Sierra Signals

P.O. Box 6421 Auburn, CA 95604 **September 2018** http://w6ek.org info@w6ek.org

At The Key of SFARC:

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Mark Graybill, W8BIT
Brian Gohl, AI6US

FIELD DAY CHAIRMAN
Gary Frerking, KC3PO

REPORTERS
Satellites: Greg, KO6TH
Sunshine: Richard, WA6RWS

GROUPS io
Dennis Gregory, WU6X

PIO
Carl Schultz, WF6J

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
Casey McPartland, W7IB
Bob Brodovsky, K6UDA
Al Martin, NI2U

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Barbara Anderson, W6EVA
anderson51@wavecable.com

WEBMASTER:
Herb Garcia, KM6JBI

VOLUNTEER EXAMINER
Al Martin, NI2U

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Calendar of Events

September 14th:
Club Meeting

September 22nd:
Club Picnic

September 29th:
Club Breakfast

October 7th:
Cystic Fibrosis
Cycle for Life

October 20th:
JOTA

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

President's Message

By Orion Endres – AI6JB,
President

It's finally cooling down which means kids are heading back to school and summer sojourns are coming to an end. That turns out to be a good thing. The club has so many great events coming up that you are going to want to be a part of.

AMSAT President, Joe Spier, to Speak @ SFARC Club Meeting

Yes, you read that right! We have the man-in-charge at AMSAT coming to our little old meeting to share with us the latest and greatest at AMSAT. Thanks to Greg, KO6TH, our Mr. Satellite, for making that happen. Spread the word and bring your friends. This promises to be, wait for it ….
L .. E .. G .. E .. N .. D .. A .. R ..Y

Disaster Preparedness Fair, Sept. 8th

Al, NI2U, and Jim, WA8MPA, will represent our club at the Disaster Preparedness Fair on Sept. 8th from 10 until 2 PM, in Auburn. The event will be held at the LDS Church, 287 Poet Smith Dr., Auburn, CA 95603. If you are in town, stop by and say hello. I'm sure Al and Jim would love the company. Plus you get to learn how to be better prepared for the next disaster.

If you would rather stay home, hang out on the repeater to answer calls from the event. That is a great way to promote ham radio.

Club Picnic Sept. 22nd

The Club picnic this year is in the same location, Applegate Park, from 10 – 2 PM. but at a later date. We moved the Club Picnic from the traditional August to September with the hopes of cooler weather and more folks back from vacations. Brian, AI6US, has quite an event planned. The club will provide the meat and beverages, and you are asked to bring a side dish or a desert. Let him know how many folks you are bringing and what delectable dish.

California QSO Party, Oct. 6-7

The California QSO Party (CQP) is coming up on the weekend of October 6th & 7th. This is the one time of year every ham in the United States and Canada wants to work you. This year a group of your fellow members will run a Multi-Multi station using the club callsign. Everyone is inviting to come. No experience necessary. If you miss going for points at Field Day, this is for you. Just let me know you are interested and I'll add you to the rotation.

Cystic Fibrosis Bike Ride, Oct. 7th

Mike, KK6GLP, is heading up our effort at the Cystic Fibrosis Bike Ride on Oct. 7th. If you haven't signed up yet, it isn't too late. Working a volunteer event is a great opportunity to give back to our local community, promote amateur radio, and have a whole lot of fun!

Annual October Auction

Next month's meeting is our annual Club Auction hosted by the perennial favorites Tyghe, W6TJR, and Bob, K6UDA. It is an opportunity for you to clear out those cupboards of ham gear that may be junk to you, but a hidden treasurer to others! All proceeds go towards our annual Christmas Party in December. So, start your fall cleaning and bring lots of cash.

Jamboree On the Air (JOTA) Registration Due by 9/3/18

JOTA is the biggest ham radio event of the year. Last year, over 1.4 million scouts in 152 countries participated. With those numbers, it definitely has to be the biggest ham radio event too. This year we are hosting a site at Beale Air Force Base on October 20th as a part of Scout Expo. Scout Expo organizers are expecting 5,000+ scouts will attend. They have seen attendance as high as 7,000!! If you want to be a part of the action, you need to let me know ASAP!! The registration deadline is Monday, 9/3/18. This is necessary in order to process all the background checks.

Wow! That is an action packed two months!! Hope to hear you on the air!

73
Orion, AI6JB
President
AI6JB@ARRL.net

To: Contest Club Officers

The 53rd running of the California QSO Party is rapidly approaching and we hope your members will join in on the fun. I attach a link to an announcement ready to drop into your club newsletter: http://www.cqp.org/files/CQP2018-Newsletter.pdf

And here is a powerpoint you can use at your next club meeting:
http://www.cqp.org/files/CQP2018-Presentation.pptx

If you have members planning a County Expedition, please remind them to register their county as soon as possible. http://www.cqp.org/register.html

Thanks for your continued support for CQP

73,

Glen W6GJB, *CQP Chair*

Simple Homebrew VHF and UHF Antennas

By Gerry Brentnall, WA6E

On the Elmer Net a few weeks ago one subject discussed was VHF/UHF antennas for fiberglass motorhomes. I chimed in with some things I had done on my motorhome which worked well for me. I was asked if I would write an article for our Newsletter to which I reluctantly agreed. The fact is my antennas are not works of art; they are just functional, cheap and easy to make. Also you should know that I am not an electrical engineer. If you are an electrical professional, you may want to skip this article so as not to be offended by my ignorance of the finer RF details of concern to professionals. I saw an email tag line once that read, "Theory don't mean squat if it don't work." My mantra is just the opposite: "If it works, ignore theory." So with that warning having been said, here are some VHF/UHF antennas I have made that work and work well.

First, you are undoubtedly aware that there are many designs out there for various kinds of antennas (and when I use "antennas" in this article I mean only VHF and UHF antennas, not HF antennas, which is another matter entirely). You can find all kinds of designs if you search using Google or equal. For example, many clubs have had sessions for building your own J-pole antenna. You can find plans all over the Internet. The antennas are relatively easy to build and work well. But is this really what you need?

The first thing to do is to define your requirement. If you are going to sit in your ham shack anywhere in the Sacramento area and talk to other hams through any of the high-level repeaters around here, then you don't need much of an antenna or, for that matter, power at all. A few watts and a wire will often do the trick. But if you want to work another ham on simplex and he/she is 100 miles away you'll need lots of power, a big tower, and a high gain antenna such as the Fisher-Price 12 db gain Moonraker Special. (OK, there is no such antenna but you get the idea). If that is what you want to do then you need read no farther – this article won't help you. But for everybody else, here are some ideas.

As a preliminary matter we must address the math. The MATH? Ugh. I know. I'm sorry. But you simply can't do this without paying some attention to the math. We're not talking about derivative calculus to determine the db gain of an isotropic antenna, we're talking simple math. And we're talking mostly about half-wave dipoles or variations thereof. So swallow hard, here's the first formula: To determine the length of a half-wave dipole divide the speed of light by the frequency - this will give you the length of a full wave. Divide that result in half. If you check the ARRL antenna handbook you will see that the formula for the overall length, in feet, of a half wave dipole is 468 divided by the frequency in megahertz. I can't do that in my head while at the workbench with soldering iron in hand. So instead how about calculating the overall length in meters? Light travels at just shy of 300 million meters per second. So if you take 300 and divide it by the frequency in MHz, you'll get the length of a full wave. Divide that in half for a half wave dipole. So, for example, our repeater is on 145 MHz. 300 divided by 145 is, um, it's ….. well, I'm not sure but I know if the frequency was 150 MHz the wavelength would be 2 meters. A half wave dipole would be 1 meter. 1 meter is, more or less, 39 inches. So each leg of the dipole is about 19 inches. OK – that's not precise but it's close enough to work with for our purposes. For UHF (445 MHz) use about 6.5 inches. What we are creating are either dipoles or monopoles where the single-element antenna is usually fed at the bottom (with the shield side of its unbalanced transmission line (coax) is connected to some ground plane such as the roof of your car).

First, an antenna for the RV. In the typical mobile installation you have a vertical wire as the radiating element and a sheet metal roof for a ground plane. The wire is one half of the dipole and the roof is the counter poise. In my RV the roof has metal ribs but the roof itself is fiberglass. The challenge was to create a ground plane. So I went to Walmart and bought the largest cookie sheet they had. I cut a ¾" hole in the middle where I mounted my NMO (which stands for "New Motorola" – the old Motorola mounts used a 3/8" hole and they sucked) mount for an antenna. I painted the cookie sheet, screwed it to the roof, sealed it against water intrusion, and ran the coax into the motorhome. I used a Larson NMO270SH antenna because it was dual band and short (the roof sits at about 12 feet above the roadway). Adjusted the antenna a bit for low SWR and powered it up. It works fantastic – if I can hear them I can usually work them. And for those of you with very sharp eyes yes, I know the antenna laying beside the cookie sheet in the picture is a 2 meter whip and not the Larson antenna I described. The Larson is on there now.

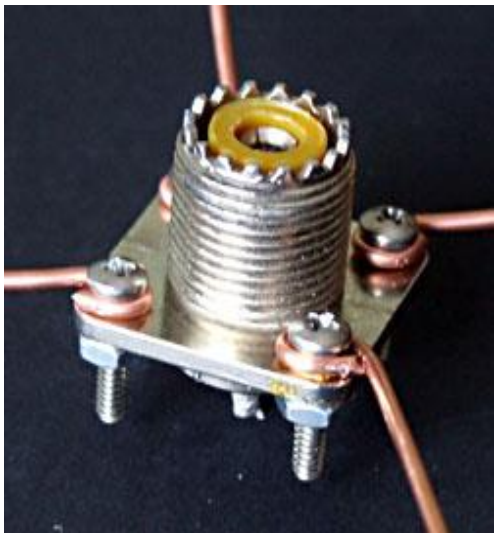
As a variation on this theme, Bob, K6UDA, opted to fasten a piece of sheet metal to the roof of his motorhome as a ground plane. He uses a magmount on the sheet metal. He, too, reports satisfactory results. It's no surprise that he made an informative video of his installation which you can watch here:

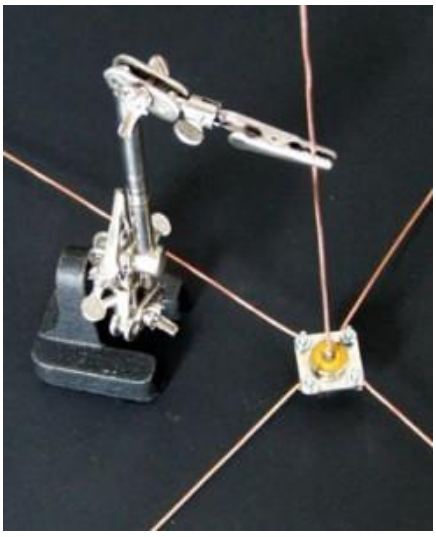
https://www.youtube.com/watch?v=ZwoYJljT9Ww&feature=youtu.be

Second, for a quick antenna at home you can go to Home Depot (or equal) and buy a piece of sheet metal. Mount a NMO mount on it or use a magmount. Place it on the rafters in the ceiling of your house close to the shack. Run RG-58 down to the rig and, presto, you're on the air. For that matter you can stick it on anything ferrous and it will work to some degree. I've seen them stuck up on top of refrigerators (are the tops still metal? My grandkids picture magnets won't stick to the door any more) and metal desks.

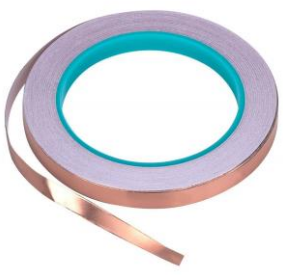
Third, for another quick antenna at home, you can make one using a SO-239 chassis mount connector. A SO-239 connector looks like this:

Remember that math we used earlier? Well now is when you use it. If you are on 2 meters cut a piece of wire about 19" long and solder it into the center connector. Then cut four more such pieces and solder or otherwise connect them to each corner hole to act as a ground plane. Bend each ground wire down about 45 degrees to increase the impedance to about 50 ohms. Hook up your coax. You can use tie wraps to secure the antenna to something to hold it in a vertical position. Use an SWR bridge or antenna analyzer to tune it and you're done. "Tuning" in this instance means to snip off bits of the center wire (only the center wire) until you reach resonance. Of course if the wire was too short you will have to solder on more wire. I've used these antennas all over the world and they work well. No gain involved but they get me on the air with my handheld with a respectable signal. They are, on the other hand, a little awkward to get into your suitcase as they don't fold well.



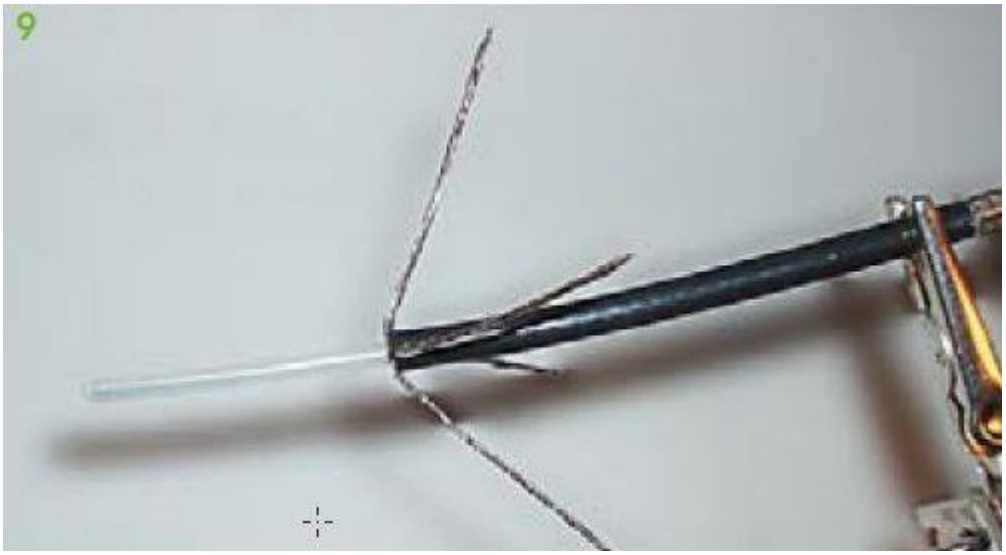


Fourth, an antenna for home, apartment or temporary use. There have been times when I was traveling and wanted to get on the air with something more than a rubber duckie antenna. Enter copper foil tape. Amazon sells it for about $6 for slightly more than 60 feet.



It has a sticky back. Remember our math? If you want to be on 2 meters cut off about 39 inches of this foil, peel off the paper on the back, and stick it to a window in a vertical position. Use a pen knife to make about a ¼" cut in the middle. Use your soldering iron to connect your coax to each side. Hold the coax in place with some duct tape and you are on the air. The antenna works "OK" but is easily affected by nearby things such as window frames. If you have the means you can check the swr and trim as needed. I don't travel with SWR bridges so I couldn't do that. Nevertheless, it worked well enough to get me on the air. When you're done, peel it off the window and throw it away.

Fifth, a coaxial antenna. A coaxial antenna is a variant of the dipole, designed for use with an unbalanced feed line such as coax. One side of the antenna element consists of a hollow conducting tube (i.e. a pipe) through which a coaxial cable passes. The shield of the cable is connected to the end of the tube at the center of the radiating element. The center conductor of the cable is connected to the other half of the radiating element. If you Google this you can also call it a "vertical sleeve coax antenna" to see some YouTube videos. For me this has been a great, all around useful, no gain antenna. To quickly make it for VHF, remove the outer jacket off your coax about 20 inches from the end. Then peel the inside braid down. To do this I usually push the braid down a bit to loosen it up (like taking off one of those Chinese finger torture devices), bend the coax right where the outer jacket stops, make a small hole and pull out the center conductor. Then pull the now empty braid (which looks like a shedded snake skin) down alongside the coax. Tie the coax to some support and you should be on the air. Trim the center wire a bit if you can measure the SWR. Works well. Here is a picture of a coaxial antenna where they got fancy with the braid and made individual radials. Radials may make it work better, but peeling back the coax also works pretty darn well.



I've made a few of these over the years but two of them stand out in my memory. The first instance was in 1974. I was in the Air Force and living in Dayton, Ohio when a big tornado all but erased the nearby town of Xenia off the map. I was doing search and rescue with a team. The police department radio system was off the air as the tower next to the building had toppled. Another guy and I found the coax that used to lead to their antenna. Using our pen knives, electrical tape and a rough estimate of measurements for their frequency, we made a crude coaxial antenna. Connected it to a pipe using the electrical tape and – presto – they were on the air. I heard later that the antenna performed quite well and provided coverage into a few spots where previously coverage was marginal.

The second instance I was again living in Dayton, Ohio. My brother was flying for Northwest Orient Airlines. He was flying 727's (remember those?) on milk runs all over the U.S. The statute of limitations has run on this and he is now retired so I can tell this story. I had a tall tower with a nice high gain 2 meter antenna on it. He had a small Icom handheld he took when he flew. I made a coaxial antenna for him using a mini coax (I don't remember the number (RG 174 maybe?) but it was about the diameter of pencil led). On one end I mounted a connector for the antenna jack on his handheld. On the other end I had pulled out the center conductor and split the end per my instructions above. So at the end of the 3 foot piece of coax was about 19" of center conductor and about 3" of braid connected to an alligator clip. He had told me that there was a screw just below the side window where they would hang a clip board so I opted to use that as the counter poise. So he would use tape to mount the center conductor on the side window and connect the alligator clip to the screw. I could work him almost anywhere in the northeast. One time I worked him shortly after he took off from Milwaukee until he was on approach to Washington D.C. It was great fun. My point in telling you this is that this antenna worked great. I never did check the SWR but you know the rule: If it ain't broke, don't "fix" it.

So what's the moral of this article? Antennas don't have to be bought or be complex to be effective; you can probably make it yourself. No technical knowledge? Who cares? Uncomfortable with all the math? For 2 meters remember 19" per side and go for it. If you somehow think you need higher power, please make sure your antenna is working OK and resonant before increasing power. And always be aware of the proximity of the antenna to your body – work to minimize near field exposure (meaning get the antenna away from you).

Try various configurations and let us know how it works. If I can do it, you can do it!

Gerry
WA6E

BOARD OF DIRECTORS MEETING MINUTES
August 10, 2018

The SFARC Board meeting for August commenced at 1800 hours at the Mel's Diner restaurant in Auburn.

Roll Call: All officers and Directors were present with the exception of Mark-W8BIT. Guests included Richard-WA6RWS, Al- NI2U and Andrew-K6OP.

REPORTS and DISCUSSIONS

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

VP Report: Mike-KK6GLP had nothing to report.

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

Treasury Report: Sharron-KK6RGV submitted her financial report to the board which was examined. Mike-KK6GLP advised he will assist Sharron on reconciling account balances.

OTHER DISCUSSIONS

Repeater: Richard-WA6RWS advised the repeaters are working. The voice over IP (VOIP), firewall and router have been installed.

Sunshine: Richard-WA6RWS advised Eldred-KD6ZSL will be moving to Washington state and wants to give his tower away.

Membership: Richard-WA6RWS advised membership now stands at 117. Orion-AI6JB advised the club's insurance policy needs to be updated to reflect the increased membership.

Nominations: Rich-AA6RS has candidates for all but one position.

VE: Al-NI2U advised there were 3 candidates resulting in 1 technicians and 1 extra. Al advised he's working to implement the scholarship for young candidates.

Events: Mike-KK6GLP advised the Cystic Fibrosis Cycle for Life is October 7th, needs volunteers. Mike will have a sign-up list for the Cycle for Life at the general meeting.

WEB: Herb-KM6JBI is working on a web based membership application with Richard-WA6RWS.

JOTA: To take place at Beale AFB October 20/21. The last day to sign up September 4th.

Club Picnic: September 22nd, 10-2PM at Applegate park. Brian-AI6US and Chip-KM6MDF are working on details.

Christmas Party: December 15th, at the Auburn VFW Hall. Chip-KM6MDF's wife Pam will chair the Christmas party and will be assisted by Barbara-W6EVA.

Feather Banner: It was agreed the height of the banner to be 8'.

New Business

Orion-AI6JB reported the LDS Church will have a preparedness event on September 8th, in Auburn. Club will attempt to have an amateur radio booth on display.

Hamfest March 16th 2019.

Field Day. Brian-AI6US discussed forming a committee to explore field day location alternatives. The first meeting tentatively January 19th, 2019.

Meeting adjourned at 1858. Submitted by *Bruce Anderson, SFARC Secretary*

GENERAL MEETING MINUTES
August 10, 2018

The SFARC General meeting for August 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 Mark-W8BIT. Orion led approximately 42 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. Orion advised the feather banner background color is going to be red and Herb-KM6JBI is finalizing the design. Additionally, Orion reported the LDS Church will have a preparedness event on September 8th, in Auburn. He asked for volunteers for an amateur radio booth. Hamfest March 16th, 2019.

Vice President's Report: Mike-KK6GLP reviewed upcoming presentations and events.

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 reported on the club's finances.

Directors

Brian-AI6US discussed forming a committee to explore field day location alternatives. The first meeting tentatively January 19th, 2019.

Repeater Report: Richard-WA6RWS reviewed the repeaters status. Advised the auto patch is now long distance capable. Richard also reviewed the codes for different repeater functions available to members.

Sunshine: George-KG6LSB reported he is cancer free!

Membership: Richard-WA6RWS advised membership now stands at 117.

VE's Report: Al-NI2U advised there were 3 candidates resulting in 1 technicians and 1 extra.

Events: Mike-KK6GLP advised the Cystic Fibrosis Cycle for Life is on October 7h. Mike needs volunteers and had a sign-up list for the Cycle for Life at the front desk.

Satellite Report: Greg-KO6TH briefed members on recent cube sat launches and the Perseid Meteor showers.

Refreshments/Drawing: Chip-KM6MDF handled this evening's refreshments. A refreshment chair is still needed as Chip is volunteering on an interim basis. Doug-KM6QET reviewed the evening's prizes.

WEB: Herb-KM6JBI is working on a web based membership application.

Groups io: Dennis-WU6X reviewed the club site.

Contests: Dennis-WU6X reviewed the North American QSO Party. Orion-AI6JB reviewed the California QSO Party October 6/7. Club call sign authorized.

ARES: Carl-N6CKV updated members on ARES activities and advised fire conditions are at "Red Flag "status.

Nomination Committee: Rich-AA6RS has presented to the board the current nominations for club officers and directors for November's election. Deadline for submittal of nominations is September.

JOTA: Orion-AI6JB advised the event to take place at Beale AFB October 20/21. The last day to sign up is September 4th.

Club Picnic: September 22nd, 10-2PM at Applegate park. Brian-AI6US and Chip-KM6MDF are working on details

Christmas Party: December 15th. Chip-KM6MDF's wife Pam will chair the Christmas party and will be assisted by Barbara-W6EVA.

Tec Ten: Bob-WE6C gave informative and helpful discussion on Smith Charts.

Presentation: Bill-K6KN gave an exciting overview and live demonstration of T/Fox Hunting.

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 **Mel's Diner** 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.

Meeting adjourned at 2140. Submitted by *Bruce Anderson, SFARC Secretary*

Saturday, Oct 6th, 2018 - Benicia, CA

AMATEUR RADIO LICENSE CLASS

Study Session followed by Exam

When: Saturday, Oct 6th, 2018
7:30 AM - 5:00 PM

Where: Benicia Senior Center
1201 East 2nd Street, Benicia

What: Technician Class (beginner's level)
General Class Upgrade (for those already licensed as a Tech)

Fee: $30.00 cash at the door
(Includes exam fee)

Register: www.BeniciaARC.com

Questions: HamRadioClass@BeniciaARC.com or Art at (925) 212-9953

Conducted by:
Benicia Amateur Radio Club (BARC)
Member W5YI VEC
Serving the Benicia Fire Department and the Residents of the City of Benicia

Class size is limited. Advance Registration is Required.
No prep or prior study required.

Prospective Hams should plan on attending a free Get-On-The-Air Class after passing their test, to become familiar with Amateur Radio operations

Reserve Your Space - Become a Ham in One Day!

Can't make the upcoming class? Check our website periodically for our next session.

Element 4 (Extra class) You need only pay the test fee of $14. We do not provide study materials for Element 4.

File: Ham Class Oct, 2018 flyer

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

2018 MEMBERSHIP APPLICATION

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

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

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

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

ARRL member? Yes / No (circle one)

DUES / DONATIONS:

Membership: yearly * $22.00 or 20.00 X how many years _____ = $_____ *** see below Multi-year Discount

Associate: yearly $7.00

Auto Patch Donation: $_____

Misc. Donation: $_____

Repeater Donation: $_____

Newsletter Booster: $_____

Christmas Donation: $_____

Name Badge $10 or $15 (circle one) ** see below for type of badge requested Name on Badge_____

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

** Clip Badge = $10; Magnetic Badge = $15

*** Multi-ear DISCOUNT membership $20 per year for 2 or more years (New or renewal)

OFFICE USE ONLY:

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

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

Rev. 1-01-2018