



Welcome to SFARC, Auburn, CA

Sierra Signals



P.O. Box 6421 Auburn, CA 95604

November 2016

<http://w6ek.org> info@w6ek.org

At The Key of SFARC:

PRESIDENT

Orion Endres, AI6JB
ojendres@outlook.com

VICE PRESIDENT

Al Martin, NI2U
Amartin4@wavecable.com

SECRETARY

Bruce Anderson, K6BAA
anderson51@wavecable.com

TREASURER

Sharron Griffith, KK6RGV
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

November 11th:
Veteran's Day

November 11th:
Club Meeting (Elections too)

November 24th:
Thanksgiving

November 26th:
Club Breakfast

December 10th:
Christmas Party

Inside this issue:

- **President's Message**
- **The Club Needs You**
- **Cystic Fibrosis Bike Ride**
- **White Elephant Sale**
- **Remote HF Base Station**
- **Board & General Minutes**



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

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President's Message

By Orion Endres – AI6JB, President

Good November to All!

Fall has finally arrived and the Radio Sport session is in full swing. This year, our Club will be entering the ARRL November Sweepstakes. It is one of nine contests sponsored by the ARRL that are designated as a Club contest. The Sweepstakes will be held on two weekends. The first weekend, November 5th – 7th, will be all about CW. So, you coders out there, dust off those keys and hit the air waves. The second weekend, November 19th – 21st, will be dedicated to Phone to work out those vocal cords. The contest period for each weekend is 21:00 UTC Saturday through 02:59 UTC Monday. 160, 80, 40, 20, 15, and 10 meter bands are open to the contest. The November Sweepstakes should have a little something for every operator.

You do not have to work both weekends. Feel free to work one or both! All you need to do is add "Sierra Foothills ARC" on your log submission. You can work from home, mobile, remote, or anywhere you can setup a radio within our Club area. Please be sure to check the contest rules which are available online at: <http://www.arrl.org/contest-rules>. If you have any questions, Dennis, WU6X, will be able to help you. Yours truly will be working the Phone weekend as a Single Operator Unlimited, Low Power.

Don't worry if you can't work the full 24 hours!! Do what you can and submit your log. Every little bit helps the Club total. Most important, get out there and have some fun!!

I also want to send a great big **THANK YOU!** to George, KG6LSB, and all the folks who came out to work the Cystic Fibrosis bike ride last month. The event ran very smoothly and everyone had a great time!

You and your significant other are all cordially invited to our annual Christmas Party on Saturday, December 10, 2016, at the Auburn Veterans Memorial Hall, 100 East Street. The potluck dinner starts at 6:00 PM. Sign-ups are online at our website, www.w6ek.org. The Club will provide the ham & turkey. Looking forward to seeing you all there.

As you may have heard, it is election time. Our Club will be voting on next year's officers and renewing our By-Laws. The By-Laws must updated and voted on every leap year. Please be sure to attend Novembers General Meeting to cast your vote.

I wish everyone a happy Thanksgiving!



HELP WANTED THE CLUB NEEDS YOU!

We are looking for dedicated Hams who want to do their part in making the Sierra Foothills ARC the BEST! Please consider volunteering for one of the positions below:

-  Membership Chair
-  Refreshments

If you are interested in any one of these positions above, please contact Orion, AI6JB.



Cystic Fibrosis Bike Ride – October 8, 2016



White Elephant Sale - October 14, 2016



Remote HF Base Station

By Birton Gilbert, N6UG

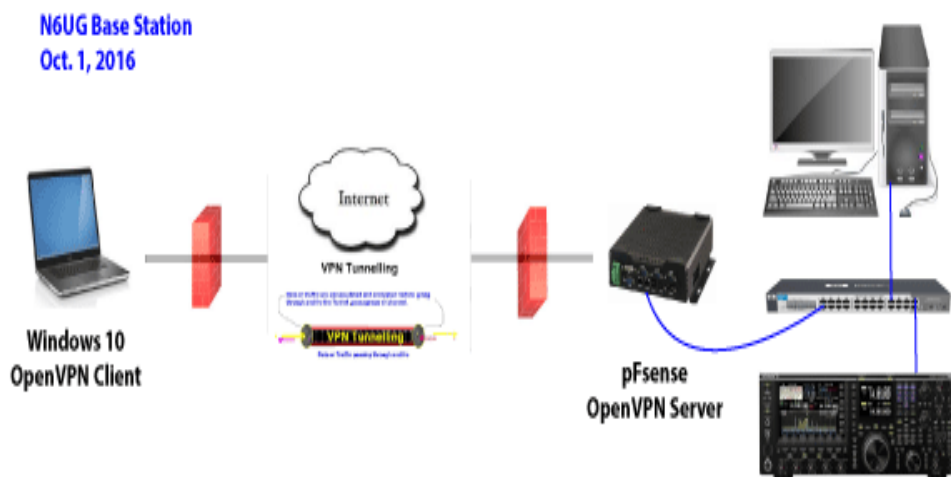
When choosing to remote my base station I considered several factors: the amount of time I expect to sit in front of each control position, the software maturity of each component and the network requirements & security issues. When I looked at the time in each control operator position, I realized that most of my time will be at the base station and a few hours away. So I chose to look for more traditional RF solutions with enough software capabilities to meet my needs. If the time spent were reverse I would have chosen to use a base station that is primarily software with traditional RF, like a FLEX. A flexible network that is secure and gives me full access with minimal ongoing network configuration is key. Next was electrical control. This is handled through software and dc relays. The last major piece was keeping the amplifier and tuner synchronized with the radio. This was a combination of equipment software, contributed software and the Freq. Broadcast engine as explained in a previous issue.

At the local / remote end, I chose to build a platform based on Windows 10 because I know it and the software needed runs on it. After connecting through the Virtual Private Network (VPN), I access the base station computer over Remote Desktop to managed Audio Servers, Rig Control Server, Amplifiers and Tuners. The remote setup is fairly easy and only requires a few software downloads, installs, user names and passwords and then you're up and running! This can be installed on multiple computers in different locations or notebook computers. There are no licensing requirements or costs, other than the network access.

The network solution creates a Virtual Private Tunnel through the Internet Service Provider. The remote computer can make a connection using a cell phone hot spot, desktop or network. The VPN creates a very secure connection from my remote station to my base station and all networked components at the base location. So not only can I run my base station over this connection but I can also access files, emails and even private cameras to see what the kids are doing, when I'm away. The VPN is based on OpenVPN with software available for all the major Operating Systems on the market today.

In the base station I have my radio, high power amp and high power tuner. In order to drive all of these devices, I depend on connectivity that includes Serial, Virtual USB and IP networking. Locally this is no problem since everything is on the same network. Remotely this is no problem because the VPN connects my remote computer to the same network, no matter where I am.

Here is a diagram of the major pieces required to access my base station:



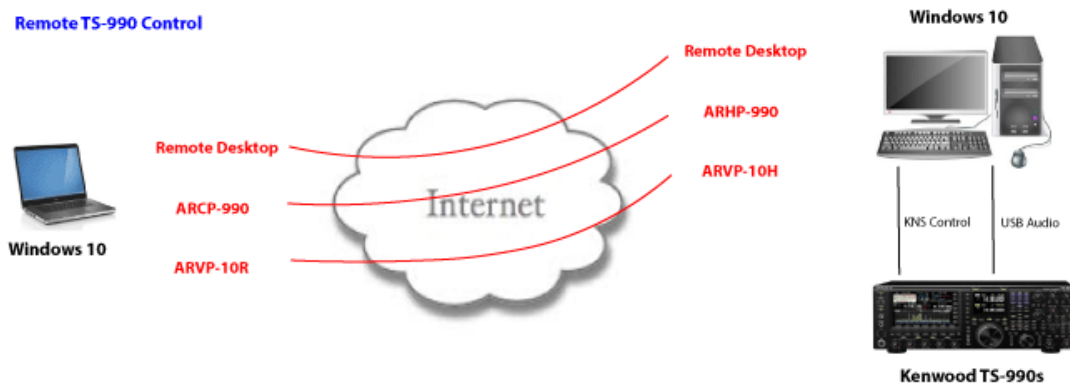
Local / Remote Computer

Because the base station needs direct access to various equipment over serial, usb, etc., I need to access the desktop of the base station. Remote Desktop is a free Microsoft package that opens a window on the remote computer that gives me all the same access I have while sitting in front of the base station computer.

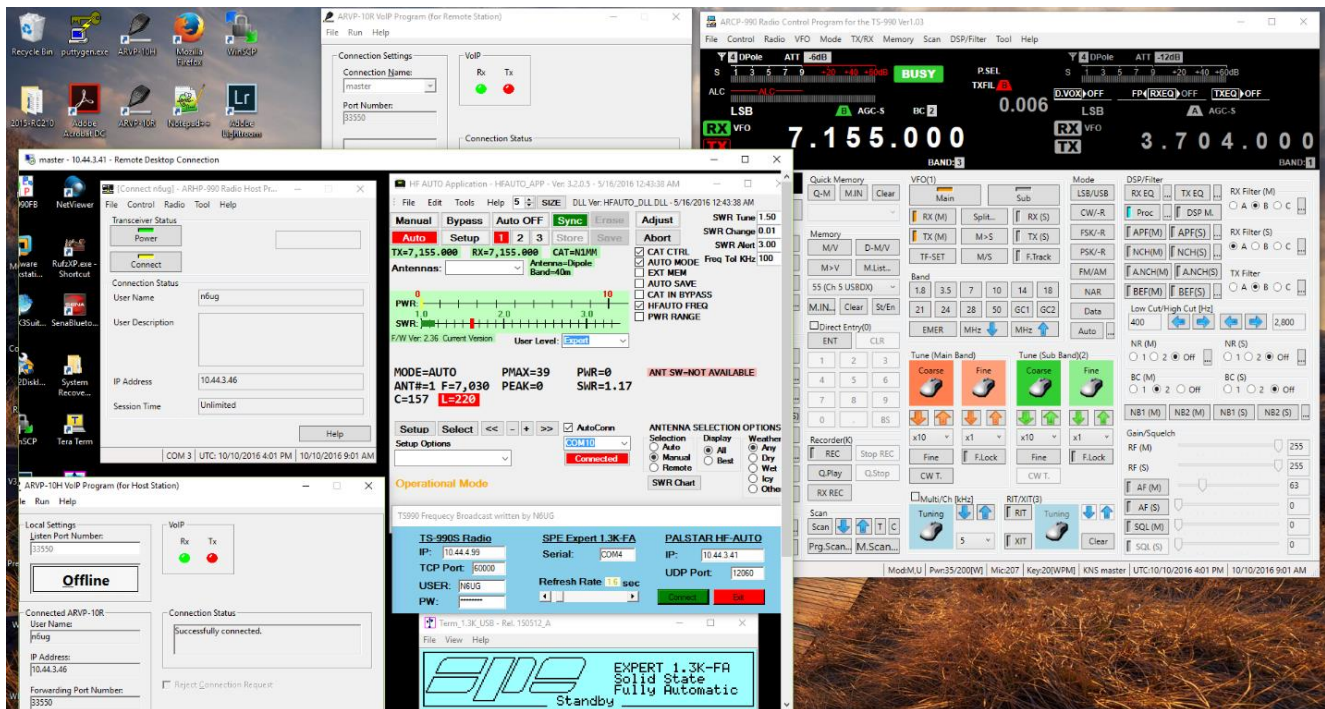
To configure the Kenwood TS-990 base station remotely I run a Rig Control Host Server at the base and the ARCP-990 program on the remote computer. The ARCP-990 allows me to control all the radio settings like Freq., filters, power, etc. Doing this locally and not in the desktop window reduces the network traffic and improves keyboard responsiveness and performance.

Receive and transmit audio is handled through the Kenwood ARVP-10R software. This software connects to a server at the base station. From the host you can select wired audio connections or virtual usb audio connections.

Remote to Host Data paths:



Remote Desktop Snapshot:



Internet Access

My network access requires 2 things: any ISP network and the Virtual Private Network(VPN) tunnel. There are many ways to connect over a public network. Some are not very secure and others are used in very secure situations like banking. At my base station I have several network services that I want to connect with securely. So to maximize flexibility and security I deployed a Virtual Private Network called OpenVPN.

All you need is access to any IP network. You can be sitting at the coffee shop, a friend's house or a camp site using your cell phone. As long as you have reasonably good network access, you can connect. There are 2 pieces to the VPN, a client and the server. The client is installed in the remote computer. The server runs in the firewall at the base station. Depending on the type of firewall there are ways to authorize access between the two using security certificates and keys. These are software and not hardware.

For my solution I chose the OpenVPN software with certificates and keys to maximize security.

Base Station

Remote Desktop Server provides full access to the base station computer desktop. On the desktop there are 4 critical software solutions: radio control host, audio server, amplifier control, tuner control and frequency broadcast engine.

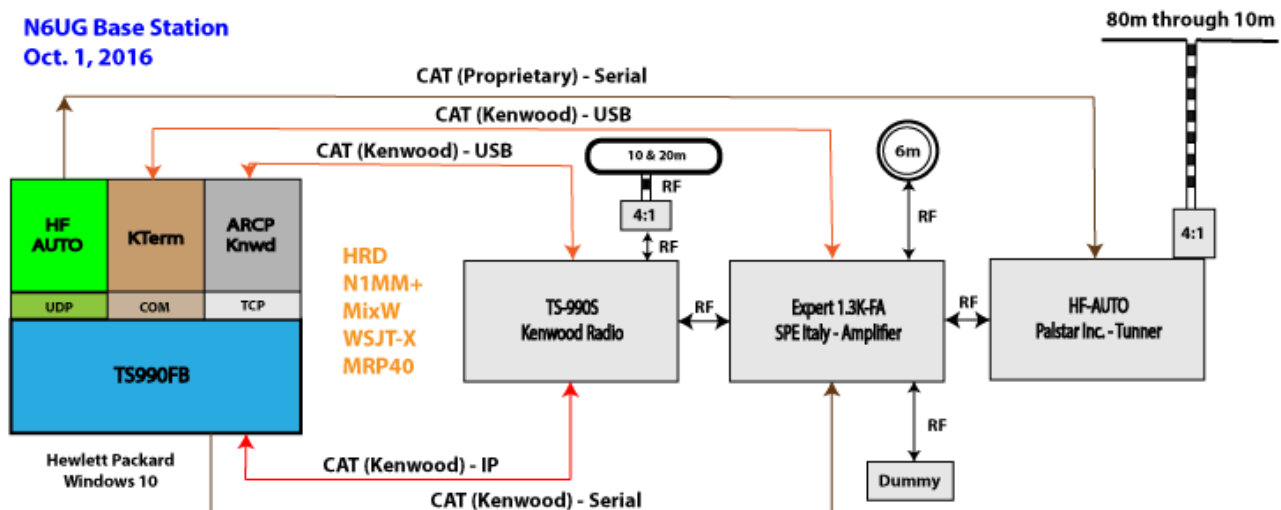
Radio Control Server, Kenwood ARHP-990, give the remote rig control software the ability to change anything in the base station like frequency, filters, modes, etc.

Amplifier Control Client, SPE Inc. Term_13K USB, gives me access and visibility to everything on the front panel of my amplifier.

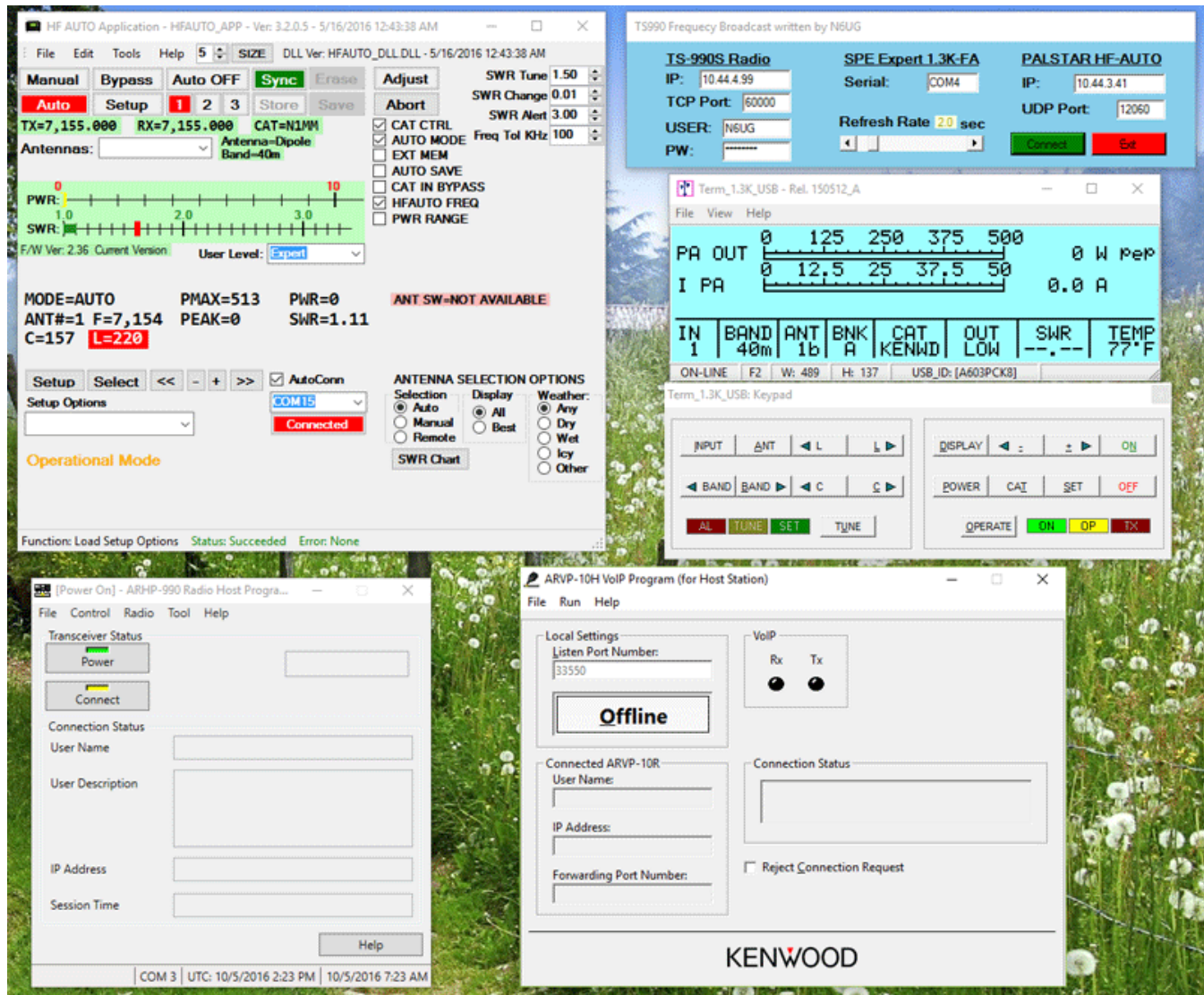
Tuner Control Client, HFAUTO by W1TR, manages the settings on the Palstar HF Auto tuner and also allows gives me the automatically change setting in the tuner base on freq... Example, on the 20meter band it tells the tuner to switch to bypass because the SWR is good there. However, when I select 40meter band it puts the tuner back in automatic and adjusts the L & C values to match the frequency. Frequency Synchronization, Frequency Broadcast Engine, is a real time saver. As I change the VFO on the radio the FB engine tells the amp and tuner where I'm going and the control software automatically adjust the amplifier band selection and tuner L&C values.

So how do I power all this on? Most of the equipment is controlled by tuning on the DC power via a 30Amp DC Relay. This is controlled by voltage from the EXT AT connector on the back of the TS-990. The TS-990 will source 5Amps, the relay only demands 100mA. When I turn on the TS-990 the relay is energized and the supporting equipment powers up.

Host Connectivity Diagram:



Host desktop snapshot:



Conclusion:

Pulling this solution together was a blast. It's a chance to work with many aspects of computing, networking, radios, software development and hardware assembly. While not the fastest project to pull together I'm confident it will be the most fun to operate.

Credits:

Kenwood – TS-990s Radio, ARCP-990, ARHP-990, ARVP-10R, ARVP-10H
Hewlett Packard Inc. – Desktop & Notebook Computer
Microsoft – Windows 10 Operating System
SPE Inc. – Amplifier and Term 1.3k USB software
Palstar – HF AUTO tuner
W1TR – HFAUTO software



BOARD OF DIRECTORS MEETING MINUTES

October 14, 2016

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

Roll Call: All officers and Directors were present with the exception of Director Bob-K6UDA. Guests present were Dennis-WU6X and Mike-KK6GLP.

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 discussed space/propagation software and will coordinate with Carl-WF6J.

Secretary's Report: Bruce-K6BAA advised the editor, Barbara-W6EVA was happy with the recently submitted newsletter articles.

Treasurer's Report: Sharron-KK6RGV reported on the club's finances.

Repeaters: Birton-N6UG reported the 440 repeater PL deck was repaired recently.

Directors:

No reports.

Memberships: currently at 105. Orion-AI6JB presented to the board his proposal for a Membership Chair position and the duties/responsibilities.

Nominations: Al-NI2U reported that all board positions have candidates.

VE: Al-NI2U advised there were 10 candidates and 8 examiners. Resulting examination produced 7 technicians and 3 generals.

Field Day: Dennis-WU6X and Birton-N6UG discussed appointment of a new Field day Chairman.

Club Contest: Dennis-WU6X will research and upload club member call signs to the ARRL.

White Elephant Sale: Tyghe-W6TJR to officiate.

Christmas Party: December 10th at the Auburn VFW Hall. Al-NI2U reviewed current status of the preparations.

Hamfest: Orion-AI6JB advised the planning meetings to start in November.

Meeting adjourned at 1845. Submitted by Bruce-K6BAA, Club Secretary






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GENERAL MEETING MINUTES

October 14, 2016



The SFARC General meeting for October commenced at 1930 hours at the Auburn City Hall Rose Room, President Orion-AI6JB presiding. All Officers and Directors were present. Orion led approximately 45 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: AI-NI2U discussed the club's library and loan procedures.

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 September 2016 finances to members.

Repeater Report: Richard-WA6RWS reviewed the repeaters status.

VE's Report: AI-NI2U reported during the last session, there were 10 candidates and 8 examiners. Resulting examination produced 7 technicians and 3 generals.

Nominations: AI-NI2U advised 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.

Activities: Orion-AI6JP advised there was a great turnout for the Newcastle Cystic Fibrosis event and reminded the membership of the last event of the year, the Georgetown Enduro on October 29th.

Satellite Report: Greg-KO6TH briefed members on the "outernet".

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. Laura-K6LVW updated on the preparations and will have more information and signups at the November meeting.

Hamfest: Orion-AI6JB advised the planning meetings to start in November.

Yahoo: Dennis-WU6X advised the membership on the Yahoo group status.

White Elephant sale: Tyghe-W6TJR and Bob-K6UDA gave a spirited, entertaining and productive show resulting in numerous items auctioned, benefiting the club and the winning members.

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 2140. Submitted by Bruce-K6BAA, Club Secretary



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

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P.O. Box 6421, Auburn, CA 95604

2016 MEMBERSHIP APPLICATION

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

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

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

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

Dues / Donations:

Membership: yearly*	\$22.00	or 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
August	\$ 18/5	November	\$ 12/2 + following year
September	\$ 16/4	December	\$ 10/1 + following year

New---New---New---
Multi-year DISCOUNT Membership
****\$20 per year for 2 or more years (new or renewal)**

OFFICE USE ONLY:

DO NOT WRITE BELOW THIS LINE

Date: _____ Treasurer: _____ Secretary: _____ Roster: _____

Payment: _____ Check Number: _____ Cash: _____ PayPal: _____