FEG TPU Replication Test Results

Author Jon Taylor
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Computer controlled MCU + MOSFETS, GTK4 TPU, Otto Roberto Coil

Contact: jondtaylor@gmail.com

Abstract

This document describes tests done to recreate the TPU invented my Steven Mark. This information is provided with the intent that it aid those also working on recreating the TPU in a cooperative and open spirit.

Currently the controller suffers from interference and a particular circuit for the GK4 coil. This is a working document and more results will follow shortly.

Contents

Overview

This research platform was built to rediscover how the TPU (Toroidal Power Unit) free energy machine works. The TPU invented by Steven Mark is a device that produces a high power density output compared to its size and weight. The full functional disclosure is not available but some principal concepts as well as a wealth of related information is consistent with the workings of this machine and should aid in the reconstruction.

The R&D platform is a hardware control device that is connected to a computer running testing software. The control device can be connected to a variety of TPU devices for testing.

Once the properties of the TPU are mapped out and the free energy device is working the functional details will be published from FEG and production will begin to manufacture the devices for commercial sale.

The control device is a computer controlled MCU that drives three MOSFETS. The TPU tested is a replication of the GK4 and Otto/Roberto Coil.

The Control Platform

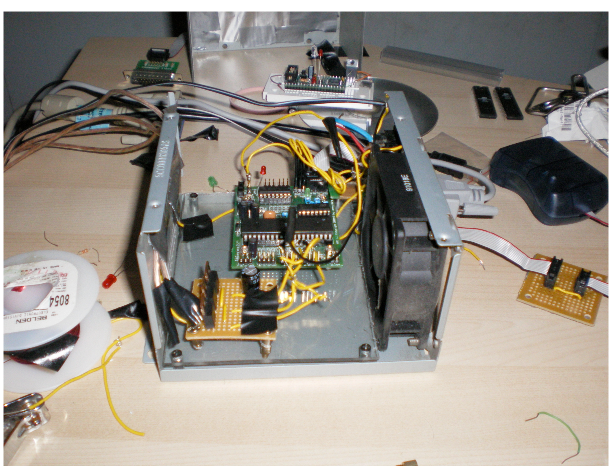
The platform was designed to:
1) efficiently automate the mapping of results from different test configurations and reduce the total cost and time required to set up each test on a variety of TPU devices.
2) further, to facilitate precise, configurable and accurate control over the TPU test from a computer interface.

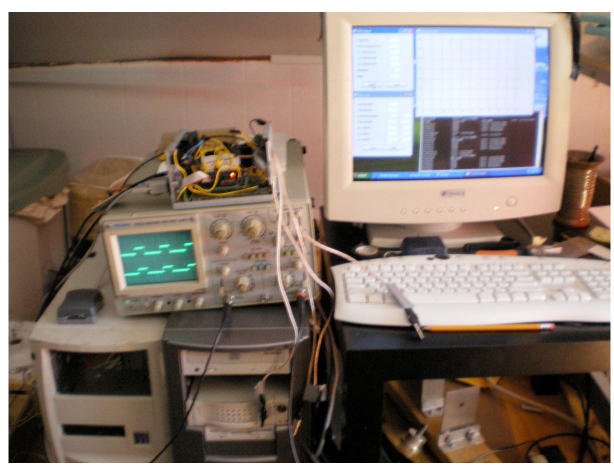
There are many possible tests to run so a micro-controller MCU is employed to run a connected TPU with variable configurations including frequencies, pulse widths and offsets and these in different combinations on each channel. The platform is a generic testing device to automate the mapping of multiple configurations and report on the results. Once the feedback connection is set up the computer will be able to automatically search through huge amounts of test conditions searching for relationships between variables that can be used to discover interesting properties.

The controller consists of a micro-controller board with a computer interface and driving MOSFETS. The micro-controller runs at 16 MHz and provides I/O line rise times of approximately 100 nanoseconds.

The current MOSFETS are IRFBG20 P type. The MCU is an Atmel ATMega16 Micro-controller.

There is an independent power supply that can deliver between 1.5 and 12v to the TPU. The connection to the TPU is through 3 switched grounded lines and one source voltage.





Client Software

The software runs on a PC and communicates with the controller to instruct it and retrieve data if the appropriate connections are made.

The client software allows the configuration of individual properties listed below:

1) Frequency

This value is specified as a delay time in MCU clock cycles that pass between the output cycles.

2) Pulse Width

This value is specified as a delay time in MCU cycles the pulse is to remain high through each output cycle.

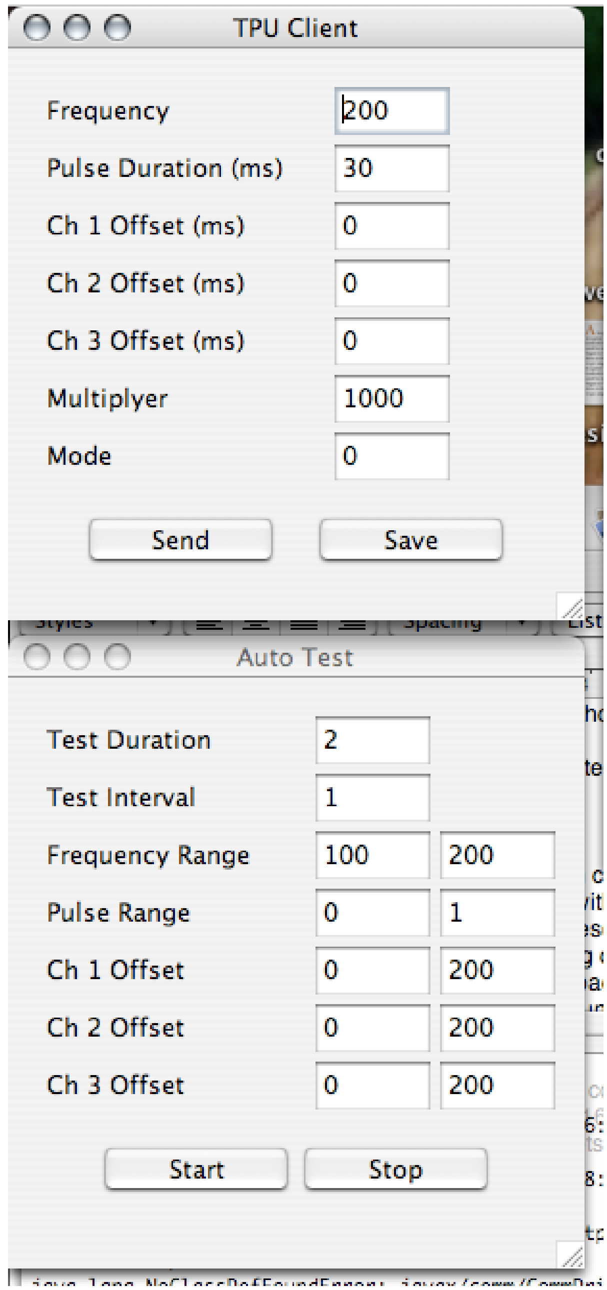
3) Offsets

In different modes these values have different behaviors. In general they allow each individual channel to be changed independently of the rest.

4) Mode

Different modes are designed to operate in different ways. Each mode allows the MCU to operate with high efficiency.

Some modes use different length variables allowing increased speed or value range. Other modes allow multi frequency or precise offsets in the output control.



Test Results

Controller power output

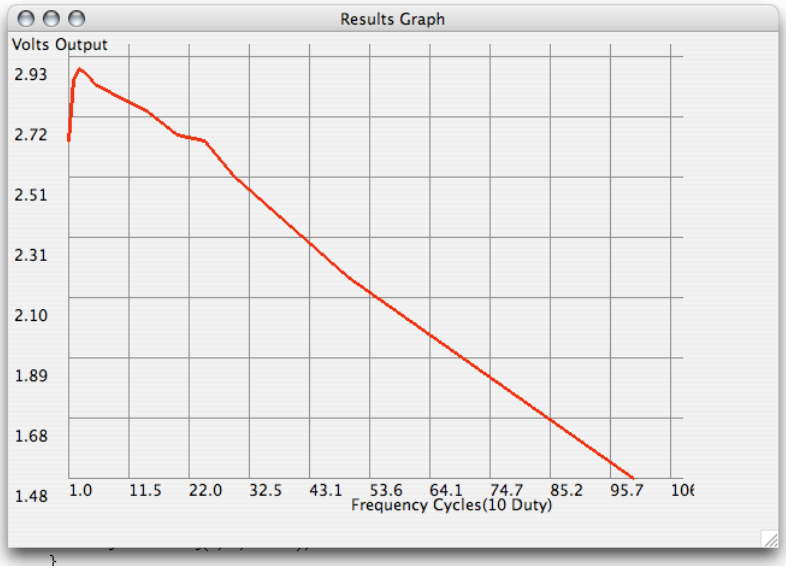
This graph plots the voltage output measured directly from one of the controllers power lines. A resistor is used as a load.

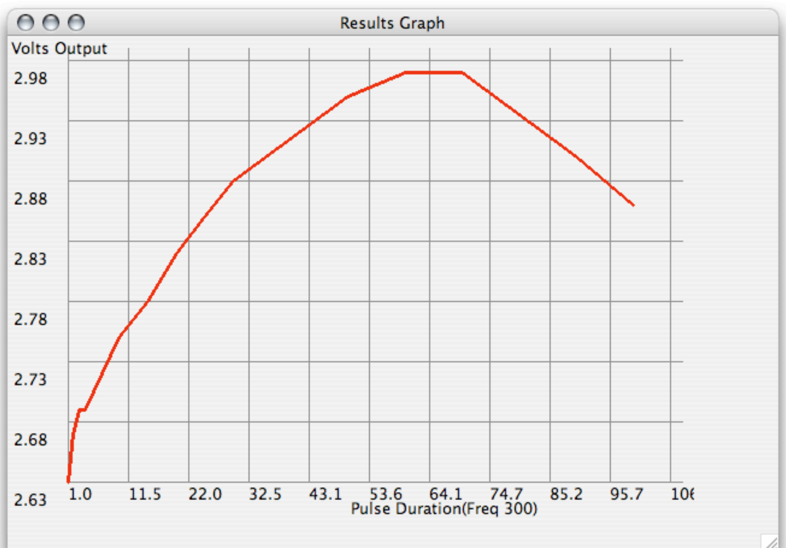
The first diagram is a plot of the power output through a range of frequency when the duty cycle is set at 1/10.

The graph should be linear sloping downwards.

The second graph plots the voltage output through the range of pulse widths at a frequency of 300 cycles.

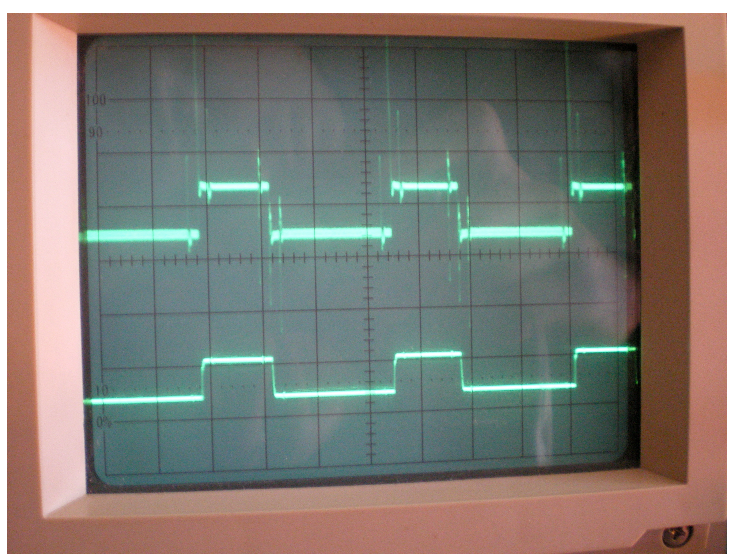
The graph should increase linearly.





The oscilloscope image shows a sample signal on the bottom and the power output from the MOSFETS on the top.

The noise is a possible issue. The spikes you see are caused by the two other channels firing slightly before and after this one.



The MCU can operate in several modes. Each is designed to operate with specific requirements. The modes allow optimized performance for each test.

Mode 1

The first mode allows you to control the frequency, pulse duration and the offsets of each three lines. All three lines are fixed to the same frequency. The variables are 32 bit giving the largest possible range of values but performance is limited because the MCU is 8 bits and has to do extra work to manage it. The data is send in 16 bit values and multiplied with the multiplier parameter.

With a frequency of 4 a pulse duration of 1 and a multiplier of 1 the on time is 17 microseconds and the off time is 31.5 microseconds.

When the pulse duration is 2 the on time is 29 microseconds and the off time is 20.5 microseconds.
When the pulse duration is 3 the on time is 40 microseconds and the off time is 9 microseconds.

When each channel offset is 0 the second channel fires 2 microseconds after the first and the third channel fires 2 microseconds after that.

When the frequency is 2, pulse duration 1 and multiplier 1 the on time is 17 microseconds and the off time is 9 microseconds. This gives a maximum frequency of 38 khz.

Mode 2

The second mode operates in the same fashion as mode 1 but uses 16 bit variables and does not use the multiplier. The performance is better allowing for higher frequencies.

Freq. 4, PD 1 has 10 microseconds on 19 microseconds off.
Freq. 4, PD 2 has 16 microseconds on 12 microseconds off.
Freq. 4, PD 3 has 22 microseconds on 5 microseconds off.

Freq. 2 PD 1 has 10 microseconds on 6 microseconds off. This gives a maximum of 62khz.

When each channel offset is 0 the second channel fires 1.2 microseconds after the first and the third channel fires 1.2 microseconds after that.

Mode 3

The third mode operates in the same fashion as the second but it uses 8 bit variables so it is limited to values 0 through 255. Because the MCU is 8 bits there is no overhead converting to larger numbers and this mode gives the highest frequency.

Freq. 4, pulse duration 1 has 6.8 microseconds on 11.5 microseconds off.
Freq. 4, PD 2 has 10.5 microseconds on 7.9 microseconds off.
Freq. 4, PD 3 has 14 microseconds on 4 microseconds off.

Freq. 2, PD 1 has 6.6 microseconds on 4 microseconds off. This gives a maximum 94 KHz.

When each channel offset is 0 the second channel fires 0.9 microseconds after the first and the third channel fires 0.9 microseconds after that.

Mode 4

This mode is similar to mode 1 but the pulse width is fixed at the minimum value and is not configurable. The variables are 32 bit.

Mode 5

This mode is similar to mode 2 but the pulse width is fixed at the minimum value and is not configurable. The variables are 16 bit.

Mode 6

This mode is similar to mode 3 but the pulse width is fixed at the minimum value and is not configurable. The variables are 8 bit.

Mode 7

This mode removes the frequency and uses the offsets for each channels frequency. The pulse duration is shared for all channels. The variables are 32 bit.

Mode 8

This mode removes the frequency and uses the offsets for each channels frequency. The pulse duration is shared for all channels. The variables are 16 bit.

GK4 TPU Coil

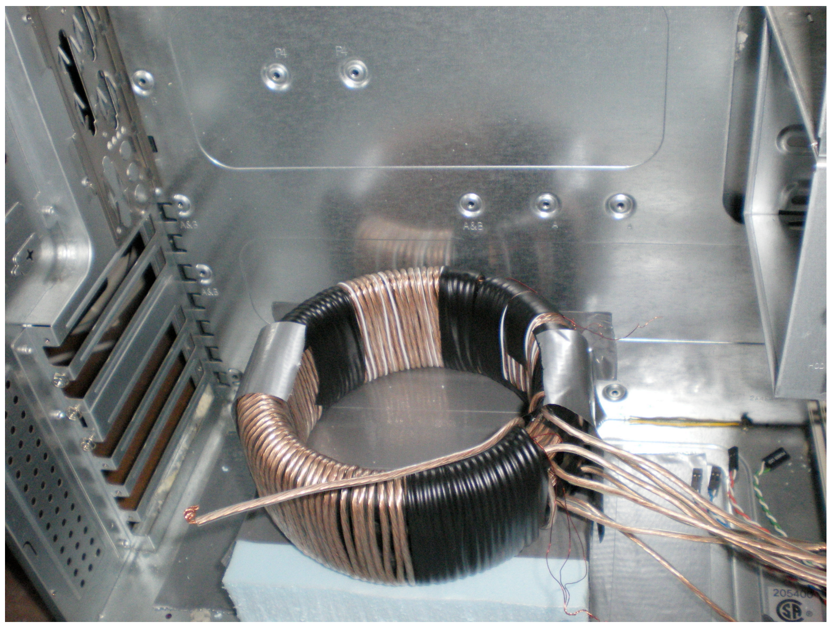
The TPU described here was constructed based on the GK4 design. For more informations see: http://www.overunity.com/index.php/topic,1872.0.html

It consists of 3 rings 18 turns of 16 gauge insulated copper wire bonded with epoxy. Each ring is wrapped with 4 coils each 230 turns of 28 gauge coated wire. The three rings are stacked on top of each other. A collector wire of 16 gauge insulated wire is wrapped around the three rings.

This coil cost about $30 cdn and took about 20 hours to build.

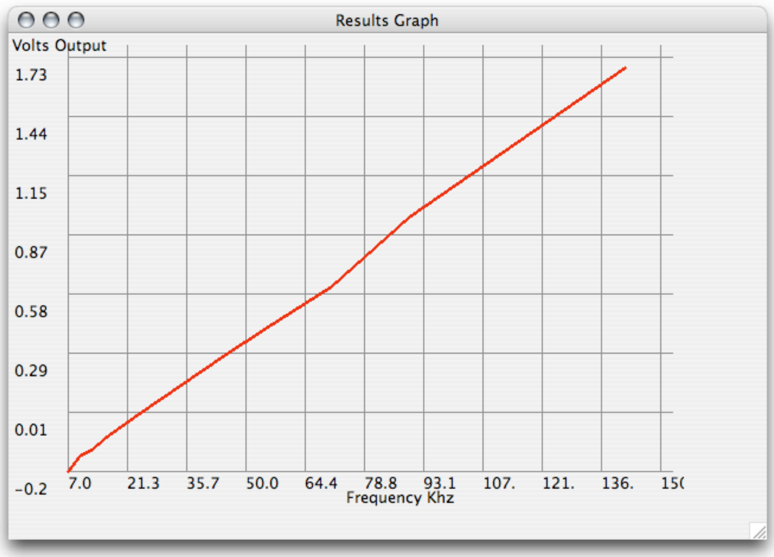
Unfortunately this coil requires an N type transistor or MOSFET and I haven't built a working controller yet. I could use TIP31 but I would prefer to use MOSFETS.

The controller used 3 IRF6218 MOSFETS but one overheated and they turned on when there was no signal which is not convenient. I would prefer to find a more appropriate MOSFET that acts like a TIP31 than to modify this controller with pull down resistors.



The first test I connected the MCU I/O lines directly to the coil and measured the voltage output. The mode is number 3 with a pulse duration of 0. Note this creates a pulse with of 3 microseconds. The offsets were all set to 0. When the offsets are changed the combined signals no longer add onto each other and the output decreases.

The results show that the output increases as the frequency is increased. There was also no load.

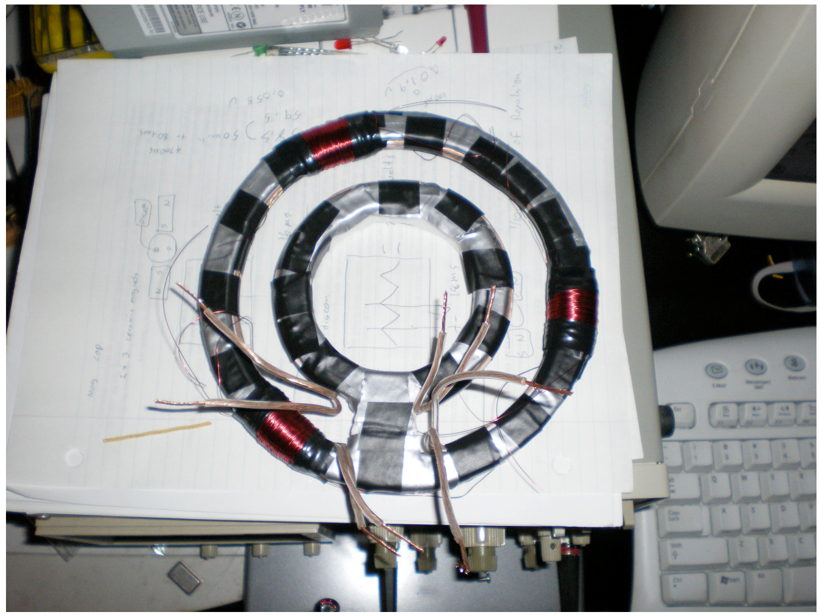


Frequency Value	Cycle Delay (Microseconds)	Frequency (Cycles per second)	Output Volts
1	7	142 K	2.02
2	11	90 K	1.3
3	14	71 K	0.96
4	18	55 K	0.76
5	22	45 K	0.63
10	41	24 K	0.34
15	60	16 K	0.23
20	76	13 K	0.17
25	95	10 K	0.14
50	140	7 K	0.07

Otto Roberto Coil

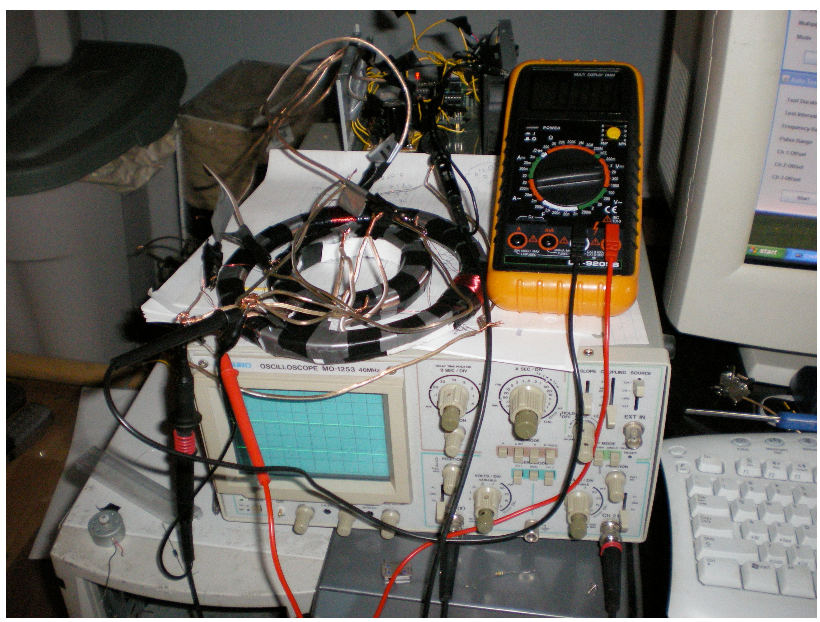
For full details on this coil see this thread
http://www.overunity.com/index.php/topic,2535.0.html
and http://www.overunity.com/index.php?action=dlattach;topic=2383.0;attach=9524.

The coil is constructed from a styrofoam frame and duct tape for reinforcement. The wire is 16 gauge stranded and 28 gauge coated.



This coil cost about $6 cdn and took about 4 hours to build.

Once I connected it up and powered it up with 3v input the performance was terrible delivering only a fraction of a volt output with the use of a diode on the output and 0v without a diode. This was expected because when the ground from each coil is connected it creates a short circuit. Also when you connect the grounds between the signals it will trigger all the coils when any coil is triggered. Once I can clean up the MOSFET signals so that there is no noise I will place it in a Faraday cage and increase the input power.



Some initial interesting results I found that when no power is provided and a diode placed on the output there is an output voltage of about 0.1v even though I can measure no power from the power clip and it must be connected.

Another interesting thing, my wife said she can't use the cordless phone in the same room when its on because it cuts the connection :) This even when no power is provided.

References

Free Energy Group website
Currently under construction so there is no content yet.
http://www.freeenergygroup.com

Free Energy Forum
The international free energy research forum.
http://www.overunity.com

Contact

If you have any question of comments please feel free to contact me.

Jon Taylor at jondtaylor@gmail.com