

July Club Meeting

Date: Friday, July 23, 2010

Time: Socializing at 7 pm, Meeting at 7:30

Place: Covington School, 205 Covington Road, Los Altos

Speaker: Mark Byington, Cobalt Power Systems

Topic: Photovoltaic Solar Power Systems

Summary: July is the perfect month to learn all about solar electric power. Mark Byington will cover all aspects of residential photovoltaic power systems including:

- The basics of PV systems
- Different types of roofs
- Ground mount and pole mount systems
- Pictures of typical installations (both the PV array and the inverter equipment)
- Selling power to the grid
- PG&E rate schedules; Time of use (TOU) – or how to “buy low and sell high”
- Battery backup systems
- Current government incentives
- Economics of PV systems; typical payback time; Return on investment (ROI)
- Environmental benefit of PV systems.

About the Speaker: Mark Byington is President and Founder of Cobalt Power Systems in Mountain View, <http://www.cobaltpower.com>, which specializes in designing and installing photovoltaic (solar electric or PV) systems for homeowners and businesses. Mark is an EE and former Amateur Radio Operator.

The club offers refreshments (great coffee, great cookies). Bring your questions for Dr. Know-It-All and get great answers.

Pre-Meeting Dinner, 6pm at the Beausejour Restaurant, 170 State St., Los Altos. There are Great Early Bird specials.

July Raffle Prizes

The prizes for the raffle at the July meeting are: First prize Diamond SX200 1.8 to 200 MHz SWR and Powermeter; Second Prize Maha MH-C9000 Wizard One Charger Analyzer including four 2700 NiMH Powerex batteries; Third Prize Kill A Watt Electricity Usage Monitor; Fourth and fifth prizes Icom Mug.

Upcoming Events

July 23	7:00 pm, Club meeting , Covington School
July 24	8 am to 9 pm, Am-Tech Day , SLAC NAL
Aug 5	7:30 PM, Board Mtg at the Los Altos Town Crier
Aug 14	Electronics Flea Market , hosted by WVARA
Aug 27	7:00 pm, Club meeting , Covington School
Aug 28	8 am to 9 pm, Am-Tech Day , SLAC NAL
Thursdays	8:00 pm, FARS net, 145.230(-), 100 Hz PL

See more events, [FARS Calendar](#) <<http://www.fars.k6ya.org/events/calendar>>

President's Corner



Membership Meeting. The next regular membership meeting is Friday, July 23rd at 7pm. Our program is “**Power from the Sun**” with Mark Byington of Cobalt Power Systems. July is the perfect month to learn all about solar electric power. The talk covers all aspects of residential photovoltaic power systems, See k6ya.org/meeting

meetings for more details.

Am-Tech Day. The next Am-Tech Day is scheduled for July 24th. Don't miss out! There will be food, radios, and hams. Check the web site (k6ya.org/amtechday/) or the email list (k6ya.org/mail/) for the date and program information.

Electronics Flea Market. The next electronics flea market is August 14th. The host and beneficiary of this flea market is West Valley Amateur Radio Association. Check out www.electronicfleamarket.com for all the details.

Field Day. Thanks to everyone who came out for Field Day. We had great weather and everything went well. We had a nice turnout for the BBQ and plenty of help with set up and take down.

If you have Field Day related expenses, please get them to the Treasurer for reimbursement.

Homebrew contest. It's time to think about an amateur radio project for the Homebrew contest in September. This is your chance to share your experience with the audience. Prizes will be awarded to the best entries.

Email Notices. Subscribe to the FARS Announcement list (k6ya.org/mail/) to receive reminders of FARS activities and other news.

de Mikel, KN6QI

June Meeting Report

RFID tags are showing up everywhere, from anti-theft devices to U.S. passports to the credit cards of the future to windshield devices. Al Scott of Besser Associates explained the different kinds of RFID tags, their antennas and circuit technology, the digitally encoded messages they can send, frequencies, power levels, and communication ranges. Al also described how the tags, which have no battery, convert the received power in order to transmit information. Many tags use ~900 MHz dipole antennas, about 6.5 inches in length, made of conductive ink on cardboard. This was an entertaining and educational meeting.



Al Scott, Besser Associates
June Meeting Speaker



Dave, Neil, Mike, Dick
June Raffle Winners

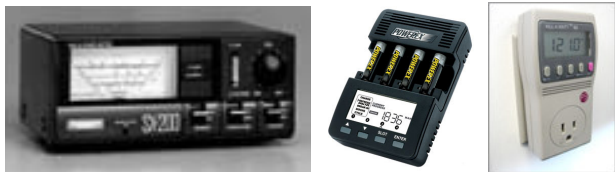
The first prize, an Icom IC-V80 2 meter 5.5 watt handheld with loud receive, was taken home by Dave Platt, AE6EO. Mike Pechner, NE6RD, won the 2nd prize, MFJ-392B Headphones. 3rd prize, 2- Silver Teflon PI-259s, was won by Dick Baldwinson, N6ATD. ARRL Repeater Directories, 4th prize, were won by Neil Harris, AF6NC. The Wish You Were Here (WYWH) number for Antonio Forenza, KE6MRG, was chosen. Unfortunately, Antonio was not present to claim the prize of \$10.

CLUB INFORMATION

President:	Mikel Lechner, KN6QI
Vice President:	Steve Stearns, K6OIK
Treasurer:	David Cooper K6WA
Secretary:	
Radio Officer:	Phil Hawkins, KA6MZE
Training Officer:	Kevin Weiler, K6XXX
Relay Editor:	Mark Hardy, K6MDH
FARS Board: Dick Baldwinson N6ATD, Peter Chow AF6DS, Robert Flemate KE6TFU, Nimit Hongyim K6XOX, Gerry Horn K6TXD, Charlie Morrin KI6FXY, Barbara Neuhauser AE6RM.	
K6YA Trustee:	Phil Hawkins, KA6MZE
FARS Web Page:	http://www.fars.k6ya.org
Download Relay:	http://www.fars.k6ya.org/relay
Club members and non-members are encouraged to subscribe to the FARS Announcement list by browsing www.fars.k6ya.org/mail , clicking on Subscribe/Unsubscribe and following the instructions under "Subscribing to fars-announce."	
You may submit announcements to the FARS Announcement at fars-announce@svpal.org . The list is moderated and messages will be posted as approved by the list moderator.	
Contact the FARS board of directors at fars-board@svpal.org	
Club meetings are held at 7 PM on the fourth Friday of each month except January (Winter Banquet); and sometimes there are changes for June (for field day) and Nov. & Dec (for holidays).	
Annual club membership is \$20. Club badges are \$9. Visitors are always welcome! Directions in this newsletter. Talk-in: N6NFI (145.23-, 100 Hz) or W6ASH repeater (145.27-, 100 Hz).	
FARS <i>Relay</i> is the official monthly newsletter of the Foothills Amateur Radio Society. Contributions to the newsletter from members, family, and guests are earnestly solicited! Contributions are subject to editing and/or compression. All readable forms welcome.	
Here is how to reach the editor:	
Mark Hardy, K6MDH	
Mail: P.O. Box 2248	
Santa Clara, CA 95055	
Voice: 408-243-0701 (Before 9 PM, preferred)	
Email: mark.k6mdh@gmail.com , At FARS meetings.	

July Raffle Prizes

First prize for the July 23rd meeting is a Diamond SX200 1.8 to 200 MHz SWR and Powermeter. The SX200 measures forward and reflected power and VSWR and can be set to measure RMS or peak power. It has an SO-239 connector



Second Prize is a Maha MH-C9000 Wizard One Charger Analyzer including four 2700 NiMH Powerex batteries. The C9000 Digitally displays capacity, voltage, time and current. It has selectable charging and discharging rates. It can charge, refresh and analyze, break-in, discharge and cycle batteries. Third Prize is a Kill A Watt Electricity Usage Monitor. Fourth and fifth prizes are Icom Mugs. Pictures and information are from manufacturers' websites, diamondantenna.net, mahaenergy.com, p3international.com.

FARS Field Day 2010 Experiences

Phil Hawkins, KA6MZE

Low band (80/160m) station

Field Day 2010 saw another successful deployment of a 165 foot vertical antenna which was lifted by a 6 foot helium filled balloon. This vertical antenna was designed as a 5/8 wave antenna for 80 meter operation and worked well on 160 meters as a 1/3 wavelength antenna with the use of an MFJ tuner at the base. This vertical, which worked as the transmit antenna, used sixteen slightly lifted 50' ground radials. For receive capability, a Beverage antenna that is 300 feet long and five feet off the ground was deployed on the Field Day site. The Beverage antenna is a traveling wave antenna terminated at one end with a resistor equal to the characteristic impedance of the antenna. At the other end of the antenna is a 9:1 balun to match the antenna to the radio. Okay, but we are talking about two different antennas, one transmit and the other receive ported into the same radio. The answer to this is an automatic transmit and receive switch (T/R switch). Because of high loss incurred by the antenna being so close to the ground, a preamplifier is required to increase the signal to noise ratio (S/N) in order to pull the wanted signals out. An Ameco PT-3 pre-amp was used to do this.

During the Friday before Field day, I spent most of the day putting up the Beverage antenna so it could be tested that evening. The vertical antenna would not be deployed until Saturday night because 160 and 80 meters are not active during the day due to D layer absorption. So after deploying the Beverage antenna and setting up the GOTA station, I began testing the Beverage antenna. To test the Beverage antenna, I listened to WWV and WWVH on 2.5 and 5.0 MHz. Because a Beverage antenna is directional and it's major lobe faced Northeast while the null faced Southwest, WWV located in Fort Collins, Colorado (Male voice) should come in strong while WWVH located in Hawaii (female voice) should come in weak. The results indicated that the antenna had the expected directionality. During the daytime the GOTA station worked 20 and 15 meters while at night the station worked 160 and 80 meters as non-GOTA. Thus, FARS operated Field Day in the 3A category. Next was to put up the 165 foot vertical antenna.

Just before the pot luck barbeque, we laid down the sixteen 50 foot radials in the paved parking lot. As the Sun started to set and the wind died down, the helium balloon was filled to a diameter of approximately 5-6 feet. The 18 gauge insulated antenna wire was attached to the balloon and a small fishing line lure swivel to counteract balloon wind rotation was attached to the antenna. Because of the size of the antenna, a safety line consisting of 30 lb test monofilament fishing line was also attached in case of antenna breakage and balloon escape. Now with the antenna up it had to be matched; matching was done with an MFJ versa tuner which tuned the antenna with no real problem on 160 meters. Since this antenna is so large, it was susceptible to broadcast interference which causes problems with antenna tuning. So to eliminate the broadcast interference, a Dunestar 160 meter bandpass filter was used. This filter served well to eliminate the noise. Initially the first contacts were on 160 meters using CW followed by a few SSB contacts. 80 meters saw more field day activity than 160 meters with many more contacts made. Since 160 meters is a night-time winter band, there are plans in process

to go back up to Maryknoll in January for the CQWW 160 meter CW contest and launch the balloon system again. This pretty much sums up the HF low band antenna performance for the FARS Field day 2010. For field day 2011 more contacts could be made if we had more operators on these seldom used bands. If you are interested in working the 160 meter CQWW contest in January, please contact me by email at: sputnik@pacbell.net

Field day in General

This year, field day went fairly smoothly, Our field day classification was 3A, meaning three HF stations operating at one time on alternative energy (gas powered generators). We made a total of 990 contacts between all the stations including the GOTA station. This year FARS got a lot more press as we hosted a reporter from the Los Altos Town Crier. The reporter spent several hours at our field day site interviewing the field day captains and operators about the purpose and functions of amateur radio in an emergency setting. This article appeared in the Los Alto town Crier the first week in July. We were also the host to a mascot this year: a large gopher snake we found hanging around the VHF station this year (See Fig.1). A special thanks to the Field day Captains for this year: Paul Zander, AA6PZ our HF SSB captain; Michael Lechner, KN6QI our HF CW/ Digital captain; Nimit Hongyim, K6XOX our VHF captain; Michael Pechner, NE6RD our GOTA Captain; Byron Beck, KG6UOB for doing the NTS messaging; Joanne Dilley, KI6YRU for doing the information booth; Peter Griffith WA6VAQ, for arranging and doing the BBQ; last but definitely no least our transportation and port-a-potty captain Ron Green KG6RLG... Remember the job's not done, 'till the paperwork is through ☺. And thanks to all those who helped set-up, operate and tear-down the FARS 2010 Field day. See ya next year!!

- 73s TNX de, Phil Hawkins, KA6MZE



Photo courtesy of Nimit Hongyim, K6XOX

Fig.1 FARS Field Day 2010 mascot Gopher snake and me KA6MZE, Dick Baldwinson N6ATD in the HF SSB tent Saturday Morning

Pictures from Field Day 2010 - Setup



Welcome to FARS Field Day 2010



Setting up the tower for the Digital Station



Preparing the SSB Antenna



Ready to lift the SSB Tower

Pictures from Field Day 2010 – Setup (Cont.)



Setting up the Satellite Antenna



Ready for Operations

Pictures from Field Day Operations 2010



Operating VHF/Satellite



Launching the Balloon

Pictures from Field Day Operations 2010 (Cont.)



Operating the GOTA Station



Operating the Digital Station



Operating the SSB Station



FARS Field Day Site

Operations Photographs Courtesy Peter Chow, AF6DS

FARS 2010 MEMBERSHIP RENEWAL FORM

Date: _____

PLEASE fill out the form for all new/renewal memberships.

Name(s) & Callsign(s) & Class (E-A-G-T-N-None): _____

Mailing Address: _____

Home phone: _____ Work phone: _____

Fax (H or W?) _____ Packet BBS Address: _____

E-mail: _____ ARRL Exp Date(s): _____

Preferred modes: (e.g. HF-SSB/VHF/QRP/Other): _____

I'm willing to Elmer new hams with: _____

Special topics of interest / suggestions for club meeting speakers:

Dues: \$20 per year, new members add \$9 for badge fee. **Please note:** Membership runs from January 1 to December 31.

Send your check payable to FARS, to:

David A. Cooper
PMB 41
270 Redwood Shores Parkway
Redwood City, CA 94065-1173



How to get to FARS Club meetings (Visitors always welcome)

Meetings are held at the Covington Elementary School (directions below) on the fourth Friday. Socializing at 7 PM with the regular meeting at 7:30 PM. There may be changes in the meeting dates for January, June, November, and December.

DIRECTIONS:

From Interstate 280. take the El Monte exit Northeast. Cross Foothill Expressway. (A) At the first traffic light turn right on Covington. (B) Immediately at the fork take the left street (Covington). Go about 1/10th of a mile. Turn left into the parking lot. The gym is the tall building to your right with red and white stripes.

From Foothill Expwy., take the El Monte exit and go Northeast; then follow directions as above at point (A).

From US101 or El Camino: take San Antonio Road west (to Foothill Expressway). Then follow directions above at point (A).

TALK-IN via the [N6NEI](#) (145.230-; 100Hz PL) repeater or the [W6ASH](#) 145.27- (100Hz PL) repeater.