



P.O. Box 6421 Auburn, CA 95604

November 2012

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

At The Key of SFARC:

PRESIDENT

Bob Brodovsky, K6UDA
bob@whpmotorsports.com

VICE PRESIDENT

Al Martin, NI2U
amartin4@wavecable.com

SECRETARY

Dennis Gregory, WU6X
wu6x@hotmail.com

TREASURER

Richard Kuepper, WA6RWS
rkuepper@ymail.com

DIRECTORS

Charles Baker, AE6LR
Gary Martinez, N6UWQ
Jim Griffith, K1GAZH

FIELD DAY CHAIRMAN

Al Martin, NI2U

REPORTERS

Satellites: Greg, KO6TH
History: Gary, KQ6RT
Misc Radio: Fred, K6DGW
Sunshine: Richard, WA6RWS
rkuepper@ymail.com

REPEATERS

145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 94.8)
223.860 (-1.6 MHz/PL 100.0)

CLUB NET

Thursdays, 7:30PM, W6EK/R
145.430

CLUB MEETINGS

Second Friday of the month,
7:30PM at the Library, 350
Nevada St, Auburn CA

CLUB BREAKFAST

Last Sat of the month at Susie's Café
Cirby at Riverside, Roseville – 8:00 AM

NET CONTROL OPS

Dave Jenkins, WB6RBE
Gary Cunningham, KQ6RT
Norm Medland, W6AFR
Casey McPartland, W7IB

NEWSLETTER EDITOR

Barbara Anderson, W6EVA
916.624.1343
anderson51@starstream.net

WEBMASTER:

Carl A Schultz, WF6J



Calendar:

Fri 9 November: Club Meeting

Sat 24 November: Club Breakfast

Sun 11 November:



Inside this issue:

- *President's Report*
- *Small Magnetic Loop Antennas*
- *Board of Directors Meeting Minutes*
- *General Meeting 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 Report

It's election time again, and it seems like it was just a year or so ago that I was tapped on the shoulder after offering to help out with club business. Now, it's time to tap others to help run the club business. According to our bylaws, one of our long time board members, Jim KI6AZH is termed out. His guidance and experience has been invaluable to the board. Likewise, our Vice President, Al NI2U has termed out from the officer's position and would like to sit in the back of the room for a year. Al's experience, enthusiasm, and organizational skills will be sorely missed.

This year's nominating committee has some great prospects but with roughly 20% new members added to the rolls, I'm asking the membership to step up and seriously think about involving new blood on the board. I'd love to show up in two weeks and have two or three contenders for each post on the board.

Last month I attended my first Pacificon. What an experience. I met up with my uncle Fred, W7LQL who drove in from Ashland OR. I got to operate W1AW and see all the new Elecraft gear. I was so enchanted with the KX3 that I bought one. In fact I spent my whole paycheck at Pacificon this year. Lots of cool new toys to share with you all. I was amazed at the amount of Hams packed into one place. The manufactures midway was really the highlight of the trip for me, seeing all the new radios and other toys all setup and ready for playing is beyond cool. I realized I wasn't the only club member that attended because I saw many familiar faces and met a few new ones. If you haven't ever been to Pacificon, I highly recommend it; just leave your bank card at home. I'm thinking of a trip to Dayton next year, I hear that's a must see.

By press time, we will have had two additional service related events. I encourage more of the membership to step up and volunteer for these events. It seems as if the same few folks are doing all of the events. Please, please, PLEASE, volunteer for one of these events. They are fun, you get practice operating in a directed tactical net, and if more folks would help out, it takes the load off the other participants. It's also another excuse to play with radios.

(Continued on page 3)



As my term as president draws to a close, I can't help but to wonder if I've met the expectations of the club. Obviously I didn't set the bar too high. I wanted to help revitalize the club's membership, and I think we've made a pretty good start. My goal for next year (or a head start for someone else as president) is to build on the membership gains of 2012 and to offer more opportunities to get involved and benefit from the club. So what does that mean? We meet up once a week on the net, some of us on the prepper net too. With well over 50 hams in this club, the W6EK repeater should be a beehive of activity. What if we could organize our own contests? Why not? Imagine our own local SOTA. How about some sort of 2 meter sideband contest? There's a slice of 10 meters as well as the entire VHF/UHF spectrum open to all license classes. What's stopping us from having our own 40 meter CQ contest? There could be very valuable prizes awarded...maybe even a clock! I need ideas from the membership. I'll propose the first contest and call it the "name your own contest" contest. The rules are simple. Come up with some sort of contest, game or radiosport, complete with rules, objectives, and awards. Got another idea for the club? Email me at K6UDA.

73,
Bob - K6UDA



Dennis H. Gregory
Instructor/Technici

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Miscellaneous Radio

Small Magnetic Loop Antennas

This month, we begin with an economic transaction. Some of you may remember that I had a Buddipole antenna which I used on field events such as the Flight of the Bumblebees or QRP To The Field. I bought it a number of years ago at Pacificon, and got a lot of good use from it.



Here it is on its tripod in a vertical ground plane configuration on Leviathan Peak with Rich, NU6T, for Field Day a year ago. We were activating Leviathan in the Summits On The Air programme. I had purchased the full kit several years before I discovered SOTA and it turned out to be a pretty good portable antenna for field operations.

The Buddipole literature offers a large variety of possible configurations, it's sort of the Erector Set of antennas, and I figured I'd eventually try them all. What I discovered in actual practice in the field was that there were really just two configurations – horizontal and vertical. All the various ones with the arms horizontal, in a Vee, in an L-shape, or whatever were basically just horizontal. I never found any difference

between them.

Now, horizontal antennas are quite sensitive to height above ground. Less than $\frac{1}{4} \lambda$ and they radiate straight up. Get them up $\frac{1}{2} \lambda$ and they start to behave more like antennas that actually work. However, at 20 meters, $\frac{1}{2} \lambda$ is around 32 feet, hard to achieve in a field environment.

I finally settled on a vertical ground-plane configuration with two radials. It worked, sometimes better, sometimes not so much. However, since the ground-plane includes its own ground, so to speak, it tends to be insensitive to height which is good in field environments. And, my Buddipole was fairly heavy ... about 13 lbs. Most of you have seen me, I'm usually in cargo shorts, and I have some orthopedic problems that limit how far I can backpack. So I sold my Buddipole after discovering SOTA, it was just too heavy and took me too long to set up and take down on a summit.

<begin digression>James Maxwell, in the 19th century, rather amazingly figured out the exact mathematical description of electromagnetic radiation at a time when light was the only known example and even that was still under dispute. One of his findings was that a varying [alternating] current in a conductor will create electric field waves that will propagate in space at the velocity of light. We call them the E-field. He also found that all of these electric field waves, regardless of conditions, will have a second component, a magnetic field whose vector intensity is perpendicular to the E-field. And, you can't have one without the other ... it's just the way it is. We call the magnetic field the H-field, and that's why they're “electro magnetic” waves. <end digression>

The purpose of an antenna is really a coupler. It couples the alternating current from our transmitter to one or the other of the components of the electromagnetic wave we're trying to create and launch towards the latest Dxpedition. The Buddipole couples to the E-field. So do the vast majority of HF, VHF, and UHF antennas that hams use. A wire in the sky, a yagi, a rubber duck ... the potential varies along the length of the conductor which creates a varying electric field, and Maxwell assures us, if there's an E, there will be an H perpendicular to it, and it will thus be an electromagnetic wave, and it will head for 3D2C at the velocity of light.

So, do we have to couple to the E-field? Well, the majority of ham antennas do, but “No, we don't” ... we can also couple to the H-field. It doesn't matter, “Feed energy into one, you get the other, and a wave.” How? Well, taking a cue from transformers which are coupling devices that operate on the magnetic field of an alternating current using conductors wound in loops; perhaps a loop will do the job? And, yes, it will. The current in the loop creates a magnetic field that couples to the H-field of an electromagnetic wave, Maxwell assures us that the E-field will magically be there, and it's all off at the speed of light for 706T.¹

So, having sold my Buddipole, I decided to purchase an AlexLoop by PY1AHD. I have no financial interest in his business, I could have homebrewed it, many have, but I'm lazy these days, and the proceeds from my Buddipole almost exactly paid for it. Mike, KD9KC, in El Paso, also a SOTA guy, is a very good friend, I've worked him on summits when he is using the loop, and sometimes his 5-7 watts from his FT-817ND is amazingly strong, so I figured, let's move on to a new experiment. And, the AlexLoop weighs about 1.5 lbs and folds up into a small canvas case about the size of an iPad.

So, I now have one. How does it work?

1 This is true for small loops relative to the wavelength. A large loop, perhaps $\frac{1}{4} \lambda$ on a side is an E-field antenna.

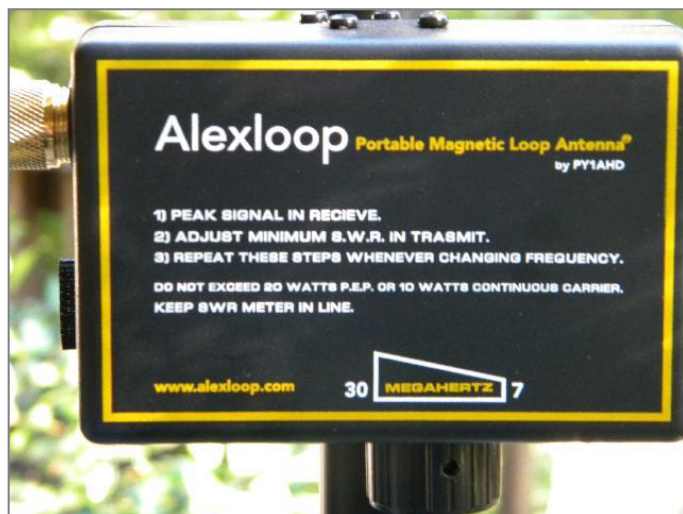
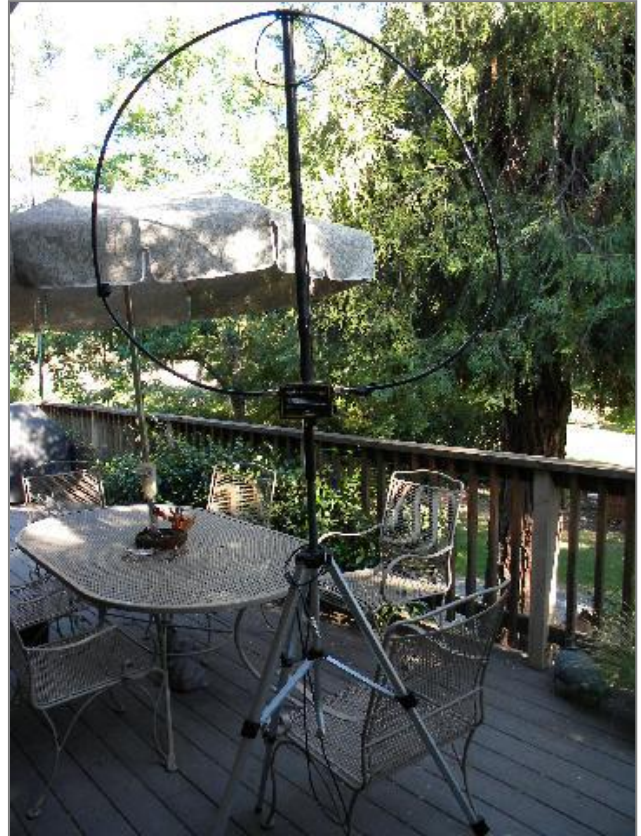
Here it is on our deck when I was trying it out. First off, it's really a transformer. Power is fed to the small loop at the top, the primary of the transformer. The secondary is the big loop, made of RG-8 coax that is made resonant by a variable capacitor in the box at the bottom of the loop.

I know ... it looks like, "Hey Fred, you been smoking your socks again? How can that actually work?" Well ... it does. First off, the components [primarily the capacitor] are good for about 10 watts. This is a field antenna and carrying enough power for QRO to the field is pretty much a non-starter. So, 10 watts is fine.

Secondly, when a transformer is resonant, the coupling between the primary and secondary goes up astronomically. But there are other advantages too.

The ground is a big factor in E-field antennas. It is conductive, it affects the way the conductor couples to the E-field, and it is lossy. Thus, we go for optimum height when dealing with them.

The ground, for the most part, has a permeability of 1.0, that is, it doesn't interact with magnetic fields [unless you're parked on railroad tracks], and, for all practical purposes, doesn't exist. Thus, an H-field antenna doesn't really care how high it is. In the case of a small loop [compared to wavelength], a meter or so is plenty.



Using the loop is simplicity. It sets up in about 5 minutes. I mount mine on a tripod I found at Home Depot, I just took the Rain Bird sprinkler off the top, the hose connection is still at the bottom. I'm meaning to saw it off, but haven't gotten to that yet.

That knob on the bottom of the box adjusts the capacitor. I adjust it until the noise in the receiver peaks. Then I go to TUNE on my K2, and adjust for minimum SWR, and I'm on the air. Tuning is a bit touchy on 40 and 30m, the higher you go in frequency, the more latitude you have. You can QSY reasonable distances on CW or SSB, you have to retune when changing mode. But,

since the knob is just above my shoulder, this is pretty easy.

So, "Efficiency?" I hear you say. Well, it's small and it obviously will suffer some in the efficiency department. Transmitting, I actually find it seems to work about equal to my Buddipole which was a small, inductively loaded E-field antenna. On receive, signals tend to be about 1 or so S-units weaker.

But, the noise is 2-3 or more S-units lower, and the antenna is bi-directional, and I've often been able to null the noise. Signal to noise ratio is all that counts if you can hear the signal.

So, right now, I'm pretty happy with it. It is light, it sets up in less than 5 minutes, and it works. While it is behind my shoulder and I'm working someone on the east coast with 5W from the K2, I do wonder a bit ... **all** the magnetic lines of force from my antenna, including those that intercepted his antenna 1,000 miles away, and all the rest actually come together through my loop. So far, I've had no physical symptoms from this and unfortunately, lining my hat with Reynolds Wrap won't help all that much. ☺

I can't help but think for a moment what Maxwell did for us. Our hobby depends on the fact that his analysis of electromagnetic waves was right. So far, to any precision we've taken them, they are exact here on Earth. We see [or detect] electromagnetic radiation from the entire observable universe, some 13 billion years in time and maybe 47 or so billion light years in space [it's been expanding all 13 billion years]. Everything we observe in that radiation matches Maxwell, to whatever precision we choose, making Maxwell's description of electromagnetic radiation one of the most precise physical descriptions we know of. I find it kind of nice that my hobby is that well grounded in the entire universe. ☺

73,

Fred K6DGW



BOARD OF DIRECTORS MEETING MINUTES October 12, 2012

The SFARC October Board meeting commenced at 1815 hours at Placer County Library in Auburn; a different venue than normal due to the White Elephant Auction to be held later that same evening and the Board's desire to be available to help setup the auction.

Officers present: President Bob Brodovsky-K6UDA; Vice President Al Martin-NI2U; Secretary Dennis Gregory-WU6X and Treasurer Richard Kuepper-WA6RWS. Directors present were Chuck Baker-AE6LR, Jim Griffith-KI6AZH and Gary Martinez-N6UWQ. Also present were VE Examiner Dave-NO6NO and Webmaster/PIO Carl Schultz-WF6J.

REPORTS and DISCUSSIONS

President's Report: No report.

VP's Report: Al reported we received a donation from Sue and Glen Thomlan (WA6KKK). Also, an Elections Committee will be formed to take nominations for vacating Officer positions in November.

Secretary's Report: No report.

(Continued on page 7)

Treasurer's Report: Richard reported a beginning balance as of September 1st was \$3,226.64. Expenses in September totaled \$58.70. Deposits included a donation from the Lincoln swap and refund from the Newcastle PO box totaling \$246.00. Net cash on hand at end of September is \$3,413.94. Richard also reported that Jim Carman-K6ARR has donated all his equipment to the Club via his Will. The Board will ask for volunteers to assist in cleaning up Jim's sheds and collecting the equipment.

Repeater Reports: No report.

VE Report: no report

Property Officer: No report.

Web/PIO Report: Carl reported that the Swap Meet Committee's research into whether the Club will do a swap meet next year has been put on hold, due to the Lincoln swap meet now planned in 2013. Discussion to be led at the next meeting as to whether the Club would like to participate with a few tables at that meet instead of holding our own event.

Other Reports: Richard reported on the possibility of a large room at Auburn Faith Hospital that may work as a larger venue for General meetings, free of charge. Richard will look into the details.

Meeting adjourned at 1900 hours. Submitted by *Dennis Gregory-WU6X, SFARC Club Secretary*

GENERAL MEETING MINUTES

October 12, 2012



The SFARC General meeting for October commenced at 1930 hours at the Placer County Library in Auburn. Officers present were President Bob Brodovsky-K6UDA; Vice President Al Martin-NI2U; Secretary Dennis Gregory-WU6X and Treasurer Richard Kuepper-WA6RWS. Directors present were Chuck Baker-AE6LR, Jim Griffith-KI6AZH and Gary Martinez-N6UWQ. Also present were VE Examiner Dave-NO6NO and Webmaster/PIO Carl Schultz-WF6J.

President Bob-K6UDA led approximately 40 members and guests in a Pledge of Allegiance to the flag and then introduced Officers. Due to the White Elephant Auction planned, general meeting attendees were not introduced and an abbreviated meeting agenda followed.

REPORTS:

Past minutes – The September General meeting minutes, as published in the Newsletter, were unanimously approved.

President's Report – Bob briefly discussed the upcoming nominations for Officers and the Election Committee being formed to seek nominations. Jim-KI6AZH will Chair the committee.

VP's Report – The Club received a \$50 donation from Sue and Glen Thomlan-WA6KKK.

(Continued on page 8)

Treasurer's Report – Richard reported a beginning balance as of September 1st was \$3,226.64. Expenses in September totaled \$58.70. Deposits included a donation from the Lincoln swap and refund from the Newcastle PO box totaling \$246.00. Net cash on hand at end of September is \$3,413.94.

Secretary's Report – No report.

VE's Report – Dave-NO6NO reported 19 candidates took exams; (7) new Techs, (5) General and (4) Extra class passing.

Repeater Report – No report.

Satellite Report – No report.

Sunshine Report – Richard-WA6RWS reported that Len, our famous auctioneer, is recuperating from ill health.

Web/PIO Report: A few changes have been made to the Club website and Carl invited those in attendance to have a look and to please comment and make suggestions.

OLD BUSINESS:

Swap Meet Committee – Carl reported that the Swap Meet Committee's research into whether the Club should do a swap meet next year has been put on hold, due to the Lincoln swap meet now planned in 2013 (previously thought not to be occurring). The Committee's recommendation is to look for a venue for a possible Club swap meet sometime in 2014.

ARES – No report

NEW BUSINESS:

Election Committee – Jim-KI6AZH volunteered to Chair the committee and will report in November.

Tech-Ten – None, due to the White Elephant Auction.

Presentation – None, due to the White Elephant Auction.

White Elephant Auction – The Auction was a smashing success, with Richard-WA6RWS sitting in as Chief Auctioneer, and George-KG6LSB assisting. There were some incredible bargains like the MFJ antenna analyzer-\$41; Vibroplex 1946 De Luxe Chrome Key-\$41, HT's, SWR bridges, 20AMP and 10AMP power supplies, coax, and much, much more. Everyone seemed to walk away with something, and we're already looking forward to next year.

General Announcements – The Club net is on Thursday's at 7:30; Board meeting at 6pm on general meeting nights at Round Table Pizza; the General meeting schedule; Club breakfasts (last Saturday at Susie's Café); the "Prepper Net" every other Wednesday on the 2m repeater at 7:30pm; see the Club website (W6EK.org) for more information or changing dates.

The abbreviated General meeting adjourned at 1948 hours and the White Elephant Auction commenced.

Submitted by, Dennis – WU6X, Secretary



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2012 MEMBERSHIP APPLICATION

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

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

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

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

Dues / Donations:

Membership: yearly*	\$22.00	Name Badge:	\$7.00	Yes (special name)_____
Associate: yearly*	\$ 7.00	Repeater Donation:	\$ _____	
Auto Patch Donation:	\$ _____	Newsletter Booster:	\$ _____	
Misc. Donation:	\$ _____	Christmas Donation:	\$ _____	ARRL member? (circle) Yes
No				

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

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