



Linear Lines

Trident Amateur Radio Club (TARC) Newsletter
July 2014

TARC Nets:

Every Tuesday, 147.27 MHz PL 123.0

- 7:30 PM CW practice
- 8:00 PM Net

Upcoming Events:

- Jul 19 Balloon Launch!
Contact: Tom W4DAX
- Jul 21 Club Meeting
- Jul 24 Dinner Gathering
Contact: Mike KK4YKV
- Jul 31 Ham Radio Demonstration at NNPTC
Contact: Tom W4DAX
- Aug 4 Board Meeting (all welcome)



It wouldn't be Field Day without a Field, now would it. – We had a great time during Field Day last month, and hope you were able to join in. More opportunities are coming up, like Operating Days, balloon launch teams, and dinner gatherings. Stay tuned!

From The President

It has been quite a ride this past two years. I think we have a very active club helping to get members "Radio Active." I have enjoyed being the President again, and will always be in debt to the members who helped to make the club grow. I look forward to many more years of activities, and be assured I am not going anywhere.

With that said, I want to remind everyone that the **club elections** are next month. **Joe Chapman KJ4BNC** is the election Chairman again this year, so if you are interested in helping the club to grow by serving in any capacity, please let Joe know. We are in search of a Vice President. This is a good position to learn the inner-workings of the club. If you have ANY interest please let Joe know.

Activities this month include **VE Exams** on Wednesday the 14th, a **Balloon Launch** on Saturday the 19th the regular **Club Meeting** on Monday the 21st a **Dinner Meeting** on the 24th, and a Ham Radio **demonstration** for the students at NNPTC on Thursday the 31st. Hope you can make one or all of these activities.

Tom Lufkin, W4DAX

Life is like a camera. Just focus on what's important and capture the good times, develop from the negatives and if things don't work out, TAKE ANOTHER SHOT.

From ARRL Section Manager

In the SC Section Manager's report, Marc Tarplee N4UFP says:

"One of the nice things about visiting Field Day sites is that I get an opportunity to talk to hams across the state and learn more the interesting things that they are doing. A wonderful example of this was the **high altitude balloon launches** being done by the Trident Amateur Radio Club.

"Tom, W4DAX, took a moment to bring me up to speed on their efforts. The balloon launched 15 June reached an altitude of 100,500 feet before it ruptured. The launch site was a boat landing on the west side of Lake Moultrie, SC, and the balloon landed in a back yard near Round O, SC. The balloon's payload included a camera, which sent back some outstanding pictures. They hope to launch another balloon on 19 July.

"For those interested, there is more information available through the Trident Amateur Radio Club Facebook page."

From Your Treasurer

It has been a good month, Field Day is now behind us and everyone that took part had loads of fun. We are now looking forward to Winter Field Day. There are lots of activities planned before then. Our **balloon group** is planning another launch to near space for the 19th and of course our **club meeting** is on the 21st. Our next **dinner meeting** is the 24th and **VE testing** is the 16th. Lots of activities for you to get interested in and to support.

Ron Davis and myself have been working on some old XP laptops to see if we can get them up and running to use as loggers for Field Day and such. They are coming along nicely, we have found a distribution of Linux which seems to run just fine on the laptops the club has. More on this later.

If you need an **antenna** or something else you need help in building, be sure to let Tom know so he can schedule a **builders group** meeting. There is always someone willing to get together with you and help you build it. A lot of new J-pole antennas have been made that way. You name the project and we will try to help you with it.

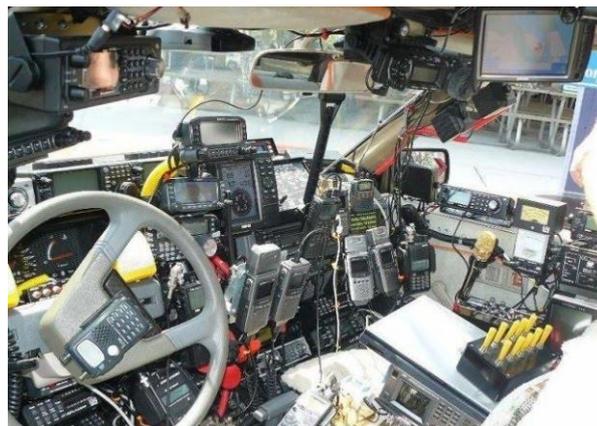
See you on the TARC **two meter net** on Tuesday night, and in the meantime try one of our many activities the club has for you.

73 from Ladson
Bob NG4R

Pop Quiz !! [General Class]

What safety feature does a power-supply bleeder resistor provide?

- It acts as a fuse for excess voltage
- It discharges the filter capacitors
- It removes shock hazards from the inductions coils
- It eliminates ground-loop current



Whose car is this? Looks like a brand new Technician!

FCC Seeks to Raise Vanity Fee

The FCC is requesting to raise the Amateur Service vanity call sign regulatory fee from its current \$16.10 to \$21.60 for the 10-year license term. The \$5.50 increase would be the largest vanity fee hike in many years. The proposal is contained in a Notice of Proposed Rule Making (NPRM), "Assessment and Collection of Regulatory Fees for Fiscal Year 2014," which appeared in The Federal Register on July 3.

Interested parties have 30 days to comment on the NPRM. Changes in the vanity call sign fee typically take effect in late August or early September.

FCC Addresses Interference

Two hams who frequent the often-unruly activity on 14.313 MHz have been cited by the FCC for violations related to station identification, and four others were warned of enforcement action if they did not comply with formal requests to stay off of certain repeaters.

FCC Special Counsel Laura Smith cited Larry King, KI8NGS, of Michigan for operating on 14.313 for at least 20 minutes without identifying (FCC direction-finding was used to identify his station); and Tennessee ham Daniel Chyrovich, N9RSY, was cited for repeatedly communicating with a station on 14.313 who failed to properly identify himself. Smith noted that it is also a rule violation to communicate with an unidentified station, as that station may not be a licensed amateur. (continued)

(continued from pg 2)

In addition, according to the ARRL letter, four hams in three states were warned in late March that the Commission expected them to “abide by the request of the trustee and/or operator” of specific repeaters (or any others) not to operate on them.

That means that the FCC will violate you if you communicate with a ham who does not ID every 10 minutes!

Tom Lufkin, W4DAX

ARRL Requests House Bill to Ease Restrictive Covenants

A bill with bipartisan support has been introduced in the US House that calls on the FCC to apply the "reasonable accommodation" three-part test of the PRB-1 federal preemption policy to private land-use restrictions. **HR.4969**, the "**Amateur Radio Parity Act of 2014**" was introduced on June 25 at the request of the ARRL, which worked with House staffers to draft the proposed legislation. The bill's sponsor is Rep Adam Kinzinger (R-IL). It has initial co-sponsorship from Rep Joe Courtney (D-CT). If the measure passes the 113th Congress, it would require the FCC, within 120 days of the Bill's passage, to amend the Part 97 Amateur Service rules to apply PRB-1 coverage to include homeowners' association regulations and deed restrictions, often referred to as "covenants, conditions, and restrictions" (CC&Rs). Presently, PRB-1 only applies to state and local zoning laws and ordinances.

The 11-page PRB-1 FCC Memorandum Opinion and Order is codified at Part 97.15(b) in the FCC Amateur Service rules, giving the regulation the same effect as a federal statute. In short, **PRB-1 states that local governments cannot preclude Amateur Radio communications; they must "reasonably accommodate" amateur operations**, and the state and local regulations must be the minimum practicable regulation to accomplish a legitimate governmental interest. Subject to those guidelines, municipalities may still establish regulations with respect to height, safety, and aesthetic concerns.

For 28 years, FCC regulations have "prohibited the application to Amateur Radio stations of state and local regulations that preclude or fail to reasonably accommodate Amateur Service communications," the bill points out, "or that do not constitute the minimum practicable regulation

to accomplish a legitimate state or local purpose." Since PRB-1 was enacted, the FCC has said several times that it would prefer to have some guidance from Congress before extending the policy to private land-use regulations.

HR.4969 has been referred to the House Energy and Commerce Committee. Rep Greg Walden, W7EQI (R-OR), chairs that panel's Communications and Technology Subcommittee, which will consider the measure.

ARRL Hudson Division Director Mike Lisenco, N2YBB, is a principal advocate for the current legislative initiative to gain PRB-1 recognition for CC&Rs. Lisenco said the most urgent task now is to get additional co-sponsors to sign onto HR.4969.

Please take a moment **today** to contact your congressional representative in support of **HR.4969**, the **Amateur Radio Parity Act of 2014**.

Congressman James Clyburn:
 176 Brooks Blvd.
 Santee, SC 29142
 Phone: (803)854-4700
 Fax: (803)854-4900

Congressman Mark Sanford:
 530 Johnnie Dodds Blvd.
 Suite 201
 Mt. Pleasant, SC 29464
 Phone: (843) 352-7572
 Fax: (843) 352-7620

Last, but not least, JULY BIRTHDAYS!

- Gary Grooms KM4AIB
- Steve LaMendola KE4THX
- Bryce Myers K4LXF
- Frank Ruopoli KK4NMG
- Buck Wagner KV4PO

Happy Birthday, All!

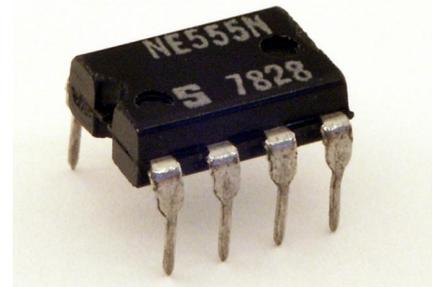
Want to see something in Linear Lines?

If there's something you want to see in Linear Lines, please send it to Robert KV4LV <kv4lv@arrl.net> by the second Monday of the month.

Build this.....

Code practice oscillator using a 555 timer chip

By Ron Davis – K4TCP
07/13/2014



Build this simple circuit from a spare 555 timer chip and have your own CPO (Code Practice Oscillator) and join the CW practice NET Tuesday evenings at 7:30 PM on the 147.270+T123.0 repeater!

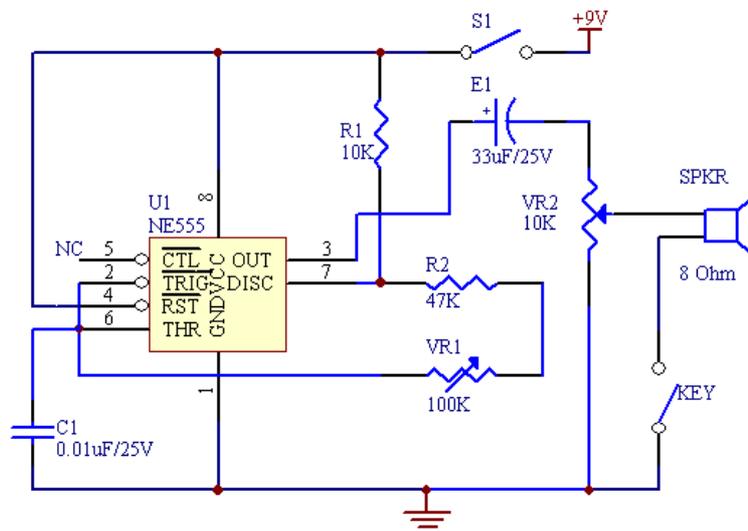
Why you ask? **Why not!** This is a great way to learn!! This is a great circuit to learn from and you will end up with a useful device to keep around the shack. I built mine on a breadboard and then plan on transferring it to a permanent proto board. It's small and runs on 9v battery. The tone and volume are adjustable by trimming VR1 and VR2 respectively. Component values are not critical, if you don't have the exact part try substituting something else and see what happens. If you blow up your 555 chip I'll replace it (while supplies last!).

Parts needed:

Parts List of 555 Code Practice Oscillator Project

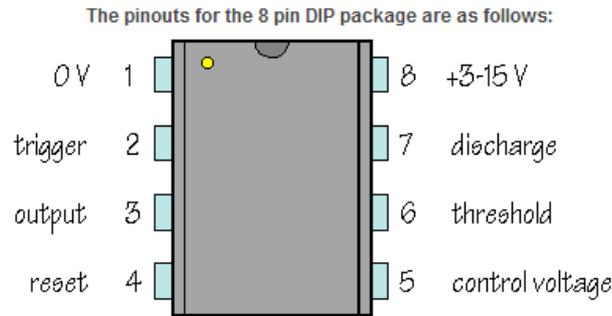
Label	Description
U1	NE555 Timer
R1	10K ohm 1/4W 5% Carbon Film Resistor
R2	47K ohm 1/4W 5% Carbon Film Resistor
VR1	100K Potentiometer
VR2	10K Potentiometer
C1	0.01uF/25V Ceramic Capacitor
E1	33uF/25V Electrolytic Capacitor
SPKR	8 ohm Speaker
S1	Switch
KEY	Key
BAT	9V Battery, Battery Holder

Schematic:



Datasheet for the 555: <http://www.ti.com/lit/ds/symlink/ne555.pdf>

Pin Out of the 555 timer chip:

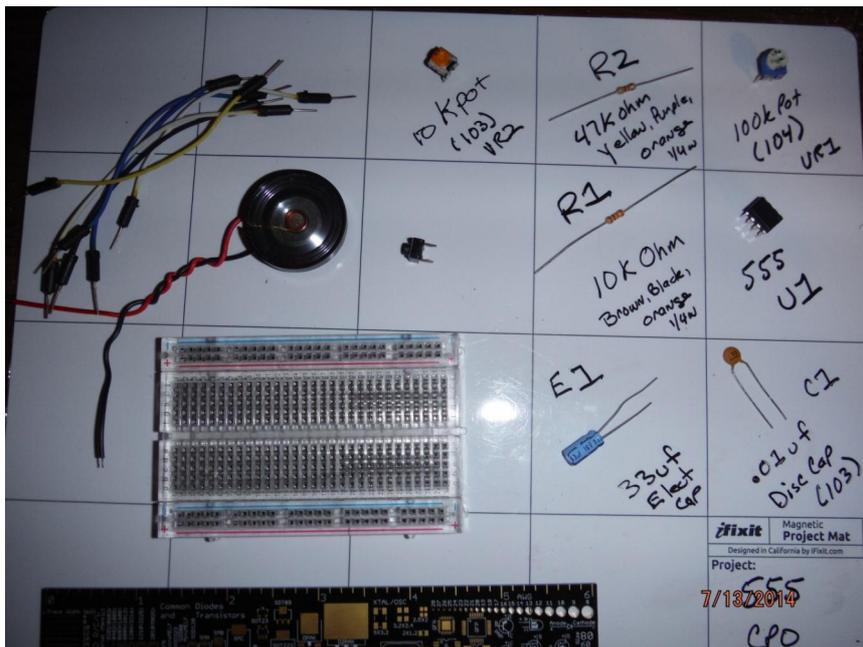


In this schematic, a 555 timer IC is used and configured as a timer in astable mode. Once triggered, it will generate a frequency from its output at pin 3. Once KEY is pressed, it will drive the 8 ohm loudspeaker which is connected in parallel to potentiometer VR2. The astable frequency of circuit U1 is given by the formula of 555 timer as shown below:

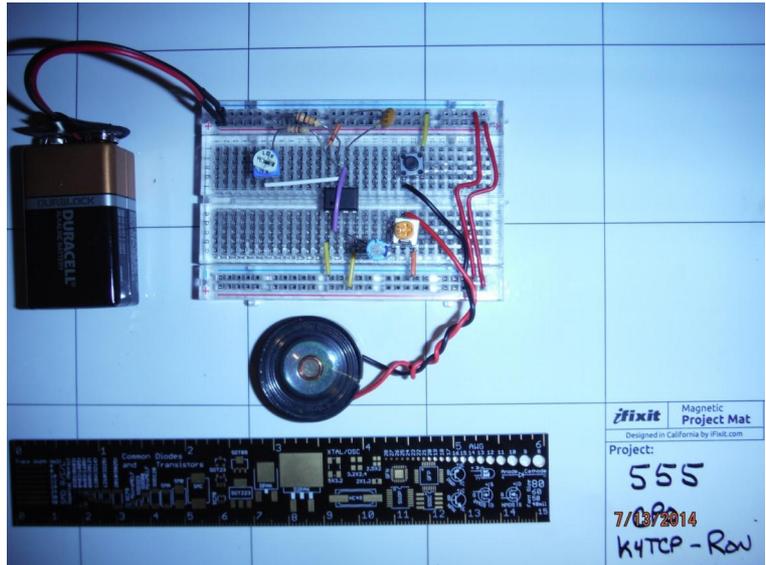
- $f(\text{max})$ when VR1 is set to 0 ohm = $1.44/[10K + 2(47)][0.01\mu F]$
= 1.38 kHz
- $f(\text{min})$ When VR1 is set to 100K ohm = $1.44/[10k + 2(147K)][0.01\mu F]$
= 0.47 kHz

The frequency of the sound can be adjusted by varying the resistor of potentiometer VR1. C1(0.01uf) and R1(47Ohm) plus VR1(0 – 100kOhm) are used to determine the frequency of oscillation as seen in the above formula. E1 acts as a coupling capacitor blocking the DC component of the audio out. The volume of the speaker is adjusted by adjusting the potentiometer VR2 which is connected in parallel with the speaker and the key.

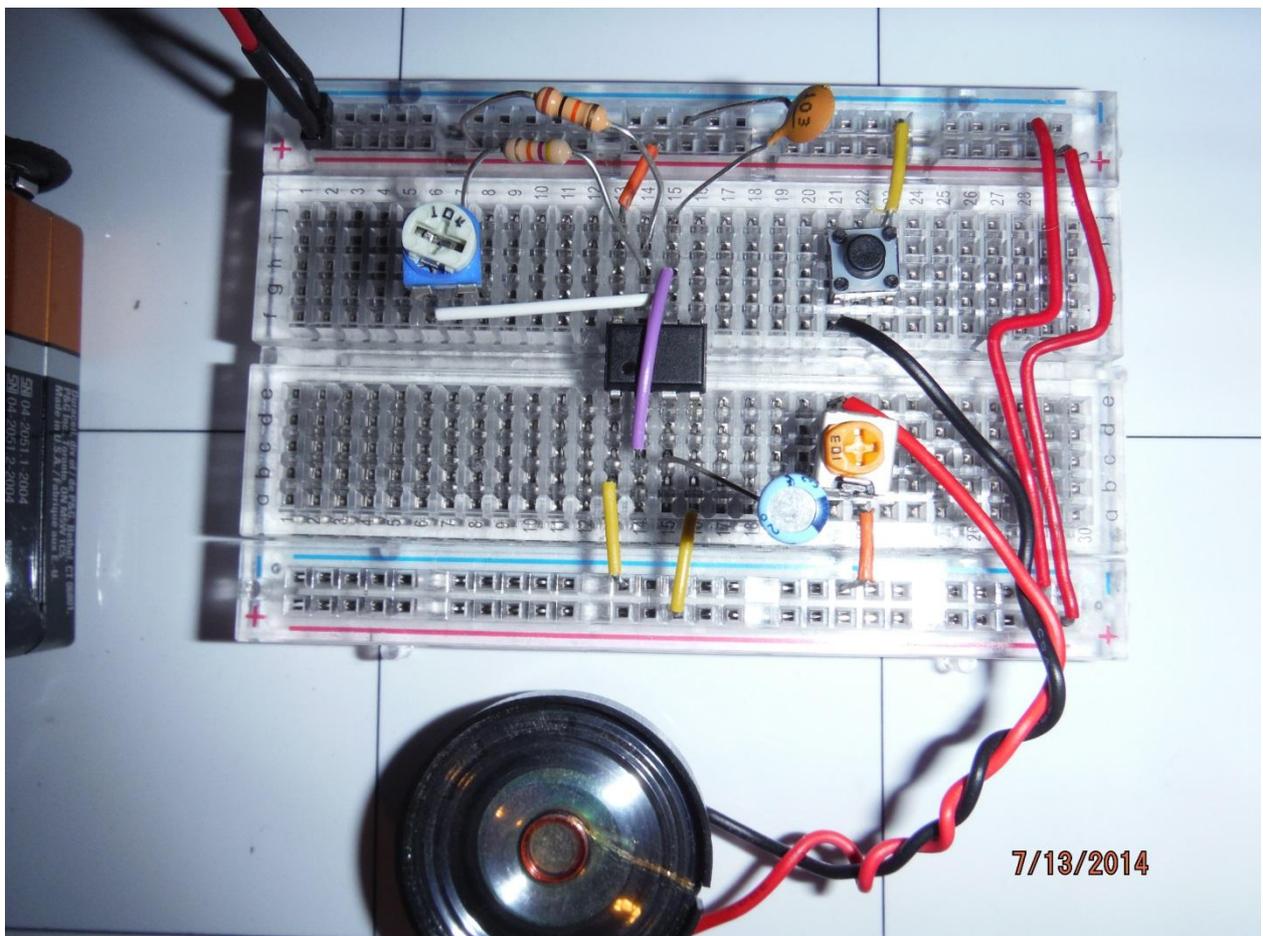
Here I have gathered the parts, bread board and battery. Interestingly most of these parts came right off the 555 PWM circuit I built last month:



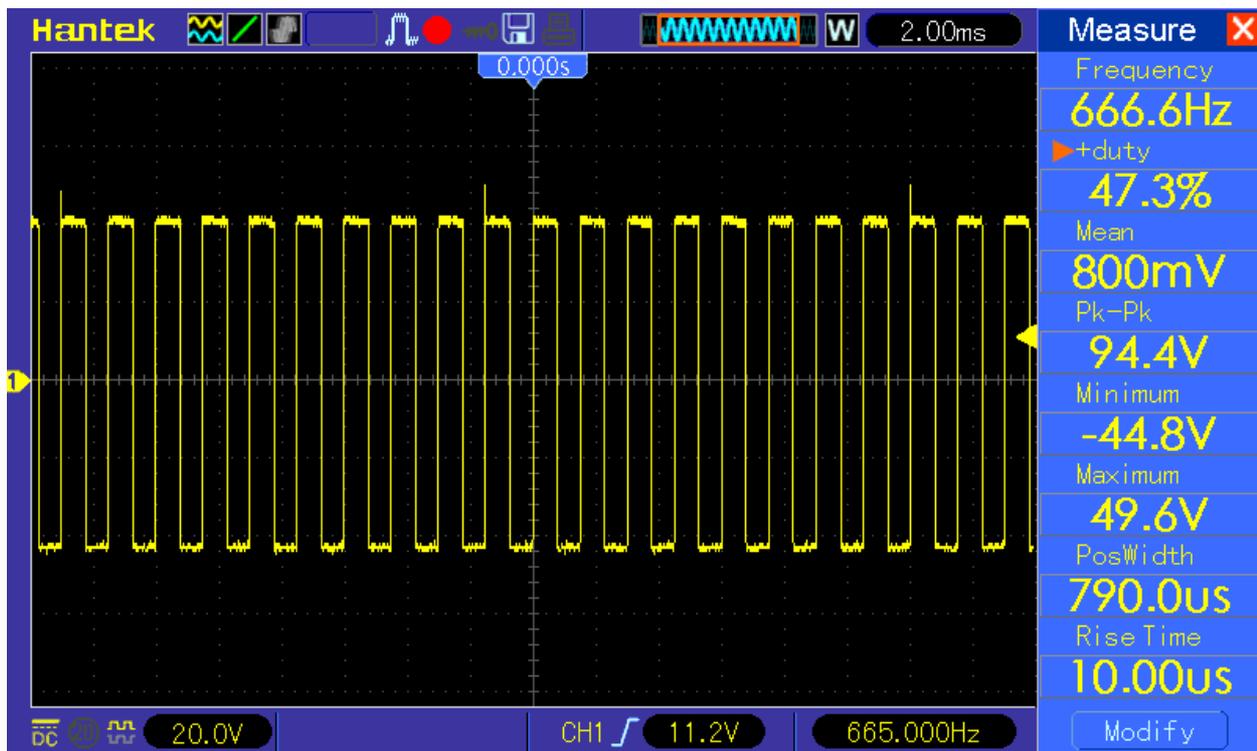
Here is the assembled circuit on my breadboard. Notice, I don't have a key yet so I improvised by using a small tactile push button.



Close up view of the circuit:



For those of you with an oscilloscope you can look at the waveform output. It looks like a PWM signal running at 666.6 HZ:



Last month I mentioned my USB Oscilloscope. The **Analog Discovery** is one of many USB Oscilloscopes on the market. If you do a fair amount of electronics work I would highly recommend getting a digital scope like this or a stand-alone one with digital capability. The one I used last month is excellent for beginning to moderate users. It has a 2 channel oscilloscope and 2 - 8 bit data channels. It is able to decode several serial data protocols like I2C and SPI so it is great for working with Arduinos. It also has a volt meter and an arbitrary wave form generator built in, all powered and controlled by your PC.

This month I am using my stand alone DSO (Digital Storage Oscilloscope). It is a **Hantek MSO5102D** 2 Channel 100MHZ 1GSa/s. It also has a 2 Channel Logic Analyzer like the AnalogDiscovery scope. Great tools if you are on a budget. The Hantek also has the ability to save waveforms and trace data to a USB drive just like the AnalogDiscovery. Handy for documenting your circuit parameters.

Here is a link for the Hantek MSO5102D: http://www.hantek.com/en/ProductDetail_83.html
I found mine on eBay for about \$400 shipping included.

I will bring the CPO prototype to the next Club meeting on 7/21 if anyone wants to see/hear it.

Questions or comments contact:
Ron Davis – K4TCP
Ron.Davis@gmx.us