Foothills Amateur Radio Society
Relay

September 2002 Volume 32, Number 9

## September Meeting

**September 27, 2002** - 7 PM socializing, meeting starts at 7:30. Directions to the meeting are later in the newsletter.

**Topic**: Home Brew Night

**Abstract**: This is our annual home brew night. Anyone can bring a project. The prizes are $40,30,20,10.

Club members (and others) bring the projects that they have built. The projects and demonstrations were very interesting and entertaining at the Home Brew last year. Prizes are awarded for the best projects, as voted by those in attendance at the meeting.

## August Meeting Report

Steve Stearns, K6OIK, spoke on filtering out unwanted signals. In an example, Steve showed how one could filter out pager signals with a coaxial stub.

At the August meeting, the number for Colleen Peterson, KG6HRL, was chosen for the "*Wish You Were Here*" prize. Unfortunately, Colleen was not at the meeting.

## Secretary's Report

The FARS Board held its monthly meeting on the evening of September 3, 2002. Members present were Mikel, KN6QI, Frank, K6FCW, Howard, KG6GRO, Jack, WA6YJR, Omri, AA6TA, Steve, K6OIK, Dick, N6ATD, and Martin, KD6WJW. The treasury held $4778.56, and the payment of several bills was approved. There was further discussion about possible remote operation of the club station. A voting procedure for home-brew prizes was also approved. There was additional discussion about potential officers and board members for next year. Finally, the issue of club incorporation was raised again.

- Martin, KD6WJW

## Upcoming Events

| | | |
|---|---|---|
| Sept. 27 | 7:00 PM | Club meeting, Loyola School |
| Oct. 1 | 7:30 PM | Board Meeting, Los Altos Town Crier |
| Oct. 12 | Dawn | Flea Market, Foothill College ***Last one until March 2003*** |
| Oct. 18-20 | | PACIFICON Ham Convention |
| Oct. 25 | 7:00 PM | Club meeting, Loyola School |

See more events, FARS Calendar

## Presidents Column

This month I want to share a story about upgrading your Amateur Radio License. Many new people to this hobby do not bother to upgrade their license beyond the initial Technician class. This is either because they are happy with Technician class privileges or they cannot get past the code requirement. Some are waiting for the code requirement to be eliminated, and I fully expect that it will be eliminated. But that may be years away. This is because many in the hobby who believe that the code requirement is important will lobby to keep it. This means that the code requirement will probably be around for awhile.

Case in point is by brother, who had been waiting for the code requirement to be dropped. I finally convinced him that learning 5 wpm code was preferable to waiting for a no-code general license. After a couple of months of studying the code, he took the test and aced it. The last time I had spoken to him, I encouraged. Of course he over studied, like many of us do, and easily passed the test. So my point is that passing a 5 wpm code test is not difficult. It's easier than you think.

There are many resources for studying the code. Many are completely free. You can listen to code on air at 7.1 MHz almost 24 hours a day. Often you can listen to code on local repeaters. You can work with a friend and practice code together. You can purchase tapes from ARRL and other sources to take you through the entire process. I personally enjoyed studying with Gordon West, WB6NOA, who's approach made the process fun. I even listened to code while commuting to work. That's how I passed the code test. So take on the challenge of the code, and upgrade your license! It's easier than you think.

- de mikel, kn6qi

## Useful Web Sites

for information only, no endorsements implied

QRZ.com Provides useful information, feedback from HAMs, practice exams, etc. Can look up a callsign and get information, including lat/lon coordinates and grid locator for home.

ARES/RACES Santa Clara County ARES/RACES website. Provides information, lists city frequencies and net times, etc. Also see SPECS.

IRLP Internet Radio Linking Project

eHAM.net Provides useful information and feedback from HAMs.

Sunnyvale VEC Local volunteer examination coordinators. Shows schedule and locations for HAM exams.

Morse Code Practice Morse code practice. Can select, speed and Farnsworth speed. Can choose to practice random letters, a subset of characters, QSOs, etc.

Practice Exams AA9PW practice exam site.

## CLUB INFORMATION

| | |
|---|---|
| President: | Mikel Lechner, KN6QI |
| Vice President: | Steve Stearns, K6OIK |
| Treasurer: | Frank Weiss, K6FCW |
| Secretary: | Martin Liberman, KD6WJW |
| Radio Officer: | Omri Serlin, AA6TA |
| Training Officer: | (open) |
| Relay Editor: | Mark Hardy KG6GRR |
| Board Members: | Jack Eddy WA6YJR, Dick Baldwinson N6ATD, David Cooper KE6PFF, Frank Weiss K6FCW, Herb Davidson KF6BKL, Howard Califf KE6PWH, Mark Hardy KG6GRR, Howard Takaoka KG6GRO. |
| Station Trustee: | Stan Kuhl, K6MA |
| FARS Web Page: | http://www.fars.k6ya.org |

FARS announcement mailing list is moderated, so you cannot reply directly to the list: fars-announce@svpal.org

Also, note you can contact the FARS board of directors at fars-board@svpal.org

To subscribe/unsubscribe, send a message to: majordomo@svpal.org

In the e-mail message (in plain text) put one of:
unsubscribe fars-announce YOUR-EMAIL-ADDRESS
subscribe fars-announce YOUR-EMAIL-ADDRESS
(e.g. Subscribe fars-announce dwilkes@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, Nov. & Dec. Annual membership $20, family $25. Club badges are $5.75. Visitors are always welcome! Directions on the back page. Talk-in: N6NFI (145.23-, 100 Hz) or W6ASH repeater (145.27 or 224.36).

The 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 or diskettes 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)
Fax: 408-243-0701
Email: kg6grr@arrl.net
At FARS meetings.

## PACIFICON

PACIFICON, a premier HAM convention, will be held October 18-21 at the Airport Sheraton Hotel in Concord. The antenna forum is on Friday and the flea market is back. There are meetings, great speakers, and fun activities for all. Vendors will also be there. For more information and registration, see the PACIFICON web site at www.pacificon.org. [For information purposes only]

## A Little Known Fact About Antennas

by Steve Stearns, K6OIK

**Story**: John Public wanted to operate his 3G digital cell phone/PDA from inside his car. He installed a hands-free dash mount. The mounting unit coupled capacitively to the phone's antenna and fed the signal through a length of coax to a high gain roof antenna. The roof antenna was a PCS band antenna made of crossed loops. He expected to get a big performance improvement over the cell phone's internal antenna, which had a negative gain of several dB. But when the installation was finished, he was surprised that performance was abysmal. Digital speech was broken up, and high-speed data was impossible. Every part of the system was tested and found to work perfectly. What did he do wrong?

Amateurs are starting to discover that antennas have other properties to consider than the ones that are familiar: gain, impedance, bandwidth, polarization, and directivity patterns. All antennas act like high-pass filters when they transmit. Linear wire antennas differentiate the signal that they transmit. In the language of calculus, the radiated electric field is proportional to the derivative of the source current. Conversely, when a linear wire antenna is receiving, its output current is the integral of the incident electric field. If linear wire antennas are used at both ends of a communication link, then the differentiation and integration operations cancel one another out, and the received signal looks like the one that was transmitted.

The same statements apply to loop antennas except that in the case of loops, the electric field is twice-differentiated on transmit and twice-integrated on receive. Again, if loop antennas are used at both ends of a communication link, then the differentiation and integration operations cancel, and the received signal looks like the one that was transmitted. So where's the problem?

Amateurs are familiar with the idea that transmit and receive antennas should be matched in polarization. However, there is another way that they should be matched that matters, especially for wideband digital modulations. When a loop antenna transmits to a linear wire antenna, the differentiation and integration operations do not cancel one another; the received signal is the derivative of transmitted signal. In the reverse direction, when the linear wire antenna transmits to the loop antenna, the received signal is the integral of the transmitted signal. Such mismatched antenna combinations distort the signal in both transmission directions.

In digital communication systems, signal distortion is harmful because it creates inter-symbol interference (ISI). Essentially, the signal interferes with itself, increasing the bit error rate (BER) of the received signal. The digital speech codecs used in cellular telephony work fine when the BER is below 0.01. However, when the BER rises above 0.1, or one error in ten bits, digital speech sounds garbled or broken and quality is poor.

This was John Public's problem – caused by his after-market antenna upgrade. You may encounter a similar problem someday where parts test out perfectly prior to assembly but don't function when connected together.

So there you have it for this month. Reader feedback is welcome. Send comments and questions to the author at k6oik@arrl.net.

**PLEASE fill out the membership form whether you are a new or continuing member. Neatness counts.**

**FARS 2002 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** _____

**Internet (e-mail) address** _____

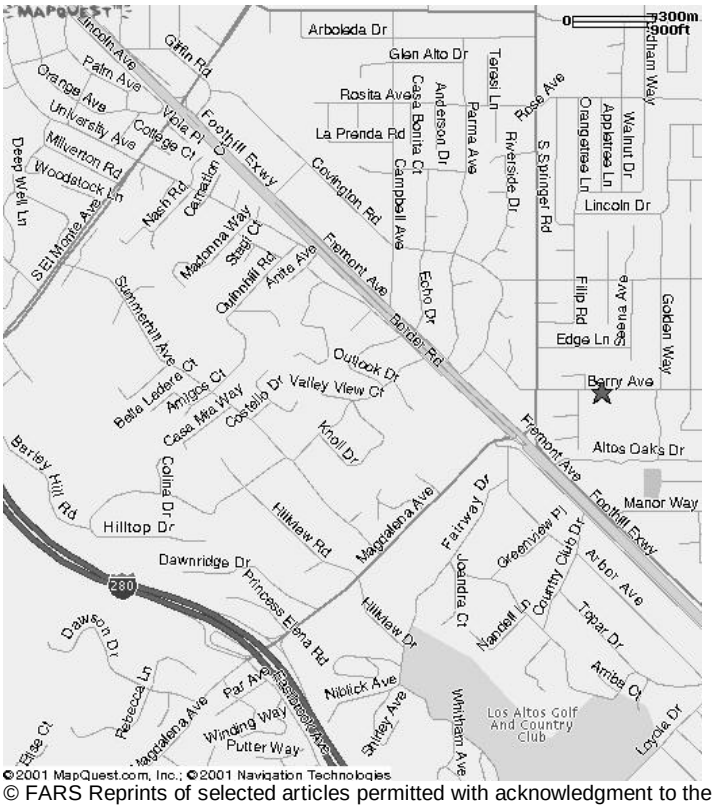
**ARRL Member(s)? Yes/No (if yes, who?)** _____
**Preferred modes: HF-SSB/HF-CW/VHF/UHF/Packet/HF Digital/Satellites/ATV/QRP/Other:**

_____
**(Please indicate any areas in which you are willing to Elmer new hams)**

_____
**Special topics of interest /Suggestions for club meeting speakers:**

_____
**Dues: personal: $20; family: $25 - Prorated. Send check or Money Order payable to FARS to:**

Frank Weiss, K6FCW 109 Stratford Court Mountain View, CA 94040
Please note: Membership runs from January 1 to December 31.




**How to get to meetings:**

(Visitors always welcome)

Our meetings usually will be held at the Loyola School gym room (directions below) on the fourth Friday at 7 PM for the code practice/socializing and 7:30 PM for the regular meeting. There may be changes in the meeting dates for January, June, November, and December.

DIRECTIONS:
Loyola School is at 770 Berry Avenue in Los Altos, between Springer Rd. and Miramonte Ave.

FROM FOOTHILL EXPWY take the Rancho shopping center exit and go east (toward El Camino Real) on Springer one short block; turn right onto Berry; watch for the school parking lot on your right. Walk past the office and turn right. The gym is the first building on your right.

FROM I-280 take the Magdalena Av. exit and go east (towards Foothill Expwy). Cross Foothill Expwy onto Springer; then follow directions as above.

FARS RELAY 9/02
C/O Mark Hardy
2998 Jerald Avenue
Santa Clara CA 95051-2928

FIRST CLASS MAIL

ADDRESS CORRECTION REQUESTED
PLEASE DO NOT FORWARD

# MEETING
# FRIDAY 9/27/02
# At Loyola School in Los Altos