

December Club Meeting

Date: Friday, December 15, 2006.

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

Place: Covington School, 205 Covington Road, Los Altos

Speaker: Steve Stearns, K6OIK

Topic: Novel and Strange Ideas in Antennas and Impedance Matching

Summary: Electromagnetic theory allows for some strange antennas. Likewise, the rules of impedance matching permit strange results. Steve, K6OIK, will show some unusual antennas and two methods (one old, one new) for getting a near perfect 1:1 VSWR over arbitrarily wide bandwidth. Steve will discuss the current hot topic in electromagnetic research - achieving invisibility. We can wonder whether Santa Claus uses a similar method.

We will raffle off a grand prize at this meeting: Daiwa CN-801 Professional Power/SWR meter 1.8-200MHz or, possibly, a Yaesu radio (winner's choice).

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.

November Meeting Report

Howard Califf of HRO, W6HOC, presented "Goodies for the Complete Ham Shack," just in time for holiday shopping and enjoyment. Howard presented information on several radios, with the Yaesu FT60 the most popular seller. He also showed a GPS unit, battery chargers, and cables with associated connectors. There were a lot of great books, manuals, and guides for all facets of HAM radio. The last items included microphones, antennas, and meters for use in the shack.



Howard Califf, W6HOC



Del Harbold, K6JPX

Del Harbold, K6JPX, won the raffle and took home the MP-1 Portable antenna covering 7 MHz through 450 MHz. The Wish You Were Here number for Ron LeBlanc, KG6ZKR, was chosen. Unfortunately, Ron was not present.

Presidents Corner

Club Meeting. Our next meeting (a week earlier than usual because of Christmas) is Friday, December 15th at 7pm.

Am-Tech DAY. The next Amateur Radio Technology Day is scheduled for December 16th at the Stanford Linear Accelerator Center. Check the FARS website (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. Scheduled for Friday, January 19th, 2007 at 6pm. Our speaker is Alan Eshleman, K6SRZ, who is a medical doctor by profession and a writer. He is also a ham who has worked a number of DXpeditions including: T33C, T30CA, T32CK, and Kure Atoll in 2005. The banquet is always a fabulous fare and a lot of fun, so don't miss it! We are now taking reservations. You can sign up at <http://www.fars.k6y.org/banquet> or with the form in this Relay.

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, voting rights, and supports FARS educational programs and activities.

Elections. At the November 17th annual meeting, the following directors were elected to three year terms to the FARS board of directors: Mikel Lechner, KN6QI; Steve Stearns, K6OIK; Dave Cooper, KE6PFF; Phil Hawkins, KA6MZE; Robert Flemate, KE6TFU.

- de Mikel, KN6QI

Upcoming Events

- Dec 15 7:00 PM, [Club meeting](#), Covington School
- Dec 16 8 AM to 9 PM, [Am-Tech Day](#), SLAC, 8AM-9PM
- Jan 4 7:30 PM, Board Mtg at the Los Altos Town Crier
- Jan 7 8 AM to 9 PM, [Am-Tech Day](#), SLAC, 8AM-9PM
- Jan 13 Radio License Study Session, 8am-5pm
- 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>>

HAM Radio License Class

Study Session, Followed by Exam: The Bay Area Educational Amateur Radio Society is sponsoring a one day study session for Technician or General class theory, followed by testing. Morse code tests will not be given. Our next session will be on January 13, 2007 from 8 am to 5 pm at the Coyote Point Yacht Club in San Mateo. Go to our website, <http://www.baears.com/>, for more information and registration. Class size is limited, reservations are required. Ross Peterson, 650-349-5349, wb6zbu@arrl.net

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. The speaker for this banquet is Alan Eshleman, K6SRZ. Alan has worked a number of DXpeditions including: T33C, T30CA, T32CK, and Kure Atoll in 2005. Past banquets have been very enjoyable and had large attendance with 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.

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 are required. Reservations may be made on-line at <http://www.fars.k6ya.org/cgi-bin/b-signup>. You may use the form in this newsletter or print a form at <http://www.fars.k6ya.org/events/banqsignup>. 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 prizes include the following:

- Grand Prize – Yaesu FT857 (HF, 6M, 2M 440)
 - 2nd Prize – Yaesu FT1802 (2m-50W mobile)
 - 3rd Prize – Power Crimp Tool w/bag of Anderson connectors
 - 4th Prize – Grundig Emergency Radio
- and many more...!

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

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.

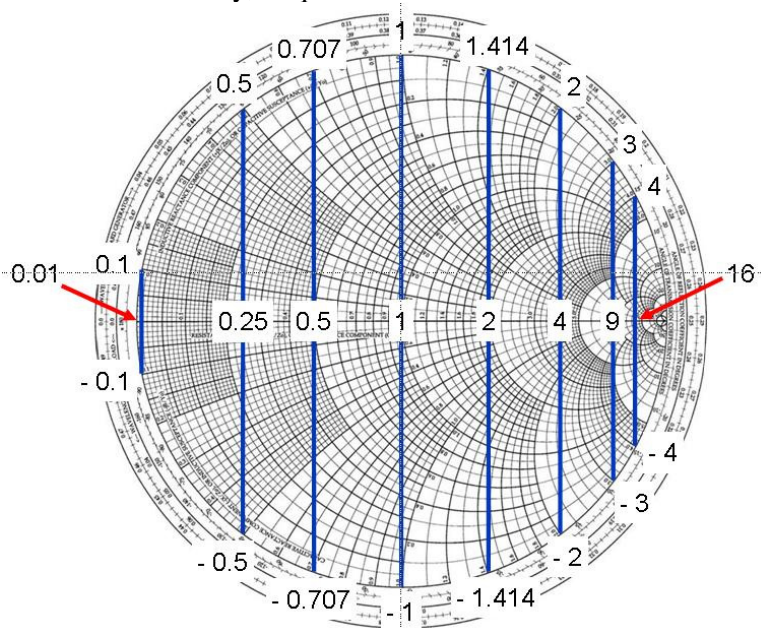
Dr. Know-It-All for November 2006

Dear Doctor,

After reading about how to calculate trigonometric functions and their inverses (sines, cosines, tangents, and cotangents) on a Smith Chart in September and October, I'm curious about algebraic functions. Can you calculate squares and square-roots on the Smith Chart too? -- Anonymous

Answer: Squares and square-roots of numbers are hardly more work to calculate on a Smith chart than trigonometric functions. Here is how to do it.

Given a number x which may be positive or negative, we find its square x^2 by first locating the impedance point $z = 0 + jx$ on the chart. This point will lie on the perimeter of the chart, the $r = 0$ circle, and will be in the upper or lower half of the chart depending on the sign of x . Now, draw a vertical line from the point jx to its mirror image $-jx$ in the other half of the chart. This line intersects the horizontal line, the $x = 0$ reactance arc, at an impedance $z = r + j0$ that can be read directly from the scale printed on the chart. Miraculously, r equals x^2 .



Square-roots are obtained by reversing the procedure. To compute the square-root of a number r , locate the impedance $z = r + j0$ on the horizontal line that divides the chart into upper and lower halves. Extend a vertical line through this point that connects to the perimeter of the chart. The perimeter points represent the impedances $\pm jx$, where $x = \sqrt{r}$, miraculously yielding both the positive and negative square roots of r .

A simple proof of the procedure follows. Given a number x , the impedance $z = jx$ corresponds to a complex reflection coefficient

$$\begin{aligned} \Gamma &= \frac{z-1}{z+1} \\ &= \frac{-1+jx}{1+jx} \\ &= \frac{(-1+jx)(1-jx)}{(1+jx)(1-jx)} \\ &= \frac{x^2-1}{x^2+1} + j \frac{2x}{x^2+1} \end{aligned}$$

A vertical line through this point intersects the horizontal axis at a reflection coefficient Γ' given by

$$\Gamma' = \frac{x^2-1}{x^2+1} + j0$$

which corresponds to a real impedance $z' = r'$ given by

$$\begin{aligned} z' &= \frac{1 + \Gamma'}{1 - \Gamma'} = \frac{1 + \frac{x^2 - 1}{x^2 + 1}}{1 - \frac{x^2 - 1}{x^2 + 1}} \\ &= \frac{x^2 + 1 + x^2 - 1}{x^2 + 1 - x^2 + 1} \\ &= x^2 \end{aligned}$$

So the real part of z' is the square of the imaginary part of z , in other words $r' = x^2$. QED.

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>.

Interesting Web Sites

Club members might want to check out these:

What is This Thing Called Current? Clear, concise description for lay person.

http://www.mentor.com/techpapers/fulfillment/upload/mentor_paper_27990.pdf

New Solar Cycle:

<http://antwrp.gsfc.nasa.gov/apod/ap060830.html>

The same site has a new article every day at:

<http://antwrp.gsfc.nasa.gov/apod/astropix.html>

If you want to learn more about the life, history and technical contributions of James Maxwell:

<http://www.maxwellyear2006.org/>

<http://www.sonnetsoftware.com/maxparty/>

- de Paul, AA6PZ

ARRL MEMBERS' DONATIONS VITAL TO SUCCESS OF BPL COURT APPEAL

The ARRL Letter, Vol. 25, No. 48, December 8, 2006

ARRL CEO David Sumner, K1ZZ, is urging League members to turn their outrage at the FCC's unreasonably favorable treatment of unlicensed BPL systems into generous donations to the 2007 ARRL Spectrum Defense Campaign. The ARRL is suing the Commission in the US District Court of Appeals -- DC Circuit on the ground the FCC concocted rules to -- in Sumner's words -- "accommodate a polluter of the radio spectrum" at the expense of the licensed users it's supposed to protect.

"The BPL rules adopted in 2004 were bad enough," Sumner stressed in an appeal for member contributions to the Spectrum Defense Campaign to help cover the considerable expense of the court appeal. "The rules adopted in 2006 are intolerable. Never before has an unintentional emitter been given a free pass to interfere with licensed radio services."

The ARRL's suit will focus in part on a new FCC rule aimed directly at mobile stations in all radio services, including public safety systems, that the Commission slipped into its August 2006 Memorandum Opinion and Order (MO&O) that dealt with various petitions, including one from ARRL, to reconsider portions of the October 2004 BPL Report and Order (R&O) establishing rules governing BPL systems. The new rule, §15.611(c)(1)(iii), provides that BPL operators only have to reduce emission levels below established FCC permissible limits by 20 dB below 30 MHz and by 10 dB above 30 MHz -- even if that's insufficient to resolve harmful interference complaints.

"This isn't just a proposal. It's a rule that is now in effect," Sumner points out in his letter. "With one stroke, the rights of FCC licensees have been subordinated to those of spectrum polluters!"

The League further maintains that the FCC erred in declining to adjust the 40 dB per decade "extrapolation factor" applied to emission measurements performed at distances from power lines other than those specified in Part 15. The existing Part 15 rule causes test results to underestimate actual field strength, the ARRL has asserted, arguing that a figure closer to 20 dB per decade is appropriate. Sumner says the FCC simply didn't listen, however.

"Without even attempting to address this evidence, the FCC simply concluded: 'No new information has been submitted that would provide a convincing argument for modifying this requirement at this time,'" he said. "Information was submitted; the FCC ignored it."

Sumner says that determining the outcome you want and adjusting the facts accordingly doesn't constitute reasoned decision-making, as the League will demonstrate in court. "We will show that the FCC did not come to a reasoned decision in developing its BPL rules," he said.

Highlighting the extreme importance of the League's BPL lawsuit, Sumner warns that even if BPL should disappear tomorrow, "the FCC's preference for unlicensed, unintentional emitters over the interests of its licensees will remain on the books."

"Bad rules left unchallenged will lead to even worse rules later," he said.

Sumner reviews the League's history of BPL dealing with the FCC in his "It Seems to Us . . ." editorial, "Pretending to Sleep" on page 9 of October QST <<http://www.arrl.org/news/features/2006/10/01/1/>>.

ARRL Chief Development Officer Mary Hobart, K1MMH, says that while ARRL 2007 Spectrum Defense Fund donors have been quite generous, there's still some distance to go before the campaign reaches its goal of \$250,000 by year's end.

"The League has your back," Hobart tells ARRL members. "This lawsuit is an important and very expensive proposition, undertaken only after careful consideration by the ARRL Board of Directors. We try to make every dollar count, and in this instance, they will count."

While the spotlight this fall is focusing on the BPL court appeal, the League still needs to be in a position to support its ongoing spectrum defense efforts, she added. "The best thing members can do is contribute. This is a case where the ARRL is putting its money where its mouth is, and member support is critical."

Hobart stressed that reaching the campaign's goal by December 31 is paramount. "It's been a good financial year for many people," she said, "and we hope those who have benefited from the economic upswing will opt to be as generous as they can."

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 RELAY 12/06

FARS Meeting
FRIDAY 12/15/06
Covington School