controls.

Functionality Testing

My lab is constructed in the basement of my home. It is in fact a near Faraday cage-like environment. Humidity is maintained at about 50%, temperature is about 65 degrees, and the walls and ceiling are shielded from EMF by grounded mesh that has been installed in the walls and ceiling. The floor is steel reinforced concrete, which is also grounded. There is one natural EMF source present, the electrical service distribution panel for my home. We use this natural field for testing purposes to establish realistic controls. We repeated the first experiment outlined above to insure that it was our actions to the air that was the cause of the reading fluctuation noted after the device was completed. We now had a name for the device: the Free Air Conductance Tester hereafter termed the FACT. Once again we tested the ambient conductance levels of the air and noted a stable ambient reading of 50.1 pf.

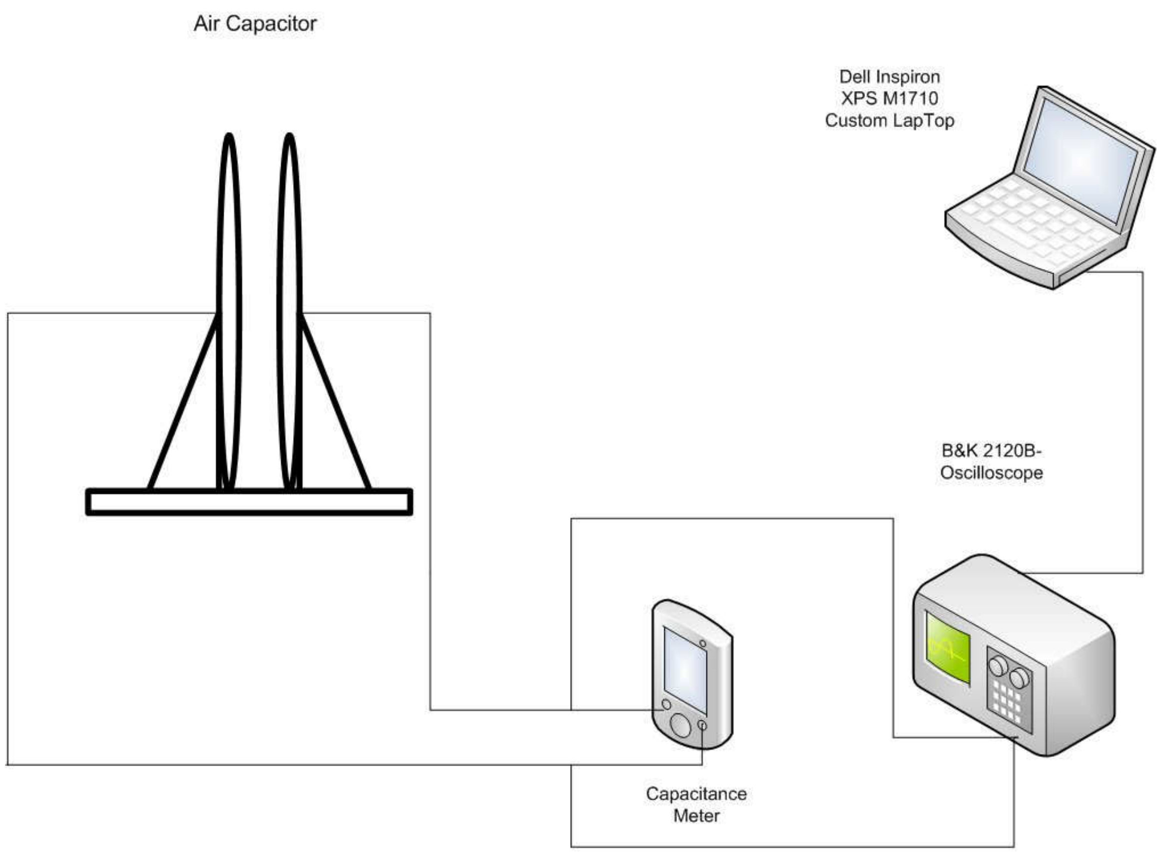

Figure 13 – Test set up

I was then able to increase the air conductance capability artificially to complete the function test by placing 16 drops of Infant Iron supplement in an atomizer full of distilled water, and misting the air over the sensor plates. The capacitance made a dramatic increase to a reading of 277.6 pf, indicating an increase in free air conductivity. In the field, an increase in ions would cause the same thing to occur.

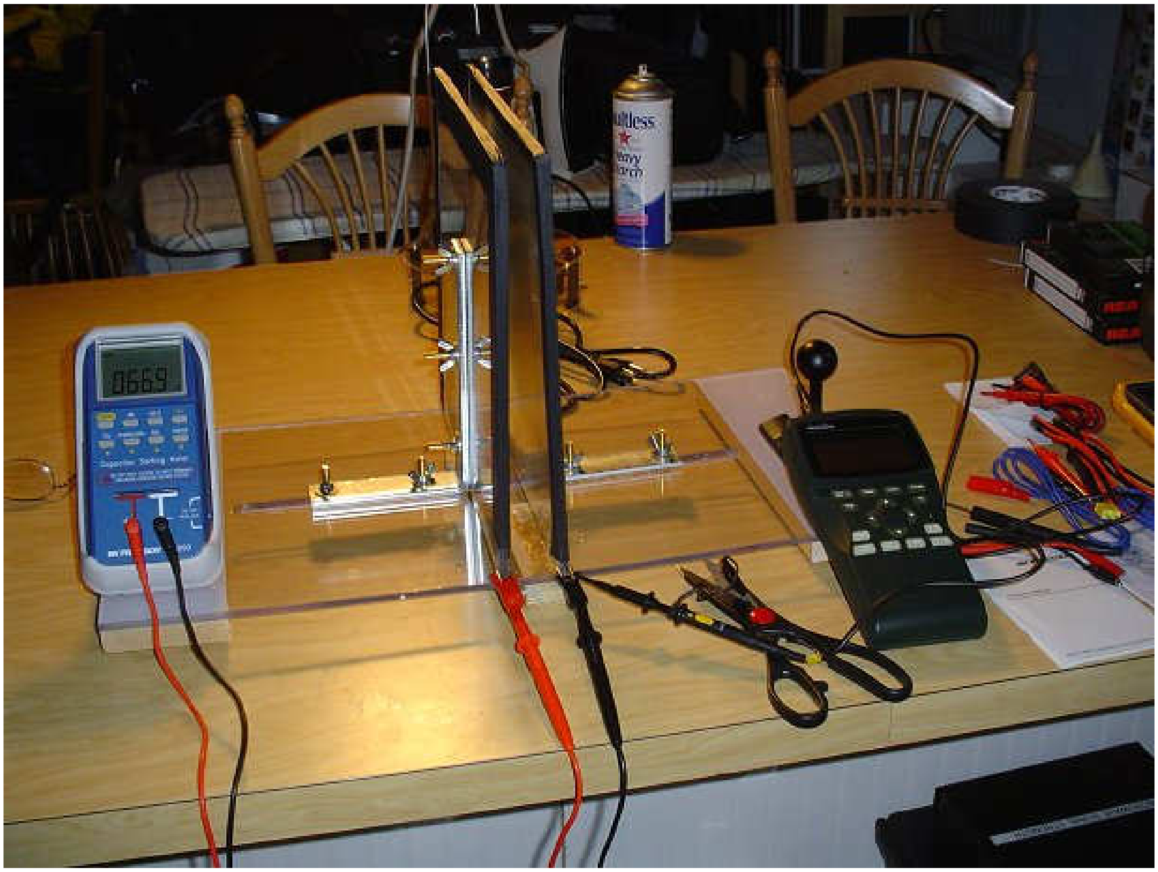

Figure 14 – Test set up

We also applied a second measuring device, and oscilloscope, to read any transitory frequencies present during our testing. At this time we switched on our low powered oscillator and broadcasts a weak signal modulated with audio to see if the device would detect it on the o-scope screen. Care must be taken, however, to use an oscilloscope with very high input impedance to avoid loading down the capacitance meter. Also bear in mind adding additional test equipment adds to the overall capacitance of the circuit.

Figure 15 – Modulation from the frequency generator

The oscilloscope revealed a modulated signal being transmitted by the signal generator. This confirms we would be able to monitor the frequency of the capacitance changes being measured by the meter. We are now ready to use our new F.A.C.T. in the field. Please feel free to build a FACT of your own and use it. Also, we would appreciate the sharing of any findings you get using the device.

Figure 16 – Completed Device