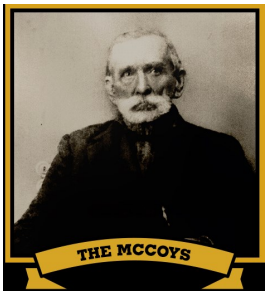
The GroundWire

ISSUE 2013-09

Hatfields vs McCoy or Analog vs Digital



D-Star for Dummies

(That includes me)

Ever since I heard about D-Star it has intrigued me. But I thought the cost of a D-Star radio was a little steep for something to play with.

Bill, Floyd and I took a trip on a Saturday afternoon to see a D-Star Demo in Paris (Main Trading Company), arriving there a little late (actually arriving on FST, that is Floyd Standard Time) and caught the last half of demo. It was so complex that I thought why go thru the trouble and also what's the point in using them for emergency communication in a disaster when the internet would be down anyhow. I left there thinking it seems too complex to fool with anyway.

The ride home took forever; Bill thought it would be fun to go mudding!

Well back to D-Star, when at Belton a ham was tailgating and had an ICOM ID-800h for sale. Got him down around $250 and thought I would give it a try. Got back home hooked it up and could not figure out how to make a call! Time to hit Google, again and again. Must have taken me 2 weeks to figure out how to make a call on the Digital Side. I kept reading for weeks and finally determined that just to make a call it was really not that hard.

It is much easier if you use the software to program the radio. First of all you need to register your call and radio on a D-Star Repeater Site. Each repeater site has a web page to do this and you do it only one time. After that you can setup your radio. There are fields

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for your call sign the repeater/reflector id and the repeater you are on:

Example of local repeater connecting to reflector REF003c (Australian):

Urcall: REF003CL (Which means connect to Australian Reflector)

Rpt1: K5NEM C (The local Repeater)

Ppt2: K5NEM G (Turn on the internet Gateway)

Your call is already programmed into the radio.

When you key the mic you connect the local Repeater to the Australian Reflector. A Reflector is just a group of repeaters. Now you can talk to anyone on the local repeater but also on quite a few Australian repeaters. There are about 60 Reflectors around the world and I don't have a count on the Repeaters.

They tell you its perfect audio…don't let them fool you it's not all or nothing! Sometimes you get R2 (After R2D2 in Star Wars, if you saw the movie you know what I mean) but for the most part is is very good.

The local repeater is connected to the Texas Permalink Network therefore there are other cities in Texas connected at all times.

It is sort of fun talking to someone in Wisconsin, Carolinas, Tyler and South Texas at one time with very good audio quality.

I will be going more in detail at the September club meeting and there can be question and answers (if I know the answers… remember this is D-Star for dummies.)

Barry McCoy

K5BSM

PAC-12 Portable Vertical Antenna

Product Review

Mike Harang, K5MMH, k5mmh@arrl.net

PAC-12 Portable Vertical Antenna

This portable antenna kit goes together easily and offers multi-band operation in a lightweight, compact package.

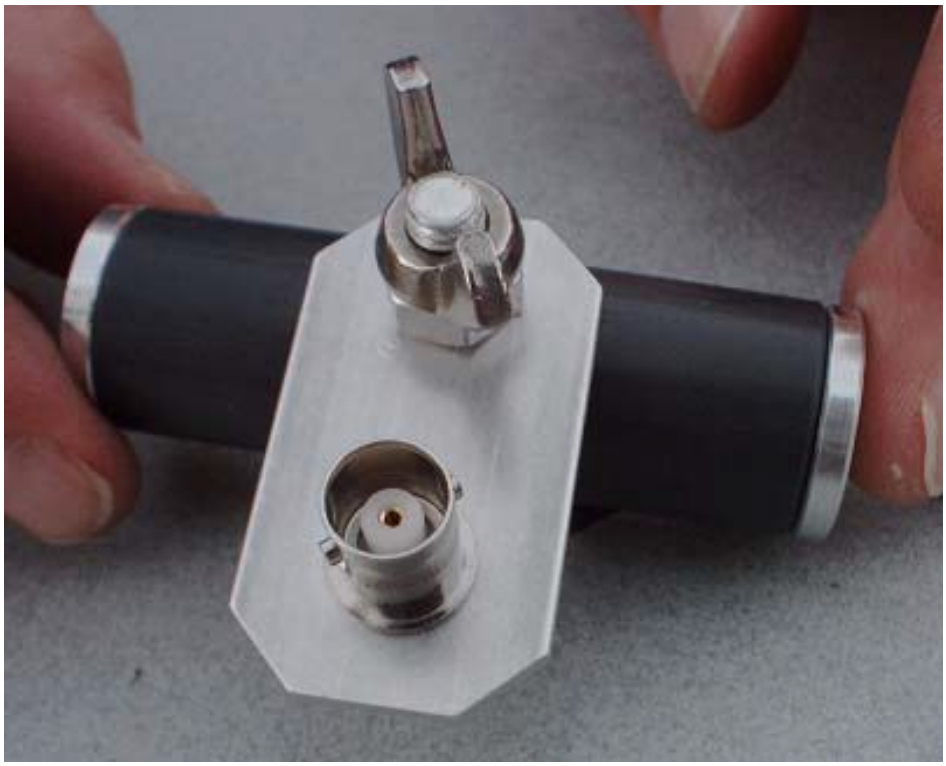
Several years ago, I purchased this antenna kit for it's portability and multiple band options. The PAC-12 website (pacificantenna.com) offers this introduction:

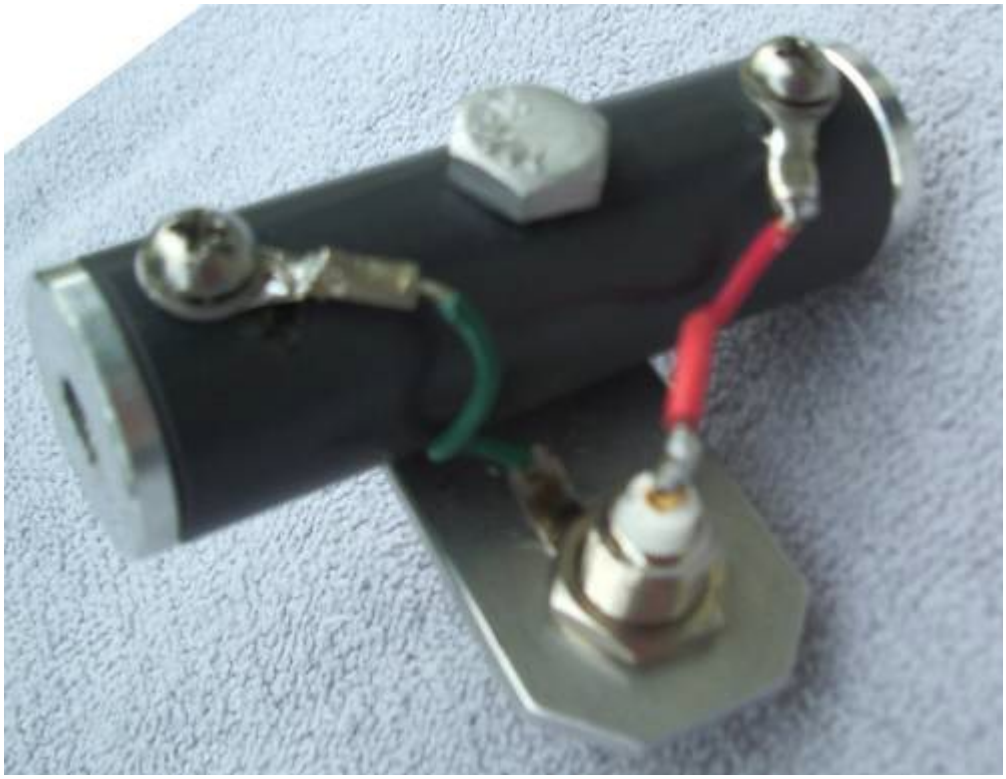
> **PAC-12: The Ultimate Portable Antenna Kit**
>
> **Complete:** The kit includes all antenna components, plus ground coupling radials and spike for supporting the antenna when ground mounted in soft soil or sand.
>
> **Quality:** All components CNC machined for consistent fit and finish. Telescoping whip is stainless construction for strength and lightweight.
>
> **Easy to build:** The kit can be built in 1 to 2 hours requiring only a soldering iron and basic tools and will complete a fully home built portable station.
>
> **Versatile:** Can be configured with single band coils for maximum efficiency or a multi-band, tapped coil for maximum versatility. Coil kits are available to cover all bands from 80 meters to 10 meters plus covers 6 and 2 meters using the telescoping whip only.
>
> **Easy to pack**: Weighs approximately 1 pound and is less than 15 inches long when disassembled.
>
> **Quick Setup:** Can be set up and on the air in 5 minutes or less.
>
> **Proven performance:** Measured at only 0.8dB down from a full size antenna on 20M.
>
> **Fully guaranteed:** Simply, we want you to be happy with your PAC-12 antenna, if not we offer a full refund.

At the time of my purchase, the multi-band tapped coil option was not available, so for this review I'll focus on the antenna using the single band coils. The kit was supplied with parts for the feed point insulator assembly, parts for the 6" coil form (40m or 60m), parts for the 3.5" coil form (10m thru 30m), telescoping whip, mast, and radials. I chose to purchase additional coil form kits so that I would end up with coils for 12, 15, 17, 20, 30, and 40 meters. 10 meters is configured by placing a shorting jumper across a coil, thereby eliminating the coil wire. In the basic kit, the 3.5" coil form is supplied for you to choose a band for it, and the 6" coil form is supplied for the choice of 40m or 60m.

Arrival and Assembly

As with any kit, an inventory should be performed. With all pieces present, construction began following the 12 page Instruction Manual supplied on a mini CD disk. The Feed Point Insulator Assembly was first on the list. No problems were encountered here, and the finished assembly allows connection to a BNC ended feed line, and a wing nut is supplied for the radial connection. Photos of the finished assembly are below for reference.





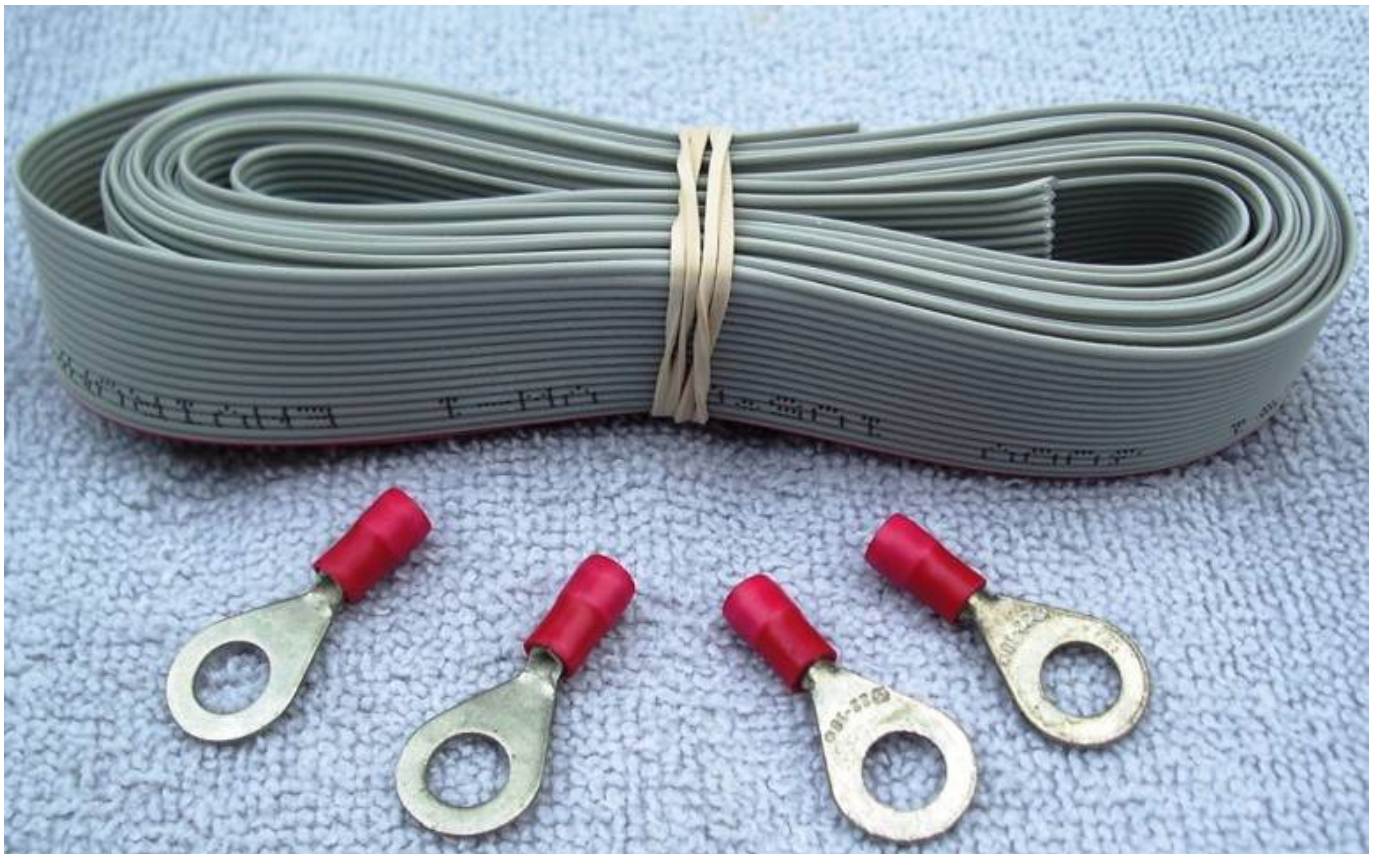
Loading Coil assembly is up next, and again, assembly is easy and straight forward. Before and after photos are shown below.

Pictured above are the loading coils for 17m, 20m, 30m, and 40m (top to bottom). As stated above, the basic kit comes with parts and wire to assemble two coils, one on the 3.5” coil, and one on the 6” coil. You can choose any two bands between 10m and 60m. Detailed instructions are given for each band on the number of needed turns and the correct manner to wind them.

The next component to be assembled is the telescoping whip. This is the easiest section and only requires a set screw to be tightened. Photo below for reference.

Lastly, the radials are assembled. Following the directions, I ended up with 3 bunches of radials (seven conductors total), all 96” (8 feet) in length. Photo below for reference.

PAC-12 Portable Vertical Antenna



Assembling the Antenna

Simple and quick, assembling the antenna is straightforward. The ground spike is screwed into the ground side the Feed Point Insulator assembly. The remaining two 12” rods are connected using the coupling nut. These two pieces are then screwed into the feed point side of the Feed Point Insulator assembly. A loading coil is secured next by adding it to the top most 12” section. And finally, the telescoping whip is screwed into the top of the loading coil. The radials can then be secured to the Feed Point Assembly using the wing nut to fasten the radial ring terminals to. At the operating location, shove the ground spike into the earth and fan out the radials to be separated equally. The final configuration is shown below for reference.

The following note is in the instruction manual: "If mounted above ground, it may be necessary to use resonant radial wires for best performance. The radial kit supplied is intended for close ground mounting and is designed for coupling to the ground under these conditions. When the ground is not present, longer, resonant radial wires will improve performance."

Testing the Antenna

Once assembled and installed in my yard, performance testing began. The testing procedures supplied are as follows: "Assemble the antenna and test for lowest SWR. You may need to collapse up to one full section or more of the whip to achiever a low SWR at the low end of the band. The coil turns specified above will put the SWR minimum at or near the low end of each band. To go higher, you simply collapse the whip. You may need to collapse up to one full section or more of the whip to achiever a low SWR at the low end of the band. If more than one section is collapsed, remove a turn from the coil and retest. Once you are happy with the coil, you can solder the end to a solder lug or just leave it looped under the screw."

I decided to begin testing set up for 12 meters. With the correct coil installed and the whip fully extended, I set my MFJ 259B SWR tester on 24.910 mhz and started testing.

Initial reading was: 24.910 mhz , SWR 1.6 , R=27 , X=0 , Resistance ~ 27 Ω

After lowering the whip from it's fully extended length of 72 ¼" down to 66 ¾", the MFJ revealed this reading:

24.910 mhz , SWR 1.0 , R=50 , X=0 , Resistance ~ 50 Ω

As the add says, " It just doesn't get any better than this".

I then proceeded to test each band in sequence, next up was 15 meters. Here are the results for each band:

10m - not measured
12m 24.910 mhz , SWR 1.0 , R=50 , X=0 , Resistance ~ 50 Ω , whip length 66 ¾"
15m 21.050 mhz , SWR 1.0 , R=65 , X=0 , Resistance ~ 60 Ω , whip length 59 ¼"
17m 18.080 mhz , SWR 1.1 , R=70 , X=0 , Resistance ~ 70 Ω , whip length 55 ¾"
20m 14.040 mhz , SWR 1.1 , R=64 , X=0 , Resistance ~ 60 Ω , whip length 68 ¼"
30m 10.110 mhz , SWR 1.0 , R=60 , X=0 , Resistance ~ 50 Ω , whip length 70"
40m 7.040 mhz , SWR 1.1 , R=45 , X=6 , Resistance ~ 50 Ω , whip length 60"

I found it handy to make a simple string marker to allow easy adjustments to the whip length without need for a tape measure. Using a small plastic cap with the string attached, place the cap on top of the whip, and tie knots at each point that corresponds to a band. Mark each knot with it's band and it's a snap to adjust. Any further mis-match would be easily handled by the ATU in the rig. Remember YMMV (your mileage may vary) applies.

I've used this antenna recently to contact a H7Ø and an OK6 on 20m using 5 watts CW

So, for $75 shipped, the multi band vertical antenna reviewed here works pretty well considering the configuration. If lightweight, portable, east setup is something you are desiring, the PAC-12 might just fill the need.

Till next time,

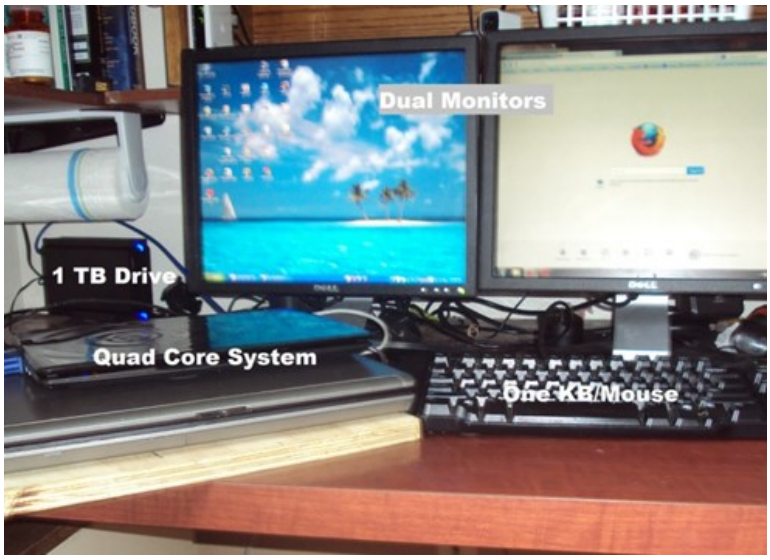
73 es Best DX,

Mike
K5MMH

The Soft Side

Not all of Amateur Radio is hardware. There is software involved also. There are tons of software out there and some are not as well known as others. I often have strange needs and find different software to meet those needs. Thought I would share one of my most under rated, highly useable FREE software goodies I know of called Synergy (http://synergy-foss.org/). Wikipedia defines the software as:

> **Synergy** is a software application for sharing a keyboard and mouse between multiple computers. It is used in situations where several PCs are used together, with a monitor connected to each, but are to be controlled by one user. The user needs only one keyboard and mouse on the desk — similar to a KVM switch without the video.



"I remember the day when one computer was all we had". Now days we have a laptop, desk top, maybe two. Working with all of them is a mess, especially when you don't grab the right keyboard. Synergy allows one to create a virtual monitor system with multiple computers.

You may have heard I just bought a new desktop for my development work. I had been contemplating getting an upgrade as my current desktop was four years old and I really want to make the jump from XP to Windoze 7. Mother Nature helped me decide the timing with a power surge taking out two desktops at once. I ordered a quad core 4G system and I am now waiting for that bad boy to arrive from Dell. Unfortunately clients don't like the phrase "I'll be back in a week". So I built my own "Quad Core" system sitting to the right. It's a quad core, dual boot, dual monitor system with 1.5TB of storage. Well, kinda, sorta. It's a dual core net book on top of a dual core laptop, each hooked to its own monitor. On the left is an XP System and Win 7 on the right. Full size keyboard (the one I am very used to) and mouse are hooked to the laptop on bottom. Synergy is loaded as a master on the laptop and a slave on the net book. It now looks and feels like the standard two monitor system I have been driving for years. The right primarily serves as terminal for Linux and internet serving, the left for win-dozing.

This works surprising well. I have a two monitor system for the most part. No, I can't pull a window from the left to the right, but I can cut and paste text across windows. That feature, in and of itself, is precious enough to justify setting up the software. By setting up file sharing on one of the boxes, you could even share the same disk space. In my case I share a common drive on my Linux server.

When I first got the net book a few weeks ago, I loaded synergy and put it beside the development system on its own monitor. I could move my mouse to the net book and keep on working. I have had it hang when one of the computers pulls up a dialog box. Sometimes I have to reach to the slave and clear a hang on its keyboard / touch pad, but that is rare. All and all it's a handy package. If you fly multiple boxes this is the way to go. Looks like It will support up to 15 monitors in a 3 x 5 grid. Sure beats juggling 15 keyboards or a mechanical switch. Just move the mouse and your eyes from screen to screen.

Don't let the bedbugs byte – de KX5G ..

Financial Report ... August, 2013

August-13	Income	Expense	Balance	Petty Cash
General Fund				
Beginning Balance 8/1/2013			$873.11	
INCOME/EXPENSE				
Dues Income-2013				
ARRL Renewal Income-2013				
Transfer From Matl. Property				
Tranfer Petty Cash income				
TOTAL INCOME	$0.00			
EXPENSES				
TOTAL EXPENSES		$0.00		
TOTAL INCOME/EXPENSE	$0.00	$0.00		
Ending Balance 8/31/2013			$873.11	
Special Events Fund				
Beginning Balance 8/1/2013			$140.14	
INCOME/EXPENSE				
Trans from General Fund				
TOTAL INCOME	$0.00			
EXPENSES				
TOTAL EXPENSES		$0.00		
TOTAL INCOME/EXPENSE	$0.00	$0.00		
Ending Balance 8/31/2013			$140.14	
Material Property Fund				
Beginning Balance 8/1/2013			$2,320.83	
INCOME/EXPENSE				
Dues Income-2013	$0.00			
EXXONMOBIL donation	$500.00			
Transfer from General Fund				
TOTAL INCOME	$500.00			
EXPENSES				
Transfer to General Fund				
TOTAL EXPENSES		$0.00		
TOTAL INCOME/EXPENSE	$500.00	$0.00		
Ending Balance 8/31/2013			$2,820.83	
August Balance	$500.00	$0.00	$3,834.08	

2013 Board Members

President

Mike Harang (K5MMH)

Vice-President

Bill Ellis (N5TXN)

Treasurer

Jerry Keltner (KB6OJE)

Secretary

Pat Roberson (KB5YPP)

Directors

Paul Dryer (KD5IVP)

Rick Ellis (KJ5UY)

Lester Wong (K5ITO)

Committee Positions

Repeater Trustee

Johnny Roberson (KJ5LB)

Repeater Committee Chair

Mike Harang (K5MMH)

Newsletter Editor

Bill Ellis (N5TXN)

Web Master

Bruce Holt (KG1BAH)

MN²

Monday Night Net

Net Time 8:00PM

147.060(+) Primary

Minutes of Board Meeting ... August 6, 2013

The meeting was called to order by Mike (K5MMH) at 6:30 pm.
Invocation was given by Rick (KJ5UY).
Executive Board members present:

Officers	**Directors**
Mike Harang (K5MMH)	Lester Wong (K5ITO)
Bill Ellis (N5TXN)	Paul Dryer (KD5IVP) – not present
Pat Roberson (K5YPP)	Rick Ellis (KJ5UY)
Jerry Keltner (KB6OJE) – not present	

Guests: Johnny (KJ5LB), James (KF5RBN), Floyd (KC5QBC).
Minutes: Motion to approve as printed in the Groundwire by Rick (KJ5UY); Motion 2nd by Les (K5ITO). Motion approved.
Treasure Report Motion to approve as printed in the Groundwire, with addition of $500.00 from an Exx-on grant, by Les (K5ITO); Motion 2nd by Rick (KJ5UY). Motion approved.

COMMITTEE REPORTS

Repeater: $59.68 was spent on parts to repair primary & backup controllers. Johnny (KJ5LB) and Floyd (KC5QBC) reported on current status of the backup: (1. Need a site with height for testing and use. (2. Need to be able to turn on and turn off remotely. (3. Need a balanced set of notch filters to separate input and output.
VE Session: none
EOC: NCTCOG offering COML course on Sept 23-25, 2013 (All Hazards Type III Comm. Unit Leader. If interested contact Mike (K5MMH).
Membership: Nothing to report.
Net: Ten persons checked in to the net on the 440 machine. Thanks to James (KF5RBN) for serving as net control.
Web: see old business.
Groundwire: Front page article for August may be done by Barry – (K5BSM).
The August Program: Field Day 2013 program by Rick Ellis (KJ5UY).

OLD BUSINESS

SWDCARC WebMaster – As of Aug. 05, Bruce Holt (KG1BAH) has new work, and will be able to assist with website changes more readily.
James (KF5RBN) reported the Saturday Fox Hunt was won by Jimmy (KB5WIO) and Gene (N5PKZ).

NEW BUSINESS

1. Exxon Mobil Grant of $500.00 received as a result of volunteer work done by Jerry Keltner (KB6OJE).
2. Ben (K5NEB) will conduct Tech. training classes Sep. 7, 14, 21 at the G.P Law Enforcement Cen ter. If interested, contact Ben to reserve your spot.

ADJOURN: Motion Rick, KJ5UY at 6:55 pm.

General Membership Meeting ... August 20, 2013

The meeting was called to order by Mike (K5MMH) at 6:32 PM.
Invocation was given by Johnny (KJ5LB).
Executive Board members present:

Officers	**Directors**
Mike Harang (K5MMH)	Lester Wong (K5ITO)
Bill Ellis (N5TXN)	Paul Dryer (KD5IVP)
Pat Roberson (KB5YPP)	Rick Ellis (KJ5UY)
Jerry Keltner (KB6OJE) - absent	

Guests: none
Minutes: Motion by Paul (KD5IVP) with 2nd by Floyd (KC5QBC). Approved.
Treasure Report: Motion by Johnny (KJ5LB) with 2nd by Floyd (KC5QBC). Approved.

COMMITTEE REPORTS

Repeater: The 2 meter output seems to be normal. ID is still a long string.
Backup Repeater: Still searching for a site to house the unit. Wayne (KE4SGS) contacted interim Fire Chief Sam Rohde who does not foresee a problem with the backup repeater being located in the tower at Armstrong Park in Duncanville. Johnny (KJ5LB) will get with Chief Rohde to check out the site. Also, would like for Larry (KY5S) to check out the Duncanville Fire Dept. E .O.C. antennas, etc. It was noted that the club needs to supply good notch filters for the backup.
VE Session: None, the last scheduled session was a 'no-show'.
EOC: no reports.
Membership: No new members.
Net: Three checked in on the 440 machine. Thanks to James (KF5RBN) for serving as net control.
Web: Bruce (KG1BAH) is still in a job transition. Will get to needed modifications as soon as possible.
Groundwire: Front page to be submitted by Barry Mc Coy (K5BSM).

OLD BUSINESS

Backup Repeater – Still need site to house equipment, need remote control capabilities, and good notch filters. Other possible sites to investigate are in Glen Heights and DeSoto.

NEW BUSINESS

Ben (K5NEB) will conduct Tech. Training classes Sep. 7, 14, 21 at the G.P. Law Enforcement Center. The class is full!

ADJOURN: Motion by Floyd (KC5QBC)

Program : Field Day 2013 Wrap-UP presented by Rick Ellis (KJ5UY).