

October Club Meeting

Date: Friday, October 27, 2006.

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

Place: Covington School, 205 Covington Road, Los Altos

Speaker: Chris Verges, KG4YSN

Topic: Communications Network Design for Emergency Communications

Summary: Communications is the number one problem identified during and after most major disasters. Silicon Valley Wireless Users & Experimenters (SVWUX) is a non-profit group of wireless enthusiasts devoted to data networking using wireless technologies. They are designing and building a communications network to be used for long-term disaster relief efforts. Chris Verges, KG4YSN, will give an overview of the network, highlighting the unique solutions that SVWUX has developed.

About the Speaker: Chris Verges is an amateur radio operator and registered disaster service worker with San Jose RACES. He is also coordinator of the Silicon Valley Wireless Users and Experimenters (SVWUX). Chris works at Cisco Systems, Inc. as a BGP routing protocol engineer. Chris became involved with SVWUX after going to New Orleans and the Mississippi Gulf Coast to assist in the Hurricane Katrina relief effort, where he fixed, extended, and operated an ad-hoc communications network. The network supported the relief efforts of many groups such as the Naval Postgraduate School, FEMA, the Red Cross, Hancock County EOC, Waveland Fire & Police Departments, and others.

We will raffle off a grand prize at this meeting (winner's choice): Yaesu VX-170 2-meter handheld or a "Super Antennas" MP-1 Portable antenna covering 7 MHz through 450 MHz.

The club offers Anderson Power-pole crimping service and refreshments at the meeting. Be sure to attend for an enjoyable evening. Don't forget to bring your questions to Dr. Know-it-all.

Upcoming Events

| | |
|-------------|---------------------------------------------------------------|
| Oct 27 | 7:00 PM, Home Brew Contest , Covington School |
| Nov 2 | 7:30 PM, Board Mtg at the Los Altos Town Crier |
| Nov 4 | 8 AM to 9 PM, Am-Tech Day , SLAC, 8AM-9PM |
| Nov 17 | 7:00 PM, Club meeting , Covington School |
| Jan 19, '07 | 6:00 PM, FARS/PAARA Banquet |
| Thursdays | 8:00 PM, FARS net, 145.230(-), 100 Hz PL |

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

Presidents Corner

Club Meeting. Our next meeting is Friday, October 27th at 7pm. Communications is the number one problem identified during and after most major disasters. Chris Verges, KG4YSN, of Silicon Valley Wireless Users & Experimenters (SVWUX) will give an overview of unique communications solutions that SVWUX has developed.

Am-Tech DAY. The next Amateur Radio Technology Day is scheduled for November 4th at the Stanford Linear Accelerator Center. Check the web site (www.fars.k6ya.org/amtechday/) for the latest details and changes. Subscribe to the FARS Announcement list (www.fars.k6ya.org/mail/) to make sure you get an email reminder.

FARS/PAARA Winter Banquet 2007 is scheduled for Friday, January 19th, 2007 at 6pm. We expect to announce the speaker in a few weeks. It's always a lot of fun so don't miss it! We are now taking reservations, so use the signup form later in the RELAY, or go to the web site to sign up: <http://www.fars.k6y.org/banquet>.

Membership. A new year will soon be upon us, so members should think about renewing for the new year. Remember your membership entitles you our monthly newsletter and supports FARS educational programs.

Flea Market. Thanks to everyone who helped out with this month's flea market. Special thanks go to Ron Green, KG6RLG, for organizing it and Dave Cooper, KE6PFF, for handling the money. The 2006 season of flea markets has ended. The new season of flea markets starts on March 10, 2007. Check www.electronicfleamarket.com for details.

Elections. November is election time. The FARS November 17th meeting is our annual member meeting for 2006. So at this month's meeting we need to nominate five or more candidates for the FARS Board of Directors. The following seats are up for election: Mikel Lechner, KN6QI; Steve Stearns, K6OIK; Dave Cooper, KE6PFF; Phil Hawkins, KA6MZE; Robert Flemate, KE6TFU.

- de Mikel, KN6QI

September Meeting Report

September was the annual FARS home brew contest. Arv Hamer, WA6UUT, walked away with first prize for his VHF antenna test unit. See more on the Home Brew contest later in this Relay.



Arv Hamer, WA6UUT



Peter Sheerin, K6WEB

Peter Sheerin, K6WEB, won the raffle and took home the Daimond D220 Antenna. The Wish You Were Here number for Sharon Moerner, N6MWD, was chosen. Unfortunately, Sharon was not present.

FARS/PAARA 2007 Winter Banquet

Mark your calendars. The FARS/PAARA annual banquet will take place on Friday evening, January 19, 2007. FARS is again teaming up with [PAARA](#) to put on this special ham radio event. Past banquets have been very enjoyable and had large attendance. We have had great speakers and presentations, wonderful dinners, and great prizes. The banquet will be held at Michael's at Shoreline in Shoreline Park in Mountain View. A sign up form will be available at the FARS website once the prices are determined.

Schedule: 6:00 pm - Open Bar (No Host)
7:00 pm - Dinner
8:00 pm - Presentation

Attendance at the banquet is open to anyone, but reservations and payment in advance is required. Reservations may be made on-line at <https://www.fars.k6ya.org/cgi-bin/b-signup> or with a printed form at <http://www.fars.k6ya.org/events/banqsignup> or in this newsletter. Payment with your reservation must be received by January 15th at 12 noon. For more information see <http://www.fars.k6ya.org/events/banquet>.

We will be raffling ~\$1000 in valuable prizes at the banquet. Raffle tickets will be sold on site for \$1/ticket or \$5/6 tickets. We will have a NO HOST BAR for soft drinks, wine, beer, etc. Don't Miss it! This is going to be a fun time for everyone, so let's make it a big turnout. See you there!



**Bob, WA2CFN and Mike, W6WZ
2006 Banquet Prize Winners**



**Robert Schmieder, KK6EK
2006 Banquet Speaker**

Electronic's Flea Market Report

The flea market was held under cloudy skies this month, but no rain. Due to the weather change from the previous month, we sold more coffee (and we had to buy more) than anticipated and we didn't sell as much soda and water. There were no donuts left to distribute at the end, which was planned. Because of your valiant efforts, the event went well although Peter WA6VAQ had to go buy more coffee, cups, sugar and garbage bags.

I want to thank Martin KD6WJW, Mikel KN6QI, Dave KE6PFF, Tom KF6LWZ, Howard KG6GRO, Robert KE6TFU, Barbara AE6RM, Kevin KG6YYW, Peter WA6VAQ, Rich W6APZ, Ruth KG6RZG, Susan KG6RZI, Dona KI6DAR, Pink KG6ILA, Paul K6PML, Rolf N6NFI, Jerry KF6GAC and those un-named for their invaluable assistance at the flea market, which made it a success. Thanks again.

-de Ron, KG6RLG

CLUB INFORMATION

President: Mikel Lechner, KN6QI
Vice President: Steve Stearns, K6OIK
Treasurer: David Cooper KE6PFF
Secretary: Rob Riley, KG6HVW
Radio Officer: Phil Hawkins, KA6MZE
Training Officer:
Relay Editor: Mark Hardy, KG6GRR

FARS Board: Dick Baldwinson N6ATD, Robert Flemate KE6TFU, Pink Foster KG6ILA Ron Green KG6RLG, Kristen McIntyre K6WX, Barbara Neuhauser AE6RM, Kevin Weiler KG6YYW.

Station Trustee: Stan Kuhl, K6MA
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.

The FARS board of directors may be reached 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 \$8. Visitors are always welcome! Directions in this newsletter. Talk-in: N6NFI (145.23-, 100 Hz) or W6ASH repeater (145.27-, 100 Hz).

FARS *Relay* is the official monthly newsletter of the Foothills Amateur Radio Society. Contributions to the newsletter from members, family, and guests are earnestly solicited! Contributions subject to editing and/or compression. ASCII files via Internet preferred; but all readable forms welcome.

Here is how to reach the editor:

Mark Hardy, KG6GRR
Mail: 2998 Jerald Avenue
Santa Clara, CA 95051
Voice: 408-243-0701 (Before 9 PM, preferred)
Email: kg6grr@arrl.net, At FARS meetings.

An interesting link:

Xerox PARC in Palo Alto has regular forums that are free and open to the public. More info at: <http://www.parc.com/events>

-de Paul, AA6PZ

Home Brew Contest

The September meeting was the annual FARS Home Brew Contest. Seven projects were shown. Attendees at the meeting voted for the top three home brew projects.

First Place

First place was won by Arv Hamer, WA6UUT. Arv took home the \$40 first prize for a VHF antenna test fixture. Antennas can be positioned and held by the fixture during test.



Second Place

Dale O'Hara, NX6S, won the \$30 second prize for a 4x500W solid state amplifier in a plastic case.



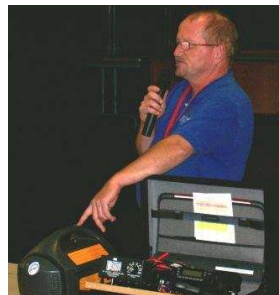
Third Place

Dave Platt, AE6EO, won the third place prize of \$20 for his project, an impedance-matched antenna tuner (10-80 m). The tuner is built in a very nice case.



Four other projects were shown (in order shown at the meeting):

Ron Nelson, K6RJN, showed a portable HAM radio setup, briefcase and equipment.



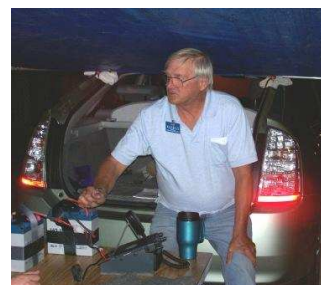
Kevin Weiler, KG6YYW, presented an antenna and power supply.



Paul Zander, AA6PZ, showed an antenna tuner for 160 M (built for FARS Field Day).



Ron Green, KG6RLG, met everyone in the parking lot of the school and showed his portable emergency communications setup.



Dr. Know-It-All

October 2006

Dear Doctor,

I am a student at UC San Diego, and I have a question regarding the Smith Chart. I've read that the Smith Chart can be used to find tangents and cotangents (as well as their inverses).

If you could give me a clue to HOW this can be done, I would really appreciate it. I have not been able to figure it out on my own, and I have asked my professor who doesn't know either.

Erik Grindheim, LA9SJA

Answer: Tangent and cotangent are the easiest trig functions to calculate on a Smith Chart. Sine and cosine are a little harder.

You will see the answer if you think about the impedance of open and short-circuited stubs. Assume the stubs are made of line whose normalized characteristic impedance is unity. The impedance seen looking into a terminated length of such line is given by

$$z_{in} = \frac{z_L + j \tan \theta}{1 + j z_L \tan \theta}$$

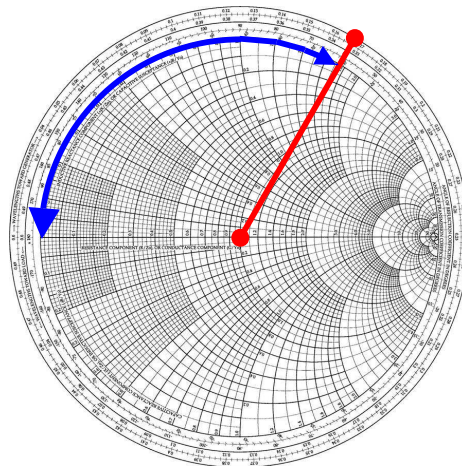
where θ is the electrical length of the line in degrees or radians, and z_L is the terminating impedance. For a short-circuited stub, z_L is zero, and so

$$z_{short} = j \tan \theta.$$

For an open-circuited stub, z_L is infinite, and

$$z_{open} = -j \cot \theta$$

The Smith Chart can be used to compute the impedance of either stub and thereby the tangent or cotangent of θ . To calculate $\tan \theta$, start at the far left-hand point (the zero impedance point) and revolve clockwise around the perimeter of the chart through an electrical angle of θ (an actual angle of 2θ). Read the tangent directly from the reactance arcs. The sign is positive in the top half of the chart and negative in the bottom half. When θ is an odd multiple of 90 degrees, the tangent is infinite.



$$\begin{aligned} 2\theta &= 120^\circ \\ \theta &= 60^\circ \\ \tan \theta &= \sqrt{3} \approx 1.732 \end{aligned}$$

The impedance of the open circuited stub is $-\cot \theta$. Starting at the far right-hand point (the infinite impedance point), revolve counter-clockwise around the perimeter of the chart through an electrical length of θ (an actual angle of 2θ). Read the cotangent from the reactance arcs as above. Going counter-clockwise gets the sign right. If you go clockwise you get $-\cot \theta$ instead. Notice that the cotangent of zero is infinite, which repeats at multiples of 180 degrees.

The inverses of tan and cot are found by reversing the procedures above. Start on the perimeter of the chart at a point defined by where the reactance equals the tan or cot value. Read the electrical length θ directly off of the outer scale or, with the chart center as vertex, measure the angle to either the $z = 0$ or $z = \infty$ points, and divide the measured angle by two to convert it to electrical length θ .

That's it for this month. You can send your comments or questions about any aspect of Amateur Radio to Dr. Know-It-All. Written comments and questions are accepted at the monthly meetings of the Foothills Amateur Radio Society, by email to FARS officers and board members, or through the FARS web site at <http://www.fars.k6ya.org>.

FARS Membership Form

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

FARS 2006 MEMBERSHIP RENEWAL FORM Date: _____

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 \$8 for badge fee. **Please note:** Membership runs from January 1 to December 31.

FARS/PAARA 2007 WINTER BANQUET SIGNUP (January 19, 2007 at Michael's at Shoreline)

| <u>Name & Call</u> | <u>Meal Choice</u> | <u>Amount</u> |
|------------------------|--------------------|---------------|
| You _____ | _____ | _____ |
| Email _____ | _____ | _____ |
| Guest1 _____ | _____ | _____ |
| Guest2 _____ | _____ | _____ |
| Guest3 _____ | _____ | _____ |
| Guest4 _____ | _____ | _____ |
| | Total | _____ |

This form may be used for membership renewal, banquet signup or both.

Send your check payable to FARS, to:

David A. Cooper, KE6PFF
 PMB 41
 270 Redwood Shores Parkway
 Redwood City, CA 94065-1173

| Choice | Menu Description | Price |
|---------------|------------------------------------|--------------|
| Beef | Roast Prime Rib of Beef | \$ 38 |
| Chicken | Breast of Chicken, Florentine | \$ 31 |
| Fish | Broiled Salmon, Lemon Beurre Blanc | \$ 33 |
| Veg | Vegetarian Brochette w/ Wild Rice | \$ 26 |



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 [N6NFI](#) (145.230-; 100Hz PL) repeater or the [W6ASH](#) 145.27- (100Hz PL) repeater.

FARS Meeting FRIDAY 10/27/06 Covington School