Welcome to SFARC, Auburn, CA

Sierra Signals

P.O. Box 6421   Auburn, CA 95604   **October 2016**   http://w6ek.org   info@w6ek.org

At The Key of SFARC:

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ojendres@outlook.com

VICE PRESIDENT
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sharron@usamedia.tv

DIRECTORS
Birton Gilbert, N6UG
Bob Brodovsky, K6UDA
Andrew Silvester, KC6O

FIELD DAY CHAIRMAN
Mark Graybill, W8BIT

REPORTERS
Satellites: Greg, KO6TH
History: Gary, KQ6RT
Sunshine: Richard, WA6RWS

WEB/YAHOO! GROUP
Birton Gilbert, N6UG
Dennis Gregory, WU6X

REPEATERS
145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 162.2)
223.860 (-1.6 MHz/PL 110.9)

CLUB NET
Thursdays, 7:30PM, W6EK/R
145.430

CLUB MEETINGS
Second Friday of the month,
7:30PM at the Auburn City Hall,
1215 Lincoln Way, Auburn CA

CLUB BREAKFAST
Last Sat of the month at Mel's Diner
1730 Grass Valley Hwy, Auburn 7:30AM

NET CONTROL OPS
Dave Jenkins, WB6RBE
Norm Medland, W6AFR
Bob Brodovsky, K6UDA
Al Martin, NI2U

NEWSLETTER EDITOR
Barbara Anderson, W6EVA
anderson51@wavecable.com

ARRL PIO:
Carl A Schultz, WF6J

VOLUNTEER EXAMINER
Al Martin, NI2U

Calendar of Events

October 8th:
Cystic Fibrosis bike ride

October 14th:
Club Meeting

October 14th – 16th:
Pacificon

October 29th:
Georgetown Enduro

October 29th:
ARES Meeting in Auburn

October 29th:
Club Breakfast

Inside this issue:

- *Info for Blind & Vision Impaired Hams*
- *KB1OIQ – Andy's Ham Radio Linux*
- *Pacificon 2016*
- *Should This Antenna Work*
- *The Frequency Broadcast Engine*
- *Board & General Minutes*

Halloween October 31

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

Information for Blind and Vision Impaired Hams
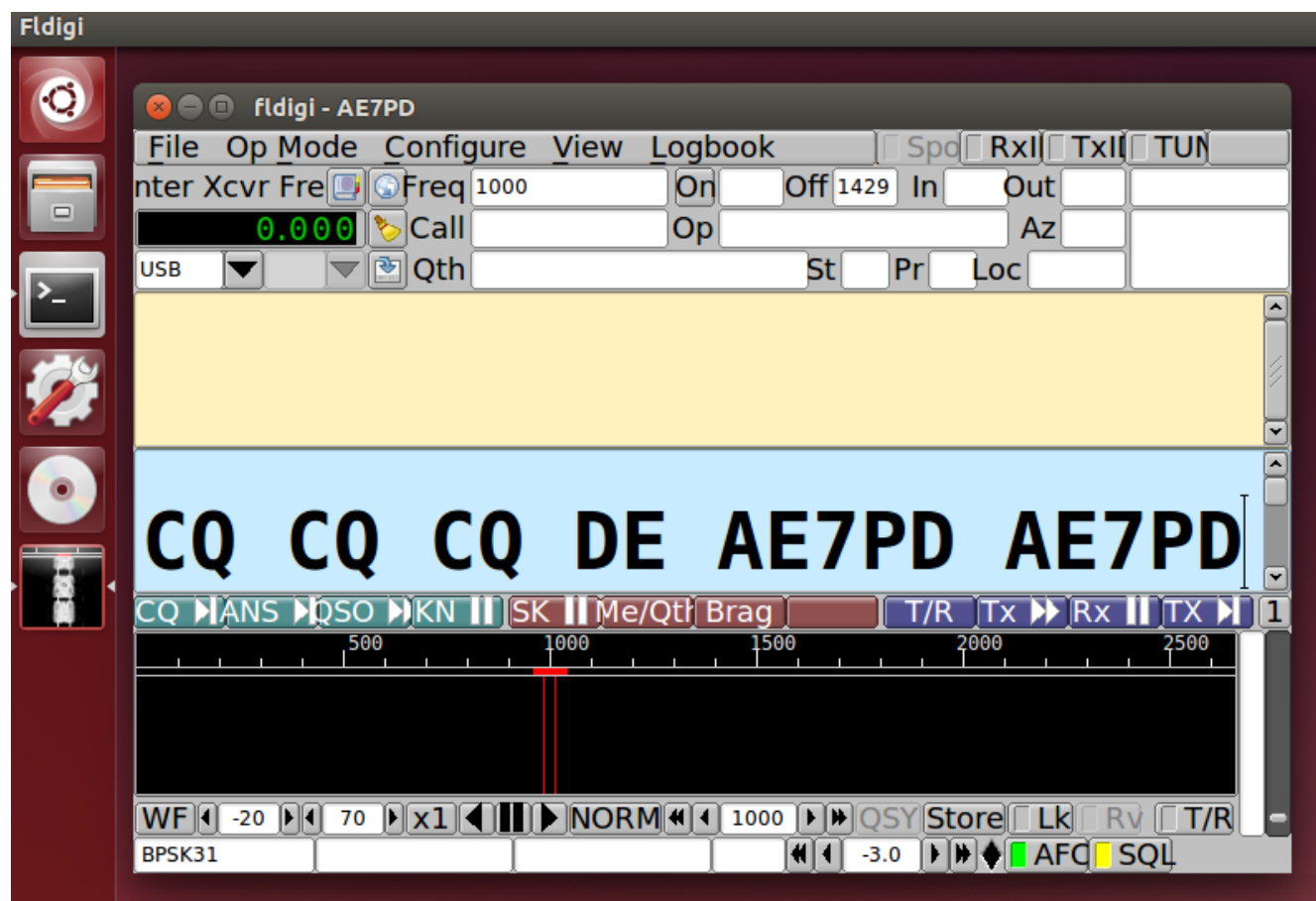## by Mark Graybill, W8BIT

The site http://www.hamradioandvision.com/ has copious information for vision impaired amateur radio operators, including special versions of common software for hams, tips and tricks for using software and equipment, and recommendations on setting up a station.

Among the items is the fldigivi-liveusb, which is a bootable thumb drive image that contains the fldigi digital communication software pre-configured with large font display as well as the programs flrig (computer rig control), flarq (file transfer), flmsg (message forms manager), flwrap (message content verification), and xlog (logging program).No previous Linux experience is required to use the LiveUSB, which acts as a self-contained system of software when booted. Everything is set up for an enhanced display for those with vision impairment.

Information and a download link are on the fldigivi-liveusb page:
http://www.hamradioandvision.com/fldigivi-liveusb

There is also a page that covers using a lot of common ham radio software, including the software defined radio program Quisk, the CHIRP software for programming handheld radios, a specially-configured LiveUSB version of CHIRP, the software defined receiver software WebSDR, DVTool for controlling the D-Star DV dongle, Echolink for VOIP communications, and Xlog for logging.

KB1OIQ – Andy's Ham Radio Linux
by Mark Graybill, W8BIT

Andy's Ham Radio Linux is a remastered version of Ubuntu Linux that has been preloaded with a wide range of amateur radio software. The software includes popular communication packages like fldigi and flrig, software defined radio (SDR) software like gqrx and qtradio, and several packages of antenna analysis software including xnec-2c and aa-analyzer. Logging software includes Xlog and cqrlog.

For the more techie hams, the package also include the gEDA electronic design suite, which has software for simulating and designing electronic circuits, laying out printed circuit boards and the masks for PCBs.

The whole thing is designed to be lightweight, to allow it to run on older computers while still having modern functionality. It will run on systems with a 1GHz CPU and as little as 1GB of RAM memory, though it benefits from more RAM, and the SDR software will certainly require more RAM to run properly.

KB1OIQ - Andy's Ham Radio Linux is based on Ubuntu 14.04 Long Term Support version, so it has access to the full library of Ubuntu software in addition to what comes pre-loaded. This version of Ubuntu is supported until 2019 for bug fixes and software updates by Canonical (the company that makes Ubuntu.)

Further information and downloads are available at:
https://sourceforge.net/projects/kb1oiq-andysham/

Linux is an operating system that can either replace or run alongside of Windows or MacOS, or inside those operating systems through the use of "virtual machine" software that creates an emulated computer on your computer. It is completely free, and a version of Ubuntu Linux has been integrated into the latest versions of Windows 10.

While it would be possible to recreate Andy's Ham Radio Linux on a normal release of Linux, the advantage of Andy's Ham Radio Linux is that much of the work of downloading and configuring the software has already been done for you.
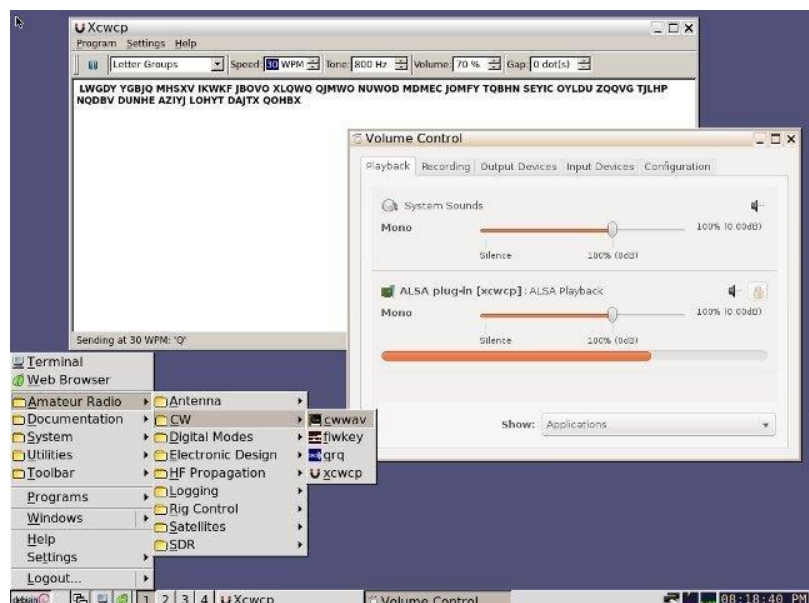
| When: |
| Friday October 14, 2016 to Sunday October 16, 2016 |
| |
| Where: |
| **San Ramon Marriott - San Ramon, California** |
| 2600 Bishop Drive |
| San Ramon, CA 94583 |

Should this Antenna Work
by Al Martin, NI2U

Why ask the question

There are C&CR's and there are wives. Both frown on antennas, wives are more difficult than Homeowners Associations. The antennas I usually select are stealthy and otherwise hard to observe. Since February, I have been modifying my Elecraft K2 for more power and more capability.

Finally, I get to the end of the building and have a 2-Meter CW/SSB capability. OK, how can the function be tested? The Diamond 7500 NMO mobile antenna is supposed to function without a ground plane. The Antenna has been used on repeater frequencies mounted on a NMO Magnetic mount and sitting on a wooden railing or on top of a vehicle.

With help from adaptors, the antenna gets connected to the XV144. The Beacon on 144.82 came through stronger (the Beacon also came through on the dummy load during tune-up). Ok! Key on and there was no output power! Now what?

Locate a Good well known antenna

AA6RS has outside beams that have low VSWR in the 2-Meter Band. A trip to Rich's house demonstrated the XV144 put out full power into a known antenna, actually two outside known antennas. A third test using Rich's mag mount quarter wave with probable high VSWR resulted in no output power.

OK, how do I use my antenna?

Evaluate the Antenna

Bob, K6UDA was contacted and has a MFJ Antenna Analyzer along with some time. The antenna will be tested inside of Bob's house and outside on my Ranger Pickup. The data of the two test conditions will be compared.

Back to the Bench

Test the Antenna at K6UDA

K6UDA has an antenna analyzer so the antenna VSWR was measured in two situations, first inside the house and second mounted on the pick-up roof. The VSWR data is shown in Figures One and Two.
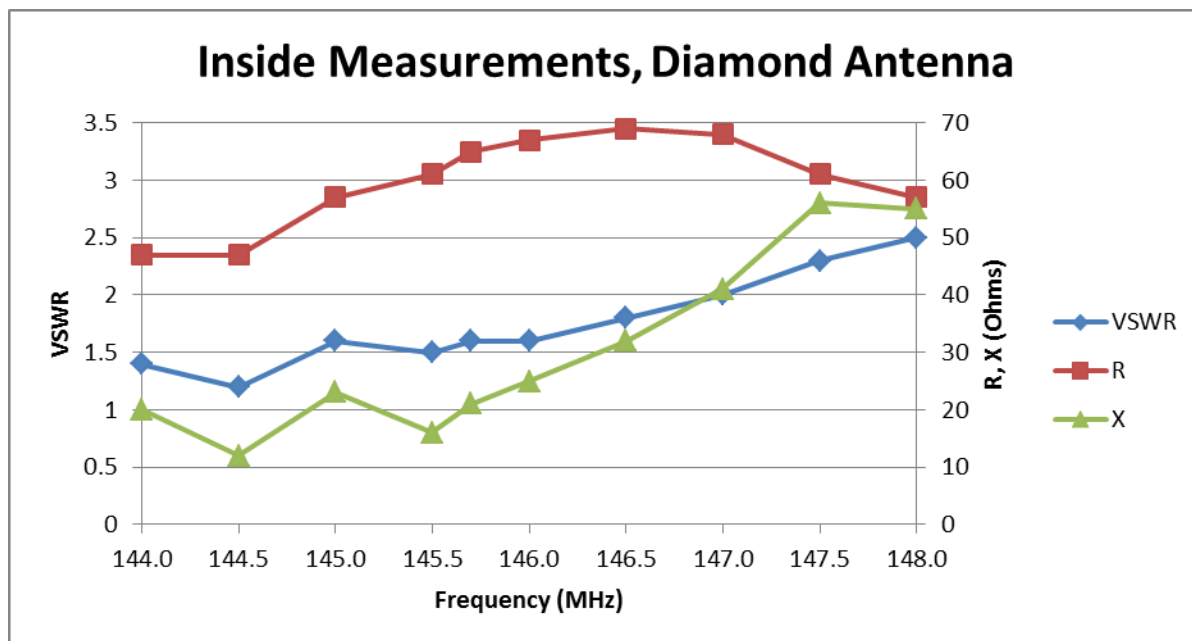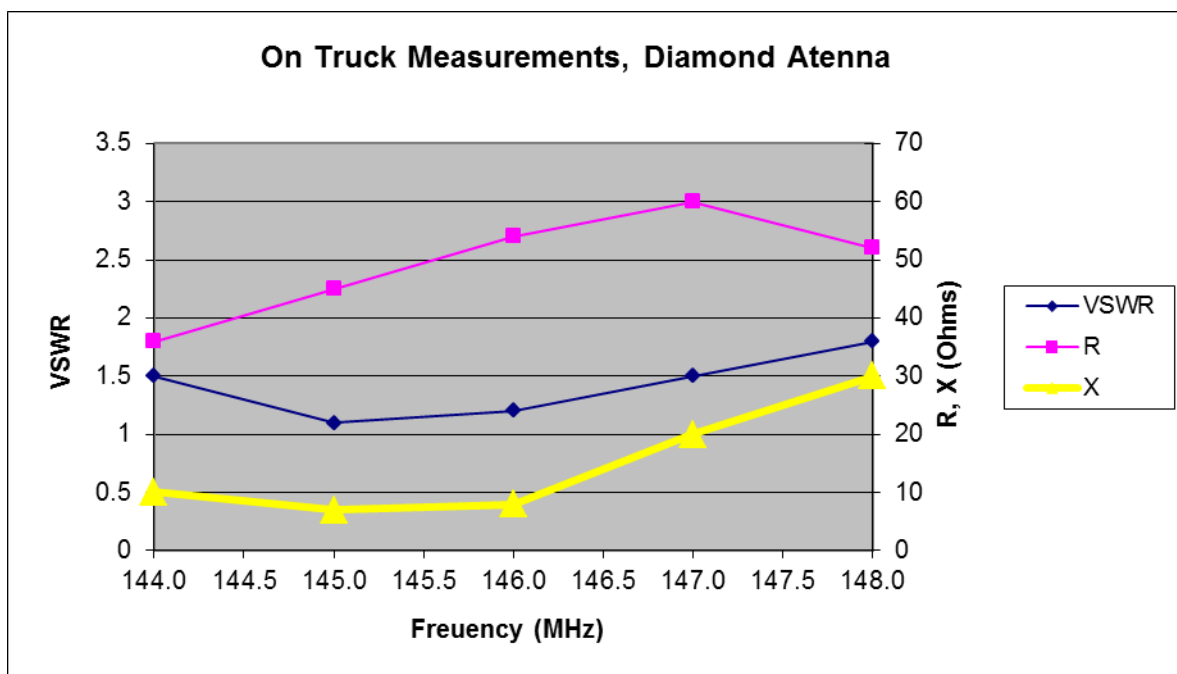

Figure One

Figure Two

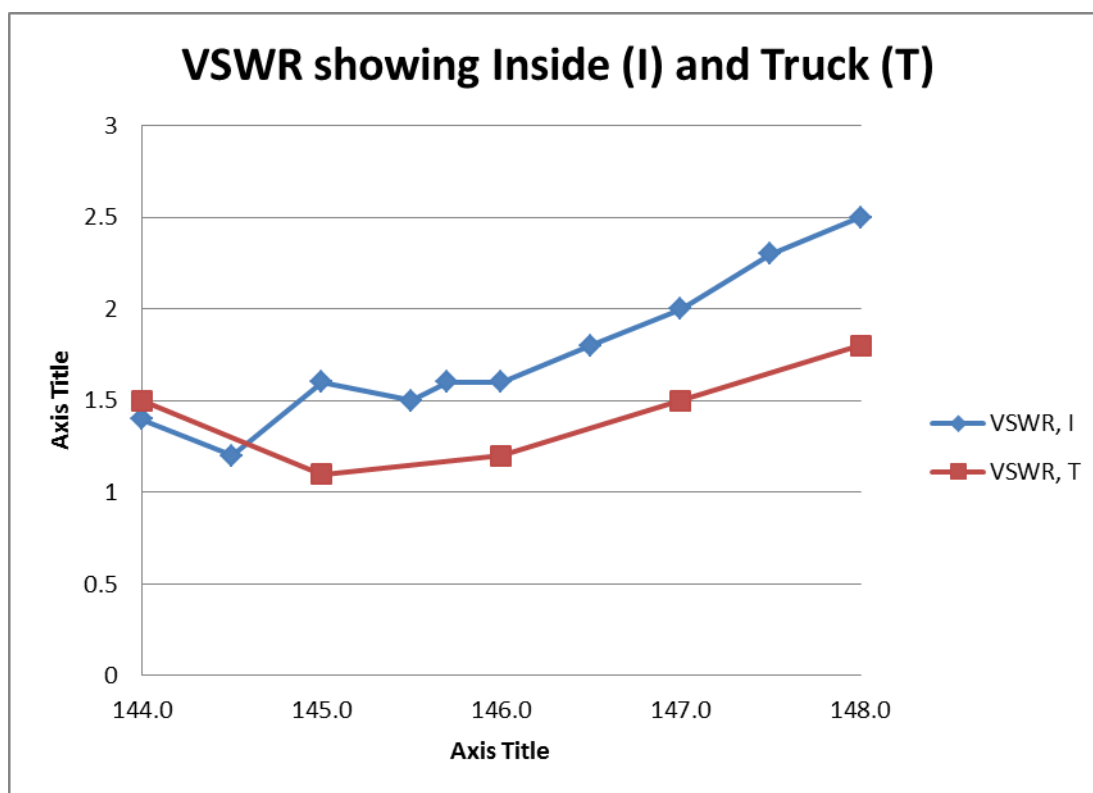The next Figure (Three) shows the inside and truck mounted VSWR together.

VSWR showing Inside (I) and Truck (T)

Figure Three

The Inside VWSR is somewhat more erratic between 144 MHz and 144.5 MHz. Looking at the "X" curves in Figures One and Two, the reactance is also erratic. My conclusion at this point is the VSWR is in the vicinity of 144 to 145 MHz is reasonable but not perfect.

The erratic behavior could be due to surrounding inside objects. The behavior inside my home could be different.

Get Power into the Antenna at NI2U location.

Due to a cockpit problem, the XV144 was putting out 25 to 27 watts. I had to re-learn how to read the Bird Scales. OK, the 1 mW input adjustment pot was reset and the power lowered to 20 watts into the dummy load.

Hit the tune button. No power out showed on the XV144 power meter. Key the device. Bingo, power out returned. Another cockpit problem uncovered and solved. The tune button reduces the 1 mW during tune, back to the antenna. Key the K2, the power is now 15 watts into the antenna. Yes! Whoa, the power dropped to seven watts!

The XV144 has an RF measurement circuit. The output of RF Detector goes to the XV144 microprocessor and can feedback to the K2. The power change could be reproduced. Elecraft confirmed that the power will be adjusted as a function of VSWR.

Make a contact

AA6RS and NI2U made a USB contact on 144.2 MHz. A better antenna on my end should significantly improve my 144 capability.

Conclusions

The XV144 works.

A better antenna mounted outside should significantly improve the signals. Care has to be taken to prevent coaxial cable loss, however.

I live in a poor situation for line of site communications. There is a ridge to the north and another ridge to the west.

The Frequency Broadcast Engine
by Birton Gilbert, N6UG

Many HAM radio operators find themselves in a situation where having tuned antennas for HF are simply not possible. In this case they find other options like multiband antennas that present greater than 3:1 SWR to the Radio or Amplifier. In today's world of high power HAM equipment there are few options to achieve acceptable SWR in a seamless integrated package. So we end up buying a Radio, Amplifier and Tuner System to achieve that SWR / propagation. But now we have a system that requires us to turn the VFO knob, set the Amplifier and adjust the Tuner every time to change the VFO.

Since most manufactures in the amateur radio world do not work well together or establish open hardware / software standards each device typically has its own way to share / leverage something as simple as "What frequency is the radio currently transmitting on?". The good news is this creates an opportunity for end users to create software to integrate the "System". The bad news is we, the end users, don't work together either. We have worked with each manufacture but not with other end user developers to cross manufacturing lines. There are some exceptions but not that fit my need.

So today you can buy ham equipment that has a set of commands, interface ports and supplement that with software that work with each device. But how do we share basic data like the TX Frequency?

Simple, well maybe not that simple. Simple because the operator / radio device is what controls the frequency. Complex because aftermarket software does not look for the frequency data in the same place or formatted the same way.

Some radios send frequency data out a Serial port (real / virtual) and some send data over IP. Each radio formats the data differently, for example Kenwood send this "FA00001420000;" to share the frequency of 14.200. Some amplifiers understand the radio specific commands like the Kenwood "FA…;" and others do not. Some antenna tuners understand the radio specific commands and others do not.

So what equipment do you buy and how do we automate all of this?

First we need to start with the basics. When building a system like this, buy equipment that can share data and can receive data. Optimally if your radio is Kenwood the receiving equipment should know what "FA…;" stand for. If not is there a piece of software on the computer that can talk to the receiving equipment in its own language?

So why do we care about all of this? Because when we chase stations around the bands we don't want to spend time adjusting our amps and tuners for each band / frequency. When we are done, we what the Amp and Tuner to follow the radio around like a puppy dog wagging their tails and we want the radio to transmit into a better than 1.5:1 SWR, regardless of where the VFO dial stops spinning, without us having to adjust the Amp and Tuner each time we rotate the VFO dial.

Bottom line any solution to this problem is highly dependent on the software / ports available in the hardware we buy.

In my case I needed to pass Frequency data from a Kenwood radio to the SPE Expert Amp and Palstar HF-AUTO tuner. The good news is the SPE amplifier understands Kenwood commands and there is an aftermarket software that talks with the Palstar tuner. But they don't do it the same!

The SPE amplifier can intercept Kenwood commands on a serial connection between the amp and radio, that was easy. However, the contributed software (HFAUTO) looks for the same information in networking UDP packets. What is UDP?

For those that are not familiar with networking here is a simple explanation. All data shared among networked devices move in something called a packet. Think of a letter in an envelope going through postal mail as a packet. In the networking world there are different types of packets. Just like the postal service there are different types of letters, ex. letter vs. letter with delivery tracking. Two of the common network packets are UDP and TCP. UDP is like a letter, it's sent and we hope that the person you sent it to receives it. TCP is like a letter with delivery tracking, it's sent and we know the packet will be delivered. You get the idea, I hope.

So the problem I faced was how to get the Kenwood frequency data from the radio and send it to the other two devices in a way that they can receive and understand it. Since the Tuner software needed network UDP packets, I ruled out a hardware only solution. So that left me with writing more radio related software.

Here is a hardware picture:

      TS-990s talks to   ---> SPE Expert 1.3K-FA
                          and (same time)
                          ---> Palstar HF-AUTO ---> Doublet Antenna (10m through 80m)

BTW: A good antenna would eliminate this issue, because the radio and SPE amp would be all that is needed.

Here is the logical intercommunication picture:
- TS-990s (Kenwood Command) talks over Serial or IP TCP packet (I choose TCP)
- SPE Amp (Kenwood Command) listens to Serial
- Palstar tuner (Proprietary Command) listens to IP UDC packet

So I wrote a piece of software that reads the TS-990S frequency via TCP and then passes that to the SPE amp over a serial interface and at the same time passes that frequency to HFAUTO, by W1TR Software, via UDP. The HFAUTO software makes the tuner adjustments.

Here is a diagram showing how this is all interconnected:
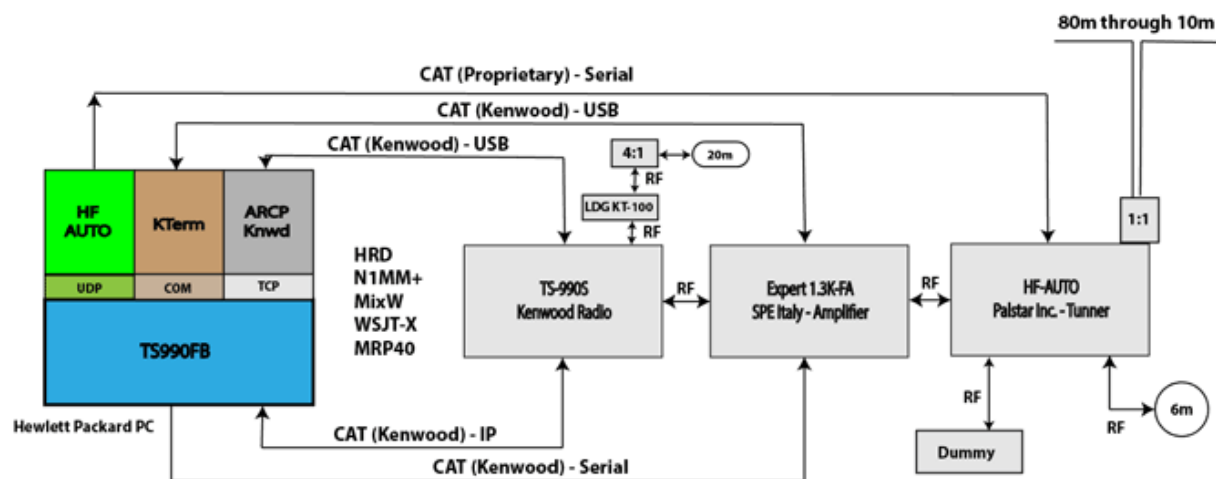
Here is a snap of the tool display:
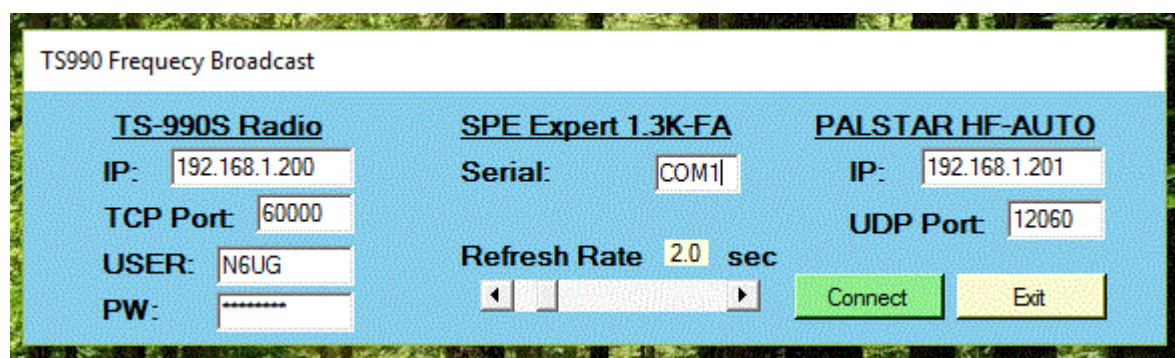
Running this software in the background keeps the amp set to the correct band and the Palstar HF-Auto tuner set to the correct L & C preset values.

So what's the big deal?

With this running in the background I don't need to manually retune my amp and tuner as I hold QSO's with people on many modes and bands. Here is a list of the software that I use almost frequently to make and log QSOs: Ham Radio Deluxe, N1MM+, MRP40, MixW, and WSJT-X.

BOARD OF DIRECTORS MEETING MINUTES
September 9, 2016

The SFARC Board meeting for September commenced at 1800 hours at the Sizzler restaurant in Auburn.

Roll Call: All officers and Directors were present with the exception of Director Andrew-KC6O. Guests present were Dennis-WU6X, Jim-N6MED, Mark-W8BIT and Toni-KK6JPJ.

REPORTS and DISCUSSIONS

Presidents Report: Orion-AI6JB submitted the agenda and asked for officer, board and committee chair reports.

Vice President's Report: Al-NI2U advised board member badges were in need of replacement. Birton-N6UG made a motion to replace the badges, Bob-K6UDA seconded and the motion passed unanimously.

Secretary's Report: Bruce-K6BAA had nothing to report.

Treasurer's Report: Sharron-KK6RGV reported net cash on hand at the beginning of August of $12,483.53; with an ending balance of $12,412.31.

Repeaters: Birton-N6UG reported Richard-WA6RWS is at the moment, working on the system. Bob-K6UDA asked about the IRLP status. Birton advised no one has asked for it to be activated. Bob also advised the board he is still looking into D-Star for the system.

Directors:

Bob-K6UDA would like to have the club consider purchasing a portable tower/trailer for field day, emergencies and other club special events. The board agreed to look into the matter.

Birton-N6UG is working on some Tech-Ten presentations for 2017.

Memberships: currently at 104. A membership chair position is still being considered.

Nominations: Al-NI2U reported that all board positions have candidates but more members can volunteer for election.

VE: Al-NI2U advised he is waiting for Andrew-KC6O's VE report.

Field Day: Dennis-WU6X is waiting for ARRL's results to be published.

Club Contest: Dennis-WU6X reviewed the club contest process.

White Elephant Sale: October 14th.

Christmas Party: December 10th at the Auburn VFW Hall.

Meeting adjourned at 1840. Submitted by Bruce-K6BAA, Club Secretary

GENERAL MEETING MINUTES
September 9, 2016

The SFARC General meeting for September commenced at 1930 hours at the Auburn City Hall Rose Room, President Orion-AI6JB presiding. All Officers and Directors were present with the exception of Director Andrew-KC6O. Orion led approximately 47 members and guests in a Pledge of Allegiance to the flag. An introduction of Officers, members and guests followed.

REPORTS:

President's Report: Orion briefly discussed the agenda and reviewed this evening's board meeting. Last month's minutes as published in the newsletter, were approved.

Vice President's Report: Al-NI2U reviewed the meeting presentation and Tech-Ten.

Secretary's Report: Bruce-K6BAA requested input for the club newsletter; advised a welcome letter was available for new members and guests, and a reminder to the membership to sign the attendance sheet.

Treasurer's Report: Sharron-KK6RGV reviewed the clubs August 2016 finances to members.

Sunshine: Gary-N6UWQ's brother passed away.

Repeater Report: Richard-WA6RWS reviewed the repeaters status.

VE's Report: Al-NI2U reported during the last session, 8 candidates resulted in 7 new techs.

Nominations: Al-NI2U asked members to volunteer for office, that all positions have candidates, but more members would be appreciated. Currently running for reelection/election: President Orion-AI6JP. Vice-President Mike-KK6GLP. Directors Andrew-KC6O, Bob-K6UDA and Greg-KO6TH. Secretary Bruce-K6BAA and Treasurer Sharron-KK6RGV.

Field Day: Dennis-WU6X updated members and additionally explained the proposed club contest procedures and fielded questions.

Activities: Orion-AI6JB reminded members of the upcoming Newcastle Cystic Fibrosis bike ride October 8th and the Georgetown Enduro on October 29th.

Satellite Report: Greg-KO6TH briefed members of upcoming ISS activities.

Refreshments/Drawing: Jason-N6JDX reviewed items planned for the drawing. Scott-K6SVW reported on refreshments for the break. A volunteer is still needed to replace Jason for the drawings.

Christmas Party: December 10th at the Auburn VFW.

Yahoo: Dennis-WU6X advised the membership on the Yahoo group status and programed members hand held radios.

Tech-Ten: Al-NI2U gave an informative presentation on tools for home electrical projects.

Presentation: Dennis-WU6X gave an interesting presentation on the Reverse Beacon Network (RBN) and how it can help radio operators.

Jim-WA8MPA had on display coax and wave guides for members to view.

General Announcements: The Club Net meets every Thursday at 7:30pm; Board and General Meetings occur on the 2nd Friday, Board meeting is held at **Sizzler Restaurant** in Auburn, and General meetings at 7:30pm at **Auburn City Hall**. The Club breakfast is held on the last Saturday at **Mel's Diner** in Auburn; an Elmer Net is held the first and third Wednesday night at 7:30pm on the 2m repeater. See **www.w6ek.org** for more information.

The meeting adjourned at 2120. Submitted by Bruce-K6BAA, Club Secretary

SIERRA FOOTHILLS AMATEUR RADIO CLUB
P.O. Box 6421, Auburn, CA 95604

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SIERRA FOOTHILLS AMATEUR RADIO CLUB   **2016 MEMBERSHIP APPLICATION**
P.O. Box 6421, Auburn, CA 95604

Name: _____ Call: _____ Class: ____ e-mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Associate Name: _____ Call: _____ Class: ____ email: _____

Phone: _____ Cellphone: _____ Application is: (New / Renewal)

Dues / Donations:

Membership: yearly* $22.00or 20x__   Name Badge: $ 10.00/15.00   Yes   (special name)_____
Associate: yearly* $ 7.00   Repeater Donation: $_____
Auto Patch Donation: $_____   Newsletter Booster: $_____
Misc. Donation: $_____   Christmas Donation: $_____   ARRL member? (Yes/No/Life) _____

                        TOTAL: **$_____   Please add $1 if paying via PayPal**

*Prorated dues for NEW Members/Associates Only
July $ 20/6   October $ 14/3 + following year   **New---New---New---**
August $ 18/5   November $ 12/2 + following year   **Multi-year DISCOUNT Membership**
September $ 16/4   December $ 10/1 + following year   ****$20 per year for 2 or more years (new or renewal)**

Rev. 3-15-2016