www.wvara.org March 2013

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

March Meeting

"Build Your Own Transistor Radios" by Ron Quan, KI6AZB

Wednesday March 13
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

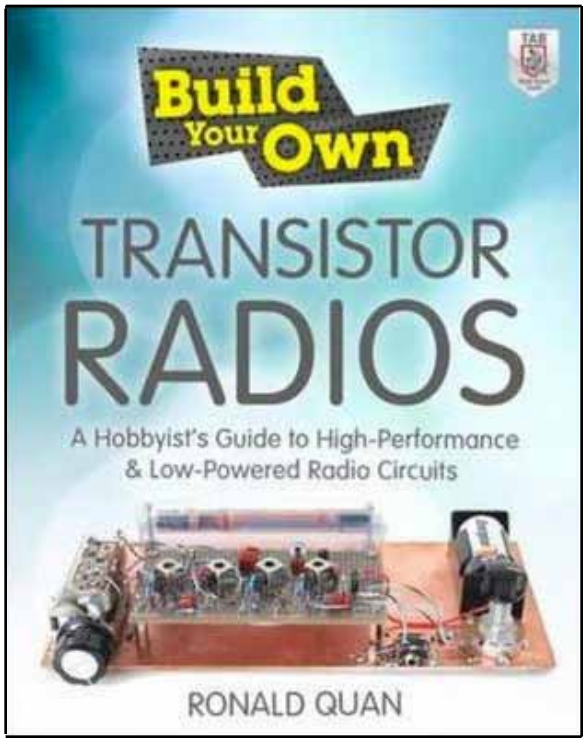
WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net script can be found at www.wvara.org/net.html .

Visitors Are Welcome!

About the Presentation

Ron Quan, KI6AZB, will be speaking about how to choose components, construct different types of radios, and troubleshoot your work. Ron recently published a really great book that any do-it-yourself type will enjoy: "Build Your Own Transistor Radios: A Hobbyist's Guide to High-Performance and Low-Powered Radio Circuits". His book has lots of step-by-step do-it-yourself weekend projects for the average ham, along with explanations on how the radios were designed. Visitors are welcome.

In addition to being a ham, Ron Quan is a member of SMPTE, IEEE, and the AES. He worked on the design of wide band FM detectors for HDTV tape recorders at Sony, and a twice-color subcarrier frequency NTSC vector-scope at Macrovision where he was a Principal Engineer. Ron currently holds 65 US patents. Hope to see you there - Jim K6EI.



Growing an Antenna Window Box Toward a Farm
by Bill Frantz - AE6JV

Having come to the conclusion that I was missing a lot of HF operating with only a 20 meter inverted V on a 44 foot tower and a 10 meter copper pipe vertical with an aluminum screen ground plane on the roof, I decided to start implementing my long range dream of covering my suburban lot with wire. The DX Engineering 8 way antenna switch was already in place on the roof -- in response to a request from my wife, Peri to minimize the number of wires visible from the living areas of the house and garden -- so I just had to put up antennas and connect them to the switch. There were also a couple of other antennas that no longer worked, so it was time for an antenna project.

I started by using cocoaNEC, a Macintosh interface to the NEC antenna modeling engine from Lawrence Livermore Laboratory, to model an 80 meter inverted V on the 44 foot tower. The pattern was essentially omnidirectional with much of the power going up. It looked good for near vertical sky wave (NVIS) communication out to a few hundred miles, but where would I put a 20 meter antenna to replace the inverted V? Looking at the 80 meter antenna, it seemed that a 20 meter dipole could be stretched between the wires of the V.

I next modeled the two antennas together to see how they would interact. It turned out, almost not at all. Then an article in QST peeked my interest in building a wire beam. That might work better for 20 meters than the dipole. I started playing with designs in cocoaNEC and ended up with a 2 element beam (table 1) with good SWR (figure 1) over the entire 20 meter band.

Figure 1: 20M Beam SWR Plot

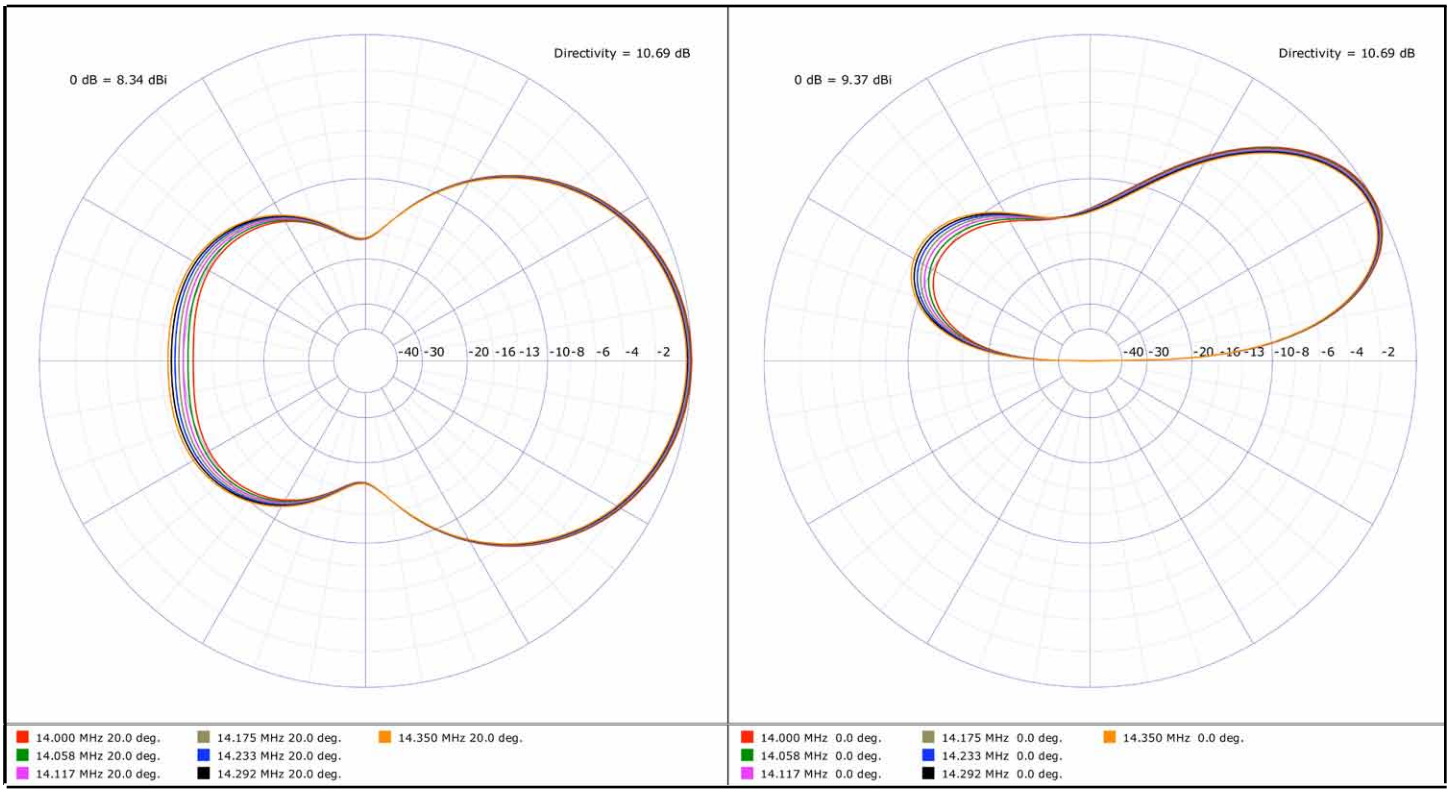


Figure 2: The Radiation Plots Even Looked Good

The next trick was to build the antennas. I first built the 80 meter inverted V and got it working. I took two pieces of wire 19 meters long and attached them to a center insulator with some 300 ohm twin lead for a feeder, a current mode choke and a short piece of coax to connect to the antenna switch. I hoisted the center insulator up to the top of the 44 foot tower.

For the wire beam, I then made two supports out of 1x2 lumber just over 2.5 meters (8 feet) long. The center of each of these supports was attached to the legs of the 80 meter inverted V with a short piece of antenna wire wrapped around the inverted V leg at about 8.5 meters above the ground. The elements of the wire beam were then stretched between the two supports and the current mode choke (balun) and feed line were supported with a rope from the top of the 80 meter inverted V.

Element	**Length**
Driven Element	5.05 meters
Reflector	5.55 meters
80M Inverted V (each leg)	19 meters

Table 1: Antenna Dimensions

The whole arrangement looks like this:

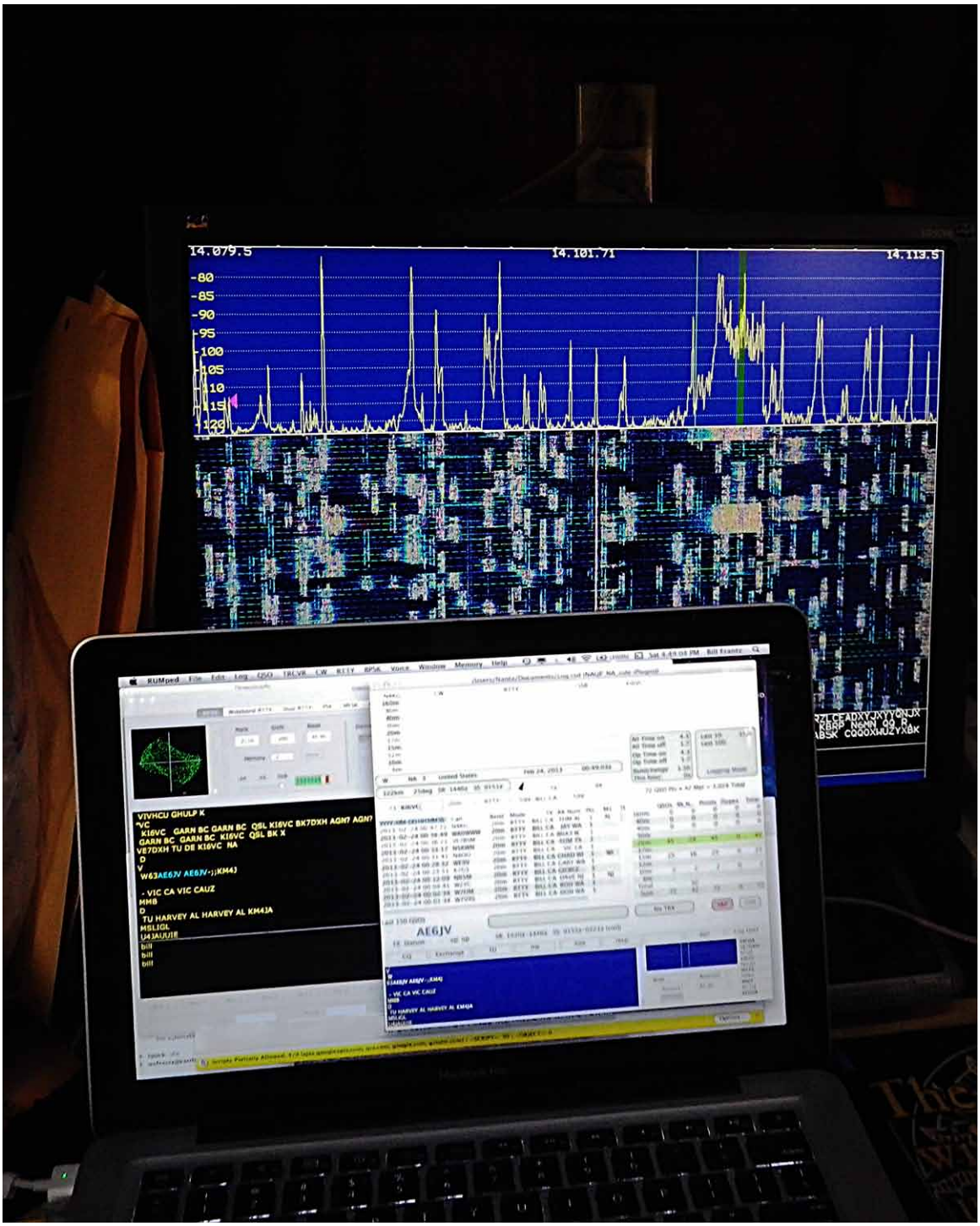
Actual measurement showed that the resonance of the antenna was a bit low, which I attributed to the inductance of the common mode choke at the feed point. I reduced the length of the driven element about 10 centimeters which brought the measured SWR to a better balance (table 2).

Frequency (KHz)	Measured SWR
14000	1.1:1
14085	1.0:1
14175	1.1:1
14260	1.2:1
14350	1.3:1

Table 2: Measured SWR on 20 Meter 2-Element Wire Beam

More antennas are in plan. For the North American QSO Party, a temporary 15 meter dipole was added on the roof and a 20 meter dipole was installed to try to cover the directions missed by the 2-element beam. A 160 meter dipole is in progress, currently showing distressingly un-explainable zero resistive impedance readings on the antenna analyzer and poor SWR on the radio. The antenna shows infinite DC resistance between the two legs. Troubleshooting is an ongoing project.

There are also dreams of a 40 meter antenna, and then on to the VHF/UHF realm.



Waterfall during NA QSO Party RTTY

2012 Visalia International DX Convention

April 19, 20 & 21, 2013

http://www.dxconvention.org/

IDXC is one of the most popular DX conventions of the year. If you're a DXer or interested in any aspect of Ham radio, then IDXC is the place to be. Top DX operators from around the world will be there. You'll match those familiar callsigns with new faces, and shake hands with the person you have had a sched with for the past 10 years but never met.

Learn the secrets for big signals on top band. How to have fun adventures chasing IOTA, attend the contest forum, antenna forum, DX forum, or Contest Academy. There are seminars for everyone from the seasoned pro to the beginning DXer. Visit the Exhibit Hall, where you can talk to the people who design and use the best DX equipment. We have some great raffle Prizes the likes of which top even the famed Dayton Hamvention. And don't forget the "Non-Hams" who attend — we have a Special Tour for them as well.

To register and see the latest information about IDXC, go to www.dxconvention.org

Introduction to Microwave Amateur Radio
Follow-Up by Mike Lavelle, K6ML

If you are interested in checking out the local microwave/UHF/VHF club, the 50 MHz and Up Group of Northern California, our website is at http://www.50mhzandup.org/

Club meetings are at 7pm on the first Thursday of each month at the auditorium on the former National Semiconductor campus (now Texas Instruments). For a map and directions, see http://www.50mhzandup.org/meetings.html

For the latest club news and meeting agenda, see http://www.50mhzandup.org/
This is the place to meet local hams who are glad to help you get on the microwave bands.

73 de Mike, K6ML

Items For Sale By George, N6NKT:

KLM KT-34A Tribander, 4 elements, 20M, 15M, 10M for $300.

Tri-Ex W-51, 50ft crankup free stand tower for $600.

LMR-400-75, used for antenna testing, no connectors,
196ft for $100 and **250ft** for $125.

Contact George Williams, N6NKT, n6nkt AT yahoo.com

Send Buy and Sell information to: het_editor AT wvara.org

Electronics Flea Market

Host:
American Red Cross, Silicon Valley Chapter

www.electronicsfleamarket.com/schedule

The next flea market is: **Saturday, April 13**

The market opens around 5:00am
and closes at 12:00 Noon.

Amateur Radio Exam Sessions

The Silicon Valley VE Group holds amateur radio exam sessions twice monthly in Saratoga. For more information, visit http://www.svve.org, or contact Morris Jones, AD6ZH, at (408) 507-4698 or mojoteri@comcast.net.

Gil - Courtesy February 1951 QST
Rediscovered by Tom Dunbar, W6ESL

2013 West Valley Amateur Radio Association Officers

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Club address:
West Valley Amateur Radio Assn
P.O. Box 6544
San Jose, CA 95150-6544

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The Heterodyne is published monthly by the West Valley Amateur Radio Association and sent to all club members via the web.

Membership Renewal Reminder

Don't forget to renew your WVARA membership. The fastest and easiest way to renew is with Paypal - go to http://www.wvara.org/membership.html and select a Pay Now button. After logging into Paypal, please open and fill in the box on the left titled "Name, Call Sign, Address, Phone, Email". Or bring a check or cash to the meeting. Checks can also be mailed to WVARA, P.O. Box 6544, San Jose, CA 95150-6544.

See You At The Meeting!