www.wvara.org November 2016

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

November Meeting

Building a Comms Network from Scratch
By Kenneth Finnegan, W6KWF

Wednesday November 9
Meeting Starts at 7pm

Meeting Location:
American Red Cross,
Silicon Valley Chapter
2731 N. First Street at Plumeria Dr
(southwest corner) in San Jose

Map at www.wvara.org/meetings.html

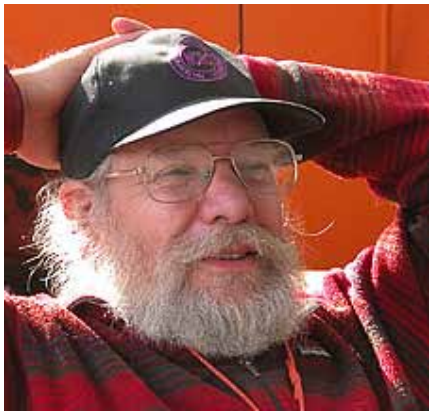
WVARA Repeaters (W6PIY)		
Band	**Frequency**	**PL**
6 Meters	52.580- MHz	151.4 Hz
2 Meters	147.39+ MHz	151.4 Hz
1.25 Meters	223.96- MHz	156.7 Hz
0.70 Meter	441.35+ MHz	88.5 Hz
0.23 Meter	1286.2- MHz	100 Hz

Club Net

WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net script can be found at www.wvara.org/net.html .

Visitors Are Welcome!

President's Letter



Getting the Message Through

A month ago I taught the communications section at a cave rescue seminar. Communications in cave rescues has some significant problems. Radios generally don't work in caves, so the usual solutions are either runners carrying messages or running wires for a wired phone system. Runners are slow, and setting up a phone wire takes time. It seems like a very different situation from a radio contact, but there are many important similarities.

In cave rescue, we teach the usual techniques for getting the same message to come out of the communication system as went in to it: Write the message down, Read the message back, and Use the phonetic alphabet. I started thinking about these methods and they seem to divide into three areas: Error reduction, Error detection, and Transmission recognition.

Writing the message down leads to error reduction. The message is less likely to be changed with a written copy in front of the communicator.

Read-backs are an error detection system which checks that the message was actually correctly received. Word counts are another error detection system. Detection can lead to error elimination.

The phonetic alphabet performs a different role. By reducing the number of different words likely to be transmitted to less than 50 (letters, numbers, and a few others), it becomes easier to recognize which one of that small number of words is being sent. A small vocabulary helps an operator in really horrible reception conditions, like sitting next to a waterfall in a cave, operating during a parade, or loud static crashes on a radio.

One of the exercises I used during the seminar was to have the students send a message from in the cave to the surface about a patient's condition and the equipment needed for stabilization and treatment. I wanted the message to include some words the students had never heard before, so I included two pieces of needed equipment, one in Chinese and one in German. The students didn't have to understand these words, they just had to get them through unchanged. At the end of the exercise, we compared the received message with the one sent. A few groups even got it right, but many had at least one error. Getting it right every time is the standard that should be our target.

On the air, hams are acting as communicators, and they have the same need for message integrity as cave rescuers do. During contests, the call sign and exchange need to be correctly transferred, or the contact will not be allowed. Working DX requires at least the exchange of call signs and a signal report. If the call sign isn't right, a QSL request will receive a "not in log" response.

The need for accuracy becomes even more important for ARES/RACES emergency communicators. ARES/RACES operators can use the same techniques to get the message through. During training, they can also use the technique of passing test messages and comparing the input with output. In addition, as amateur radio operators, they have frequent opportunities to practice getting it right by entering contests and then using the log checking reports to see how well they did.

Getting the message through correctly is an important part of ham radio operation.

73 Bill AE6JV

Future Events - FARS Annual Winter Banquet

We have been invited to join the Foothill Amateur Radio Society (FARS) for their annual winter banquet on **Friday, January 20, 2017** at Michael's restaurant in Shoreline park. I had a lot of fun last year and intend to go again this year.

The speaker will be Dr. Robert Schmieder, KK6EK, who will talk about the VK0EK Heard Island DXpedition. FARS Board approved $1,500 of raffle prizes to be given away. The banquet is open to all hams and significant others.

The FARS web site has a banquet page at http://www.fars.k6ya.org/events/banquet. Signups can be either online, using Paypal/credit card, or by USPS mail.

73 Bill AE6JV

Meeting Topic

Building a Comms Network from Scratch
By Kenneth Finnegan, W6KWF

At this week's meeting (7pm on Wednesday, November 9), Kenneth Finnegan, W6KWF, will tell about how he went about building a communications network from scratch for the Wildflower Triathlon. The Wildflower Triathlon is one of the world's largest triathlons and requires an extensive communications system to smoothly run every year. Despite being located at Lake San Antonio where there's only one cellphone tower and a single amateur radio repeater in-range, the Cal Poly Amateur Radio Club and its alumni took on the challenge and deployed a communications system with a half dozen voice repeaters, an entire insular APRS network, and a multi-console computer-aided dispatch center. Kenneth will walk us through how his team designed and implemented this amazing system.

Kenneth was originally licensed in 2008 while attending UC Davis studying mechanical engineering. After graduating with his BS, he attended Cal Poly, SLO where he earned an MS in electrical engineering and became involved in the Cal Poly Amateur Radio Club. (So involved that his masters thesis ended up being related to amateur radio: “Examining Ambiguities in the Automatic Packet Reporting System”.)

Meeting Location: Meeting Room 5 at the Silicon Valley Chapter of the American Red Cross, 2731 N. First Street at Plumeria Drive (southwest corner) in San Jose. Most of us come in through the side entrance on the southwest side of the building — look for our red WVARA sign. And of course, visitors are welcome!

If you haven’t been to the Red Cross, “talk-in” is usually available on the Association’s repeaters. Best choice would be 2m/220.

NEW DINNER LOCATION: And for those who are hungry, several of us will be eating dinner at 5:50pm, just prior to the meeting, at ***Panera*** at 4180 North 1st Street. It’s located 2.3 miles north of the Red Cross Building — a short 10 minute drive.

Hope to see you there!
Jim Peterson, K6EI

Ham Crams

The ham cram will be Nov. 12 in the Los Gatos Emergency Operations Center starting at 8:00 AM. People interested in attending should contact Peter Hertan, K6PLH <phertan at alum.mit.edu>. There will be a license exam session starting at I think 4:00 PM as part of the ham cram.
73 Bill AE6JV

Amateur Radio Parity Act

From my own personal experience many of you have shown your support for this legislation in the past. Thank you! We’re making great progress and the time has come again for my to ask for your support.

We have an opportunity to positively affect Amateur Radio for years to come. H.R. 1301, the Amateur Radio Parity Act, has unanimously passed the House of Representatives and moved on to the Senate for consideration. All you need to do is spend two minutes of your time to send an email to your two Senators supporting the Bill. By doing so, you will have helped the future of Amateur Radio by guaranteeing our ability to have an effective outdoor antenna in a deed-restricted community.

The number of people living in such communities grows exponentially each year. Often, a ham homeowner has no choice but to live in a community restricted by covenants. There are nearly 3/4 of a million licensed hams in the United States, more than ever before. But that may change if we are forced to live in a community that refuses to allow an antenna.

Help yourself and help your fellow hams. Go to this link:
https://arrl.rallycongress.net/ctas/urge-senate-to-support-amateur-radio-parity-act

Enter your zip code and follow the prompts. The letters are there.
All you need to do is fill in the blanks, hit save, then send.

That's it. Under 2 minutes and you're done.

If you haven't yet done so, please do so today. Your voice counts!

ARRL Santa Clara Valley Section
Section Manager: Brandon J Bianchi, NI6C
ni6c@arrl.org

WVARA Net Check-Ins (W6PIY)						
Tuesdays at 8:30 PM						
Call Sign	**Name**	**10/04/16**	**10/11/16**	**10/18/16**	**10/25/16**	**11/01/16**
Total		**15**	**15**	**14**	**12**	**15**
AB6XS	Kevin		X	X		
AE6JV	Bill	X				
AF6AE	Bill			X		X
AG6YO	Kevin	X				X
AI6FN	Jin			X		
K6BIB	Bodan	X				X
K6BRF	Bert	X	X		X	
K6KWW	Kent		X	X	X	
K6QFO	Mike		X	X		
K7RJV	Rex	X	X			X
KD6VOR	Marv			X		
KF6EMB	Svend	X	X	X	X	X
KI6SLX	Peri	X				
KJ6ZZI	Michael	X	X		X	X
KK6VF	Kevin	NET	NET	NET	NET	NET
KK6WRP	James		X			
KM6AMQ	Matt	X	X	X	X	X
KS6PD	Steve			X		X
N6AIR	Robert					X
N9CU	Andy	X	X	X	X	X
NT6S	Tom					X
W6ESL	Tom	X	X		X	
W6IA	Mark	X	X	X	X	X
W9KKN	Bill	X	X	X	X	X
WB6KHP	Dave	X	X	X	X	X
WR3K	Greg				X	

QRP as Work/Life Balance

From Daniel, WB4RFQ's Blog at http://fine.business

At my company, work/life balance is a frequently discussed subject. Although the software engineers probably have the worst time of it, it's an issue that most of us face. Late nights and weekend work are the norm for a lot of my coworkers.

I believe that people who have problems with work/life balance have made a choice -- for their careers, for money, or for personal satisfaction -- that can often lead to resentment in hindsight. I've been that guy, but that's not how I operate today. These days, I find I'm able to put in my best work by breaking up the work day into periods of intense focus, with occasional breaks where I do something else -- anything **but** work.

I love my job. I get to play with cutting edge hardware that's changing the datacenter industry. I get to work with and learn from wicked smart people. More importantly, I get to spend most of my time doing the stuff I'm good at doing.

If you work with me, you'll often see me eating lunch at my desk. Those are the days when you likely **won't** see me later that afternoon. I'll block off an hour on my calendar, grab my backpack, and head out to the nature trail that runs around the perimeter of my office campus.

My bug-out bag: radio, antenna, tuner, rope, and everything else I need to make a few contacts on my break.

There's this one spot on the trail where there's a nice tall tree, with branches that are just right for catching a rope thrown with a lead weight on the end of the line. In short order, I can have an end-fed wire antenna up about 40 feet in the air in a sloper configuration.

60 feet of copper clad steel, supported in the top branches of that blurry tree in the background.

Once the antenna is in the air, I attach the near end to the 5:1 transformer needed to bring the wire's impedance down to a range that my tuner can easily cope with. I tie this end off to another tree at eye level so that the whole antenna is off the ground.

I really like this antenna. It's simple, easy to set up, and can be set up in a variety of configurations: sloper, inverted L, or even hanging out the window of a tall building. As with all end fed antennae, it works better if you attach a counterpoise to provide a reasonable ground plane. Here, I'm just using a long piece of wire clipped on to the ground terminal of the transformer. The counterpoise runs in the same direction as the antenna wire. Some brief tests indicate it doesn't really matter which direction the countepoise runs.

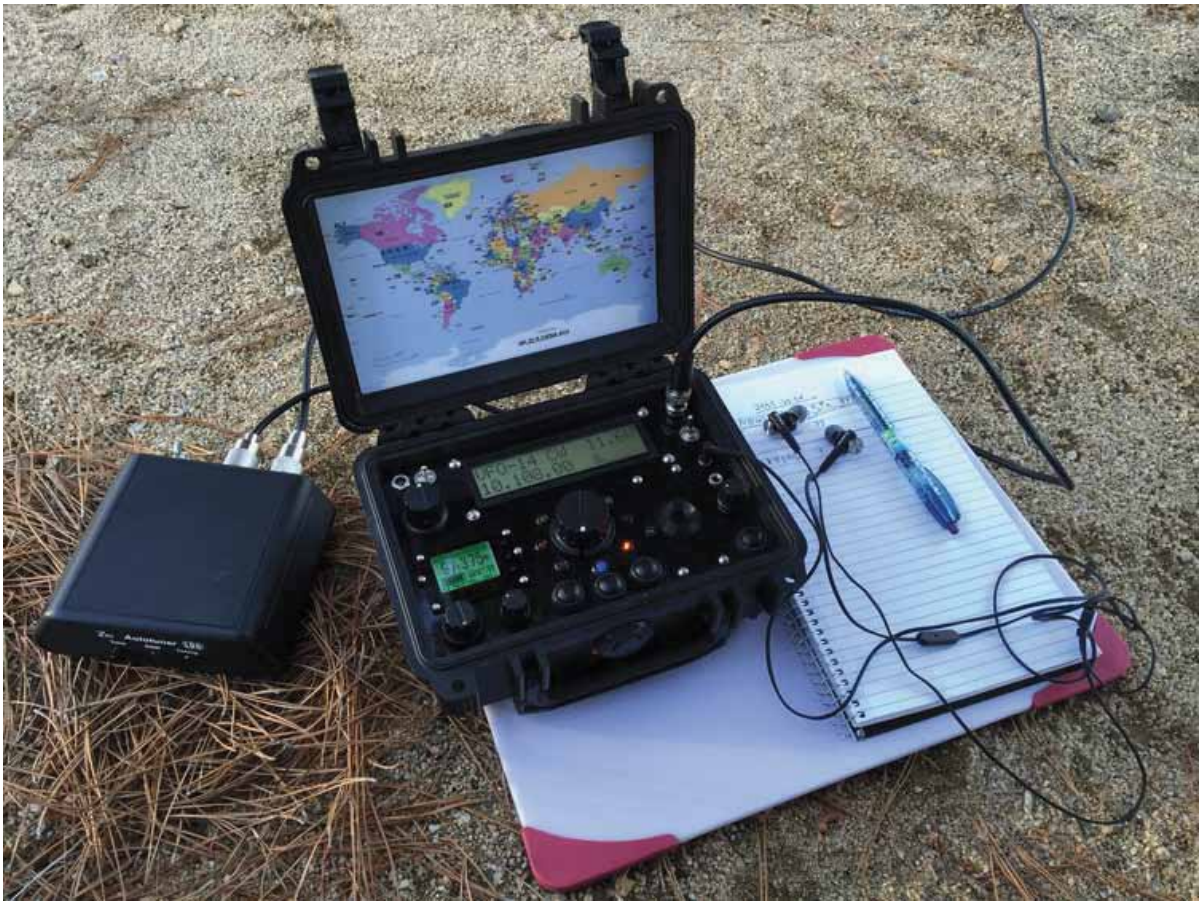
After the antenna is deployed, I connect a 50 foot length of coax to the antenna and run it along the ground to my operating position -- about 35 feet from the antenna. The long coax acts as a second counterpoise, which means there's RF on the shield of the coax. That's OK, but I've found it sometimes does funny things to the sidetone of the radio. For this reason, the coax has a series of toroid chokes on the radio end, effectively damping any stray RF before it gets into the radio.

The counterpoise (red alligator clip) is attached at the bottom of the transformer.

The rig I keep at work is a heavily modded YouKits HB1B 5-band CW-only transceiver. It was built by Hanz, W1JSB, under his excellent RadioSet-GO brand. The rig contains almost everything needed to get on the air quickly: 4Ah of battery, integrated touch paddle and keyer, and other major improvements on the stock HB1B. It covers the 40, 30, 20, 17, and 15 meter bands, and can also receive single sideband in a pinch. It spits a whopping 4 watts into the antenna.

The "everything in a Pelican case" philosophy behind this radio means I don't have to carry, remember, or set up a bunch of peripherals. All I technically need is the radio and an antenna, and I'm good to go.

If I could add one feature to this rig, it would be a built-in tuner. I doubt there is room in the tiny enclosure to add the needed boards. Instead, I carry the excellent battery powered LDG Z817 tuner, and connect it inline. I only need to touch it when I change bands.



Working conditions.

Elapsed time from walking out the office door to first CQ is about 15 minutes. This leaves me the better part of an hour to wrangle a Q or two out of the ether. I almost always make at least one contact, usually two. 40 and 15 meters are the most reliable bands for me.

So far, my farthest contact using this setup has been Iowa. Most of my contacts have been within a few hundred miles of the office. I'm used to hunting DX contacts thousands of miles away, but so far, that hasn't happened using this portable QRP setup.

/ 160m / 80m / 40m / 30m / 20m / 17m / 15m / 12m / 10m / 6m / 2m

world wide / zoom to US / zoom to Europe / zoom to North Atlantic

show/hide my last filters

showing spots for DX call: WB4RFQ

search spot by callsign

rows to show: 100

de	dx	freq	cq/dx	snr	speed	time
NC7J	WB4RFQ	10109.0	CW CQ [LoTW]	10 dB	21 wpm	2345z 04 Dec
W0LFA	WB4RFQ	10109.0	CW CQ [LoTW]	8 dB	21 wpm	2345z 04 Dec
KO7SS	WB4RFQ	10109.0	CW CQ [LoTW]	10 dB	21 wpm	2345z 04 Dec
WA7LNW	WB4RFQ	10109.0	CW CQ [LoTW]	14 dB	21 wpm	2345z 04 Dec
K7EG	WB4RFQ	10108.0	CW CQ [LoTW]	8 dB	21 wpm	2339z 04 Dec
AC0C	WB4RFQ	10108.0	CW CQ [LoTW]	6 dB	21 wpm	2338z 04 Dec
W0LFA	WB4RFQ	10108.0	CW CQ [LoTW]	4 dB	21 wpm	2338z 04 Dec
NO1D	WB4RFQ	10107.9	CW CQ [LoTW]	8 dB	21 wpm	2338z 04 Dec
WA7LNW	WB4RFQ	10108.0	CW CQ [LoTW]	15 dB	21 wpm	2337z 04 Dec
KO7SS	WB4RFQ	10108.0	CW CQ [LoTW]	10 dB	21 wpm	2337z 04 Dec
NC7J	WB4RFQ	10108.0	CW CQ [LoTW]	10 dB	21 wpm	2337z 04 Dec
AC0C	WB4RFQ	21029.0	CW CQ [LoTW]	30 dB	21 wpm	2327z 04 Dec

A sample of where I was heard today.

That's actually just fine. To me, it's still pretty damn amazing that I can sit on a rock with this tiny radio and talk to people two time zones away, with the ionosphere as the only suppoting infrastructure.

Once I've made a couple of contacts, it's time to pack up and get back to work. Tear down time is about ten minutes.

After sitting in nature, talking to distant old men using patterns of beeps (Morse Code, y'all), I

feel refreshed and relaxed. I can look forward to spending the rest of the day staring at a computer screen, because I've given myself time to unplug and do something totally different for a while.

Everyone creates balance between work and downtime somehow. I think a lot of folks do it in a multitasking fashion: work for a bit, browse YouTube or read the news, alt-tab back to work for a bit, and so on. My own experience is that if I do it that way, I lose the flow of what I'm doing for work, and the little bursts of personal time aren't that rewarding. Playing radio is a nice counterpoise to the focused (and highly instrumented) work periods I enforce for myself.

2016 West Valley Amateur Radio Association Board

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