Detailed Integrated Power Analysis of the Ainslie-Murakami Negative Dominant Waveform Generator

This circuit is modified from Rosemary Ainslie's COP 17 heater circuit. The modifications are as follows:

- Inductive resistor load: 10 ohm, 100 watts, 96 uH
- Load current sensing resistor "shunt": 1 ohm inductive resistor
- NE555N timer is powered by same battery as the inductive resistor load
- 1K potentiometer between NE555N positive input and positive terminal on load power supply
- Battery 12 volt flooded cell lead acid – EverStart Lawn & Garden

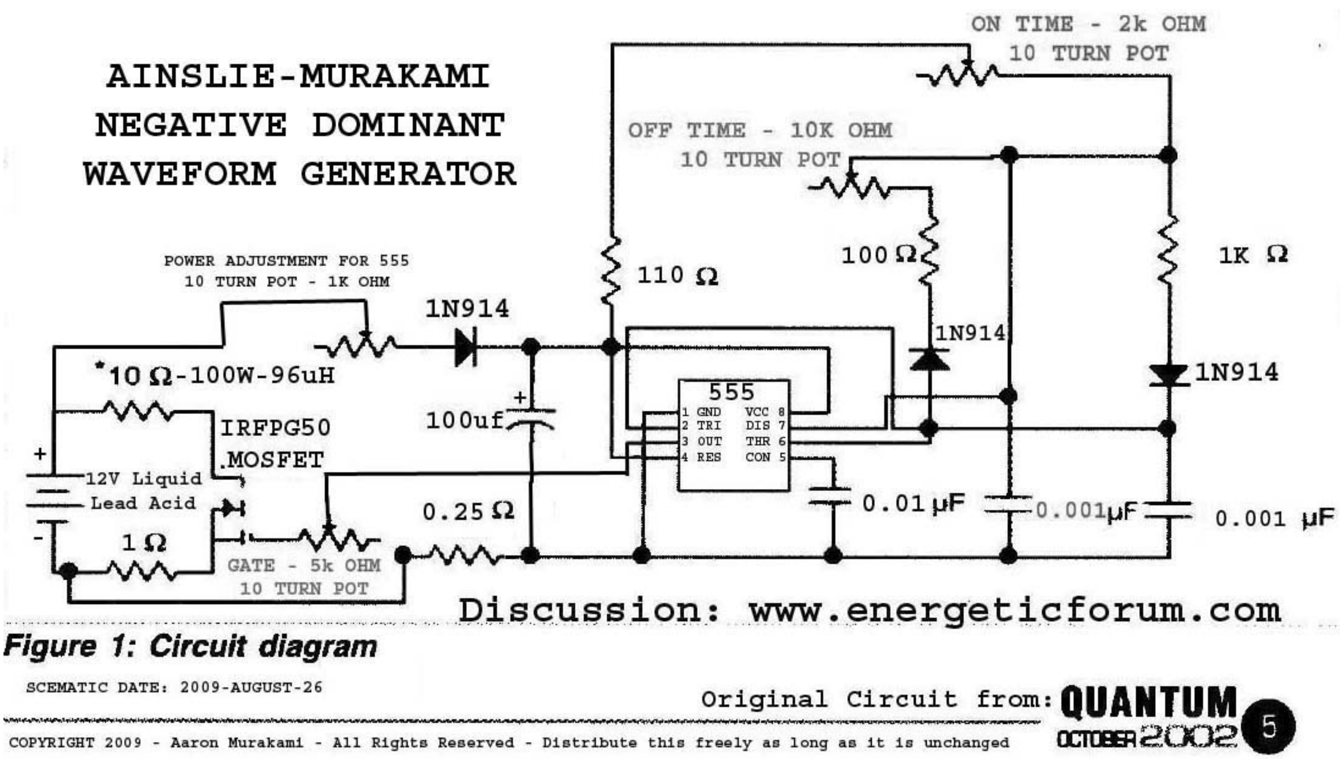


Figure 1: Circuit diagram

The difference between a positive dominant waveform and negative dominant waveform is that the "negative dominant waveform" can be quantitatively shown to have more power below zero or ground than above. This appears to indicate that there is a theoretical chance that at higher voltages, the battery can recharge.


EverStart


12.63
EverStart

The purpose of this document is to provide data. It is up to the reader to make his or her own interpretations of the data.

The tuning settings for the circuit is as follows:

- 12V power supply is like-new shape and fully charged
- Gate resistance: 53 ohms
- On pot resistance: 32.8 ohms
- Off pot resistance: 293.9 ohms
- NE555N power adjustment pot resistance: 193.1 ohms
- NE555N timer duty cycle: 55%
- NE555N timer frequency: 915 kHz
- Actual run frequency: 1.17 MHz

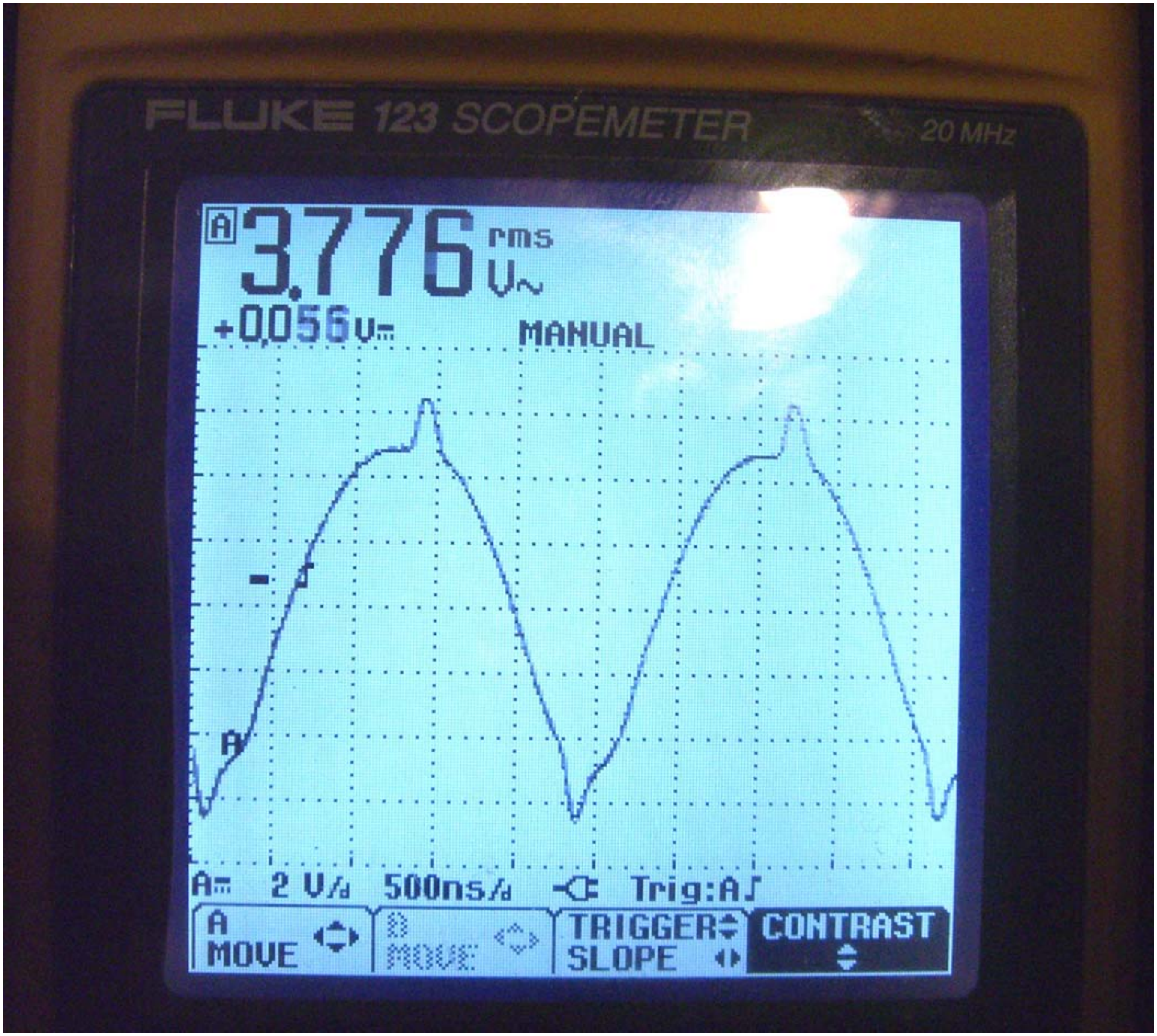
Equipment:

- **TEKTRONIX 5DS3054C Digital Phosphor Oscilloscope – 500MHz, 5GS/s** – for analysis of **CHANNEL 1** (yellow) - timer current sensing resistor for power analysis, **CHANNEL 2** (blue) - load current sensing resistor for power analysis, **CHANNEL 3** (purple) – power supply battery for high resolution analysis of precise battery voltage
- **FLUKE 79III TRUE RMS MULTIMETER –** only for determining approximate supply battery voltage for quick visual analysis.
- **FLUKE 123 SCOPEMETER –** only for observation of waveform on load resistor but not for analysis.
- Heat measurement is taken with platinum based temperatures probes connected to digital display. The platinum based probes are selected because they are impervious to electromagnetic interference or otherwise.

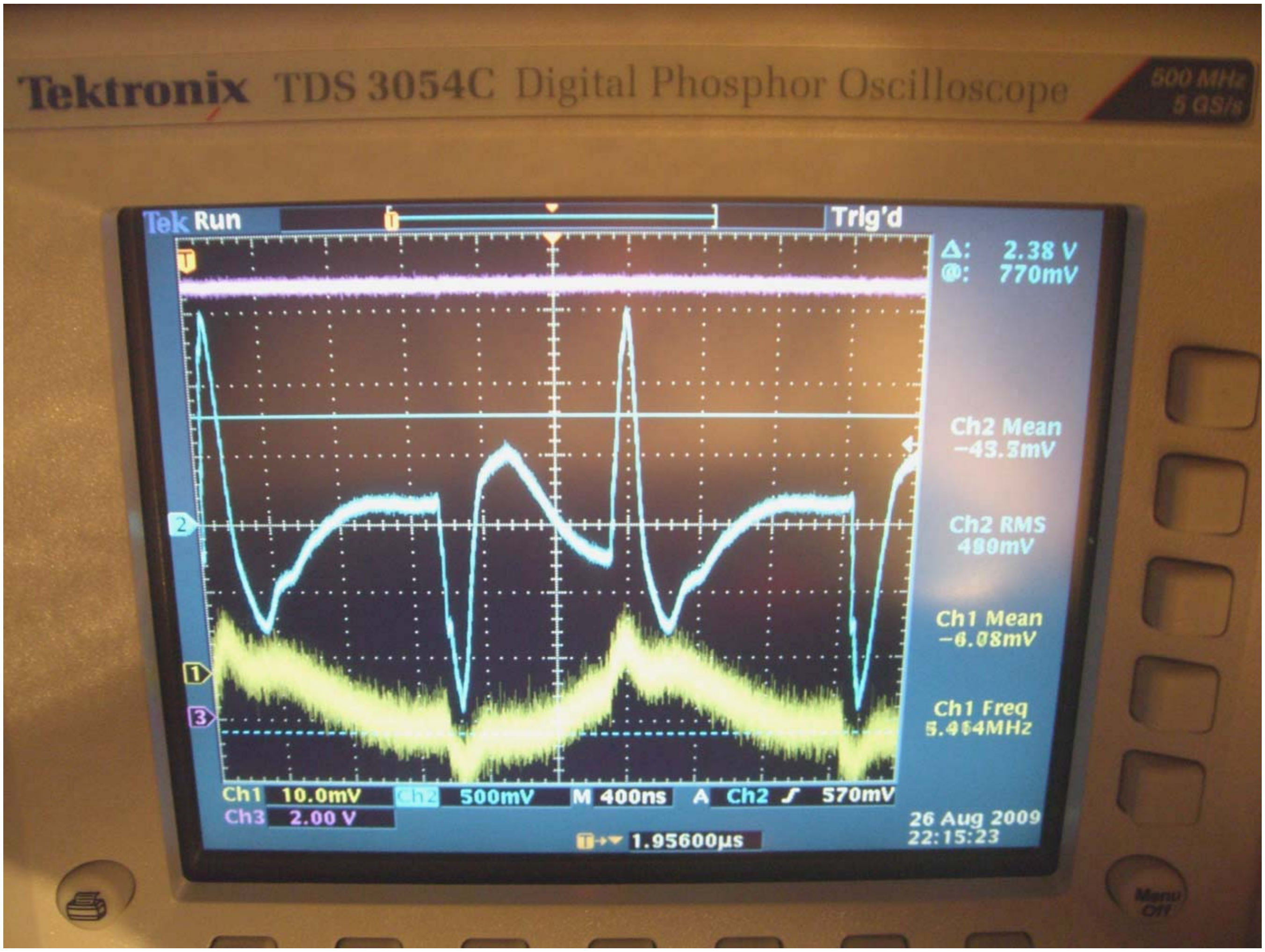

Thank you TEKTRONIX
for lending the TDS 3054C for this research!
Tektronix TDS 3054C Digital Phosphor Oscilloscope
Trig'd
Ch2 Mean
-5.44mV
Ch2 RMS
468mV
Ch2 Freq
1.493MHz
Low signal
amplitude
26 Aug 2009
23:34:31


FLUKE 123 SCOPEMETER
12.63

When the described setup is running, the following waveform is visible across the load. The *Fluke 123 Scopemeter* ground is at the negative side of the load resistor and the probe positive is at the top of the load resistor. Visually, it appears to have more area below the ground, which is represented by the horizontal thick minus sign. RMS is 3.776 and dc average is 0.056 volts. Without *Detailed Integrated Power Analysis*, these numbers are only ballpark indications. This FLUKE does not have the capability of the Tektronix TDS3054C.



The waveform that is used for the actual *DETAILED INTEGRATED POWER ANALSYSIS* is seen with the **TEKTRONIX TDS3054C**. The yellow channel is channel 1 and is the timer power shunt. The blue channel is channel 2 and is the load power shunt. The purple channel is channel 3 and is the power battery reading.



The dc average on the power shunt (blue channel) is negative –43.5mv. The RMS of the same 1 ohm load power shunt is 480mv. The dc average on the 555 timer shunt (yellow channel) is negative –6.08mv and there is a measurable frequency of over 5 MHz. Again, these readings are only ballpark measurements without *Detailed Integrated Power Analysis*. These numbers fluctuate on the screen because in reality, they do change. However, the detailed analysis will show a very high-resolution indication of the actual power that is used.

The blue waveform is analyzed with this **TEKTRONIX TDS3054C**. It is important to have one single waveform on the screen or at least a whole number of waveforms on the screen for analysis. On the screen, there are about 1.8 waveforms.

This TDS3054C will take 10,000 samples per channel for the range indicated on the scope. In this picture, that would be 10,000 samples of 400ns per division. To analyze waveform in super high-resolution detail, the samples before and after the waveform can be deleted so that the average is only for the waveform – nothing more and nothing less.

The waveform that will be analyzed be approximately 58% of the entire waveform or about 5800 samples of the 10,000 samples.

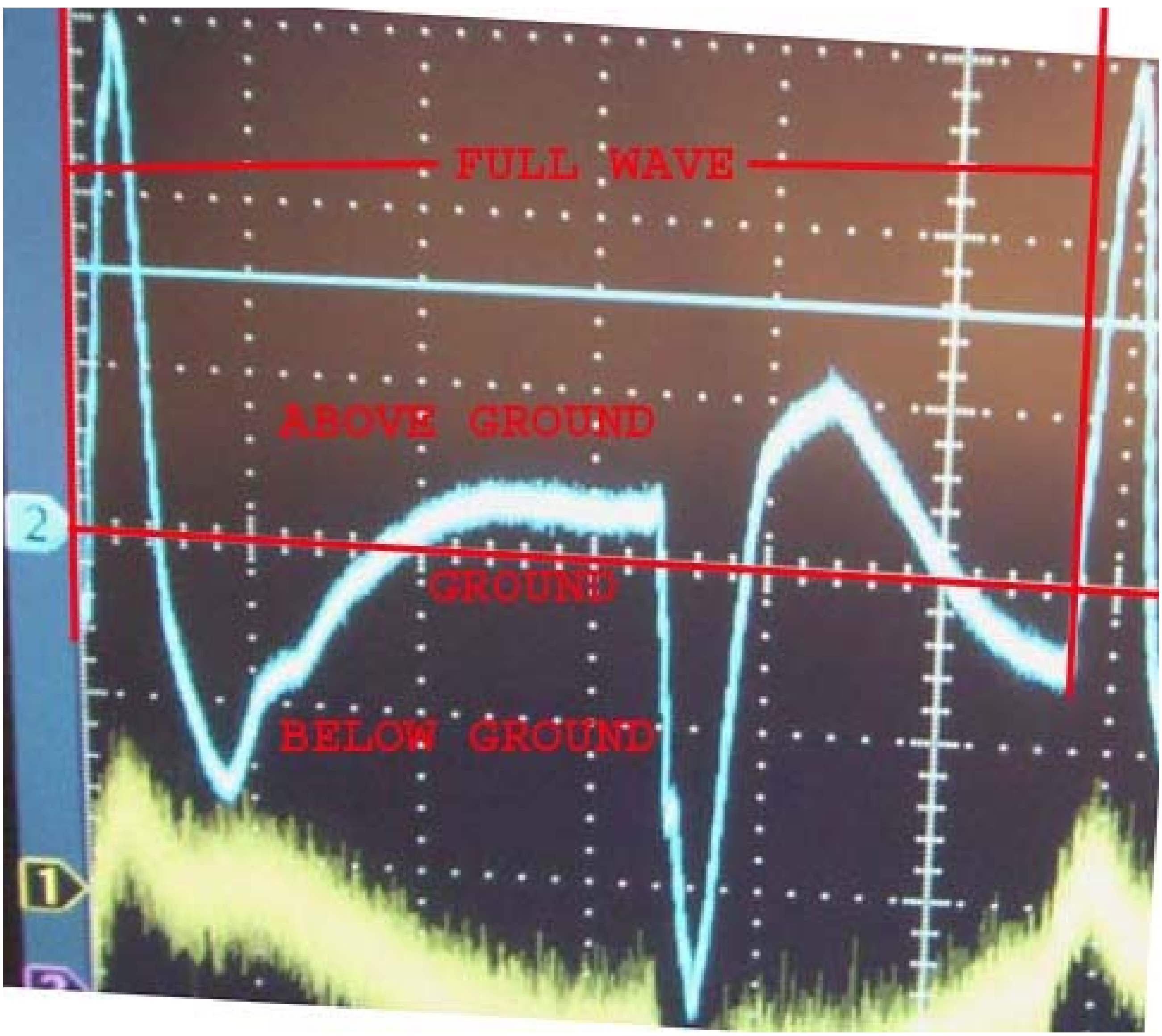
The data acquired will be TIME, TIMER SHUNT VOLTAGE, POWER SHUNT VOLTAGE, & BATTERY VOLTAGE. The data is downloaded and opened in an Excel spreadsheet.

The voltages of the timer shunt are divided by the shunt voltage of 0.25 ohms and multiplied by the voltage in the supply battery voltage column. All wattages are added and then divided by the amount of samples for that particular waveform. The average is a precise measurement of the average wattage for the waveform.

The load shunt voltage is then divided by the power shunt voltage of 1.00 ohms and multiplied by the voltage in the supply battery voltage column. All wattages are added and then divided by the amount of samples for that particular waveform. The average is a precise measurement of the average wattage for the waveform.

Adding the timer wattage and battery wattage together will give the total wattage consumed by the circuit to power the NE555N timer and load. Any positive wattage is a net loss to the battery. A zero wattage would represent a unity condition. A negative wattage would indicate a net gain to the battery according to the data presented by the **TEKTRONIX TDS3054C**.

Here is a closer look at the waveform to be analyzed.



Here are the results of the **Tektronix TDS3054C** *Detailed Integrated Power Analysis* figures:

- Timer average watts for a single waveform: -0.06578
- Load average watts for a single waveform: -0.06828
- Total average watts for the entire circuit to run from the power battery: **-0.13406**

Scope placement for Tektronix TDS3054C – all grounds are common.

- Channel 1 – NE555N timer power shunt – negative is to battery negative and positive of probe is to the 555 timer circuit side of the shunt.
- Channel 2 – load power shunt – negative is to battery negative and positive of probe to the MOSFET side of the 1 ohm shunt resistor.
- Channel 3 – battery voltage – negative is to battery negative and positive of probe is to the positive terminal of the battery.

Temperature Data (degrees above or below ambient) – AMBIENT 25.0 C

- Load: -0.8
- Load Shunt -0.8
- Mosfet: +1.0
- NE555N: +5.0
- Timer power pot adjustment: +8.0

Total draw from battery: **-0.13406** is a net gain to battery while creating the above heating and cooling effects.

COP = Open to interpretation, the data suggests a negative net wattage use by the circuit to produce both heating and cooling effects.

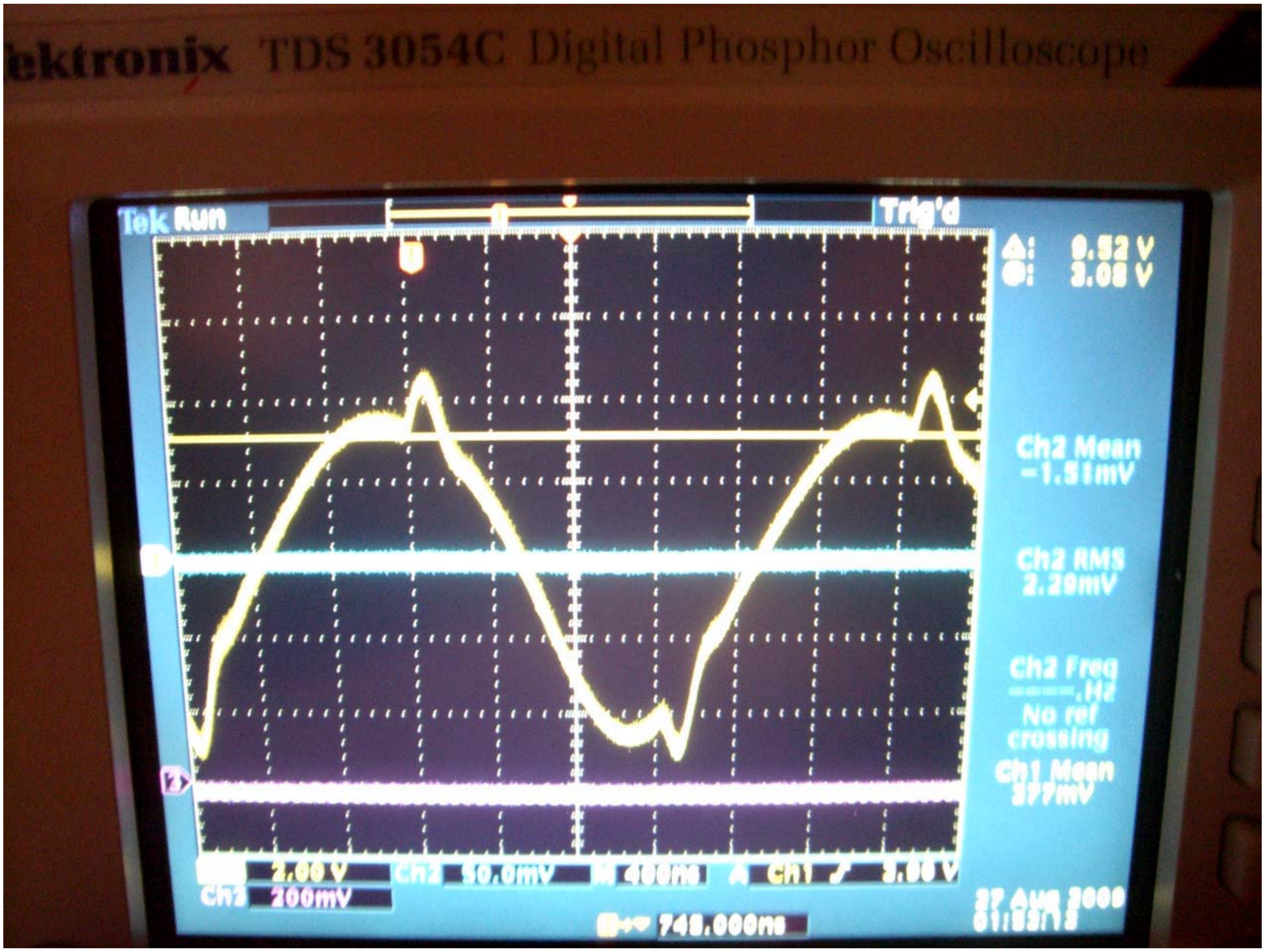
See these for reference to this doc:

Excel data http://www.feelthevibe.com/free_energy/rosemary_ainslie/ainslie-murakami-dipa1.csv

Youtube video: http://www.youtube.com/watch?v=sAsydnawSpA

Discussion forum: http://www.energeticforum.com/renewable-energy/4314-cop-17-heater-rosemary-ainslie.html

The following picture is the load waveform viewed with the Tektronix. The detailed analysis is not included in this report but it also shows a net negative value indicating there is more power below the line than above.



CONCLUSION – It is apparent that it is possible to generate a square wave variant that delivers equivalent energy delivered and returned to the supply. As there is evident heat dissipated at various components it may indicate that charge is wholly conserved and that dissipated energy may be from the circuit components themselves. Perhaps it is in the form of fatigue to the structures as a result of heat.

It is still at very low wattages. The theoretical potentials require testing at higher wattage levels and the inductance on the negative rail needs to be more fully explored. As these test results are potentially more advantageous than the Ainslie circuit – tests will be conducted here to fully explore the effect of this negative component induced from a switched supply.

It may be of interest to compare these results to classical simulator programs as reference.

Still be considered is that there is an apparent reduction in heat over the resistors, which needs to be investigated.

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Thursday, August 27, 2009

Special thanks to TEKTRONIX for lending the TDS 3054C, Digital Phosphor Oscilloscope, 500MHz, 5GS/s