

April Club Meeting

Date: Friday, April 28, 2006.

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

Place: Covington School, 205 Covington Road, Los Altos

Speaker: Patricia Gibbons, WA6UBE

Topic: "ALE – Not Your Typical Beverage"

Summary: Automatic Link Establishment or ALE is a unique communication protocol whereby radios search frequencies and find each other, and thereby establish connections automatically. Networks can form autonomously out of thin air, with no prior arrangements. ALE was developed for military tactical HF communications, but has become increasingly popular for Amateur Radio communications. WA6UBE will present an overview of the operation and advantages of ALE.

About the Speaker: Patricia Gibbons, WA6UBE, has been a licensed radio amateur since 1964. From 1976 to 2006, she worked in Public Safety land-mobile radio communications and, prior to retirement, was Communications Services Manager with the City of San Jose.

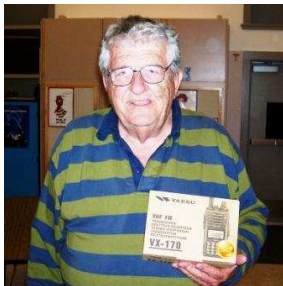
The club offers Anderson Power-pole crimping service, refreshments, and a raffle prize (*Garmin eTrex GPS or Yaesu radio*) at the meeting. Be sure to attend for an enjoyable evening. Don't forget to bring your questions to Dr. Know-it-all.

March Meeting Report

Kristin McIntyre, K6WX, gave details of an antenna that she has built for HF. Living in an apartment has its challenges for HAM radio antennas. Kristin's design of a 3-element, shortened dimension, 20 meter antenna uses inexpensive components that can easily be found at local stores. It is easy to set up, is sized for an apartment, and has good operating characteristics.



Kristin McIntyre, K6WX



Clark Murphy, KE6KX0

Clark Murphy, KE6KX0, won the raffle and took home the Yaesu VX-170 radio. The Wish You Were Here number for Jean-Claude (JC) Guillon, W6JVG, was chosen. Unfortunately JC, was not present to claim the prize.

Presidents Corner

Club Meeting. April 28th at 7pm. This month's meeting is "ALE -- Not Your Typical Beverage" with Patricia Gibbons, WA6UBE. This meeting is at our usual location at Covington School, 205 Covington Road in Los Altos.

Am-Tech DAY. The next Amateur Radio Technology Day is scheduled for May 6th at the Stanford Linear Accelerator Center. Check the FARS web site (www.fars.k6ya.org/) 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.

Field Day 2006 is scheduled for June 24th and 25th. We are again scheduled to have Field Day at the field near Maryknoll seminary in Los Altos. We are looking for volunteers to help with setup, operations, and takedown. Please contact Phil, KA6MZE or myself if you can help.

Flea Market. The Electronics Flea Market continues at De Anza college on Saturday May 13th. Check www.asvaro.org for details and directions.

- de Mikel, KN6QI

Upcoming Events

Apr 28	7:00 PM, Club meeting , Covington School
May 4	7:30 PM, Board Mtg at the Los Altos Town Crier
May 6	8 AM to 9 PM, AM-Tech day , SLAC, 8AM-9PM
May 13	Electronics Flea Market , De Anza, 5 am to Noon
May 20	New HAM class , Intro to radio and emerg. serv.
May 21	HAMFest 2006 /Sacramento, 7am to noon
May 26	7:00 PM, Club meeting , Covington School
June 24-25	Field Day
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)

Dr. Know-It-All

April 2006

Dear

Doctor,

How can I keep RF out of the shack? Asked by Del, K6JPX.

Answer: RF will always be in the shack in the form of **radiated** emissions unless the shack is a shielded room, like a Faraday cage. So we must first rephrase the question as how to keep **conducted** emissions out of the shack, which we can do.

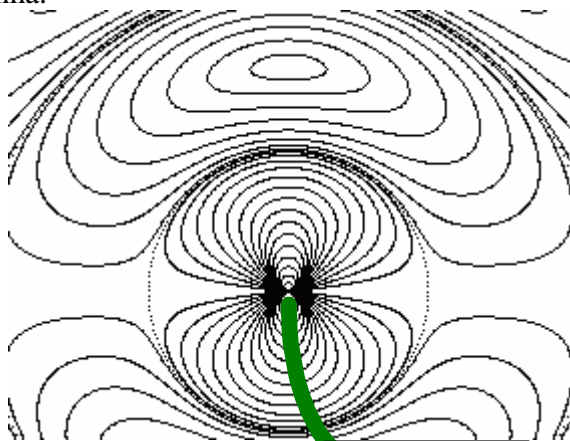
Conducted emissions refer to RF current that travels on wires and cables. Technically, it is electric and magnetic fields bound to a wire or cable that travel, and the current is the observed result. In other words, the wire acts like a waveguide, except the fields are external rather than internal. This is the principle behind single-conductor transmission lines such as the Goubau line. Goubau lines can carry more power than waveguide at microwave frequencies, but the fields are external to the wire. The fields fall off with distance from the wire. Nearby objects cause losses

or scatter energy by reradiating. The point is that you don't want your transmission line carrying conducted emissions or radiating. Conducted emission is often called common mode current when speaking about transmission lines to distinguish it from differential mode current, which is what lines are intended to carry.

So how do you prevent common-mode or conducted emission on your wires? There are several tricks that every Radio Amateur should know. Some of these tricks are well known; others aren't. We'll review them here. It's worth mentioning that both balanced and unbalanced feedlines can carry common mode current. However, unbalanced feedlines traditionally give more problems.

Trick No. 1 is to prevent common mode current from getting on the line at the antenna connection. A common mode current choke is used for this purpose. When unbalanced coax is used to feed a balanced antenna feedpoint, a current balun should be used. Current baluns should not be confused with voltage baluns. An effective common mode choke can be made as a coil of a half-dozen turns of coax at the feedpoint. Another popular balun consists of 30 or more snug fitting ferrite beads slid over the coax in what is commonly called a W2DU balun.

Trick No. 1 prevents current intended for the antenna from sneaking onto the feedline, but it doesn't stop the radiated fields from inducing current on the line. For this, you need Trick No. 2: Dress the feedline so that it lies at right angle to the antenna's electric field. This minimizes the common-mode current on the feedline, preventing it from acting like a receiving antenna.



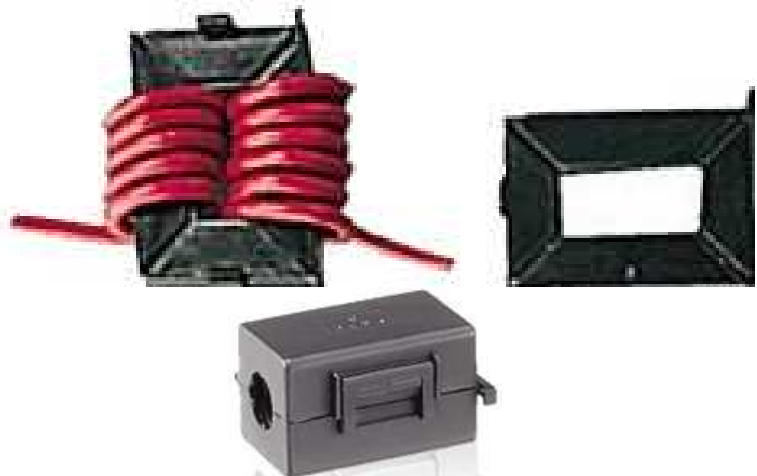
Station

Make feedlines perpendicular to field lines where possible.

While the position of a feedline can often be adjusted, the positions of other station wires for *a-c* power, telephone, and computer LANs are fixed. It isn't possible to prevent induced RF on those wires. Trick No. 3 is to block the entry of such current at the shack by using filters and chokes. RF current on telephone lines can be suppressed with line filters such as the Radio Shack 279-151. RF current on *a-c* power lines can be suppressed by using power strips with built-in RF filters such as Tripp Lite's Isobar surge suppressors. Finally, RF current on all station wires can be suppressed by the liberal use of snap-on ferrite chokes such as Radio Shack's 273-104 and 273-105. Microphone cables are a particularly good candidate for snap-on chokes.



Radio Shack 279-151 and Tripp Lite Isotel6ultra.



Radio Shack 273-104 and 273-105 snap-on ferrite chokes.

The reader may have noticed that we have not emphasized station grounding. There is considerable confusion on why and how to ground a station, and even what constitutes ground. Grounding can make RFI problems worse if done improperly. The subject of RF grounding is complicated, and we'll cover it in a later article.

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>.

Solving Interference

N6ST, Steve Thomas was a long time member of FARS. He moved to Morgan Hill after taking a job with Anritsu. His job includes technical support for spectrum analyzers. He prepared some documents on their web site regarding solving interference problems. If you are technically inclined, check out:

www.us.anritsu.com/downloads/files/11410-00302.pdf
www.us.anritsu.com/downloads/files/11410-00363.pdf

- de Paul, AA6PZ

Antenna

The FARS Board has been notified of an antenna that is available. A family that is moving is looking to give away an antenna. Please contact a member of the board if you are interested.

CLUB INFORMATION

President:	Mikel Lechner, KN6QI
Vice President:	Steve Stearns, K6OIK
Treasurer:	David Cooper KE6PFF
Secretary:	
Radio Officer:	Phil Hawkins, KA6MZE
Training Officer:	Steve Leander KV6O
Relay Editor:	Mark Hardy, KG6GRR
FARS Board:	Dick Baldwinson N6ATD, Robert Flemate KE6TFU, Rob Goodson N2RAG, Ron Green KG6RLG, Kristen McIntyre K6WX, Barbara Neuhauser AE6RM.
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 \$6. 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.

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 \$6 for badge fee.

Please note: Membership runs from January 1 to December 31.

Send your check payable to FARS, to:

David
270
PMB
Redwood City, CA 94065-1173

A.
Redwood

Cooper,
Shores

KE6PFF
Parkway
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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.