

## December Club Meeting

**Date:** Friday, December 14, 2007

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

**Place:** Covington School, 205 Covington Road, Los Altos

**Room change:** The meeting will be held in the large classroom around the corner from the multi-purpose room.

**Speaker:** Jim Brown, K9YC

**Topic:** RFI and Ham Radio

**Summary:** This talk begins by describing the various mechanisms by which transmitted RF is coupled to other equipment (both consumer equipment and equipment in our own shacks), and how RF noise is coupled from consumer equipment to our receiving antennas. Once those mechanisms are understood, simple methods of defeating them are presented. The use of ferrite chokes to suppress RFI is discussed in detail.

**About the Speaker:** Jim Brown, K9YC, has been continuously licensed since 1955, and received Amateur Extra and Radio Telephone First Class licenses in 1959. While finishing his BSEE (University of Cincinnati, 1964), he worked at WLWT, WSAZ, WCAW, and RL Drake (tuning up some of the first TR3 transceivers). Since 1976, he has worked in pro audio, and since 1986 his consulting firm has specialized in the design of sound systems for stadiums, theaters, churches, and entertainment venues. His ham radio background led him to extensive research and publication on EMC issues. He is chair of the Technical Committee on EMC for the Audio Engineering Society, Vice-Chair of the AES Standards Committee Working Group on EMC, and frequent lecturer on EMC issues. After 42 years in Chicago, Jim and Rachele relocated to the Santa Cruz Mountains north of Santa Cruz.

An FM deviation meter or service monitor will be made available for people who wish to check the modulation/deviation level of their portable radios.

**Two great prizes** will be raffled at this meeting: first prize is an Alinco DM-330MV, 5-15volt 30 amp switching power supply; second prize is a DBJ-2 Portable dual band J-Pole Antenna. This is the portable "roll-up" version which Edison Fong WB6IQN designed and appeared in the March 2007 QST

The club offers refreshments at the meeting. Be sure to attend for an enjoyable evening. Get your name in the Relay: bring your toughest questions for Dr. Know-It-All.

## Upcoming Events

Dec 14 7:00 PM, [Club meeting](#), Covington School  
 Jan 3 '08 7:30 PM, Board Mtg at the Los Altos Town Crier  
 Jan 8 AM to 9 PM, [Am-Tech Day](#), SLAC, 8AM-9PM  
 Jan 25 '08 FARS/PAARA [Winter Banquet 2008](#)  
 Feb 7 '08 7:30 PM, Board Mtg at the Los Altos Town Crier  
 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.** Our next meeting is Friday, December 14<sup>th</sup> at 7pm ([www.fars.k6ya.org/meeting](http://www.fars.k6ya.org/meeting)). This month's speaker is Jim Brown, K9YC, whose talk is "**RFI and HAM Radio**"

**Am-Tech Day.** The next Amateur Radio Technology Day is planned for a Saturday in January at the Stanford Linear Accelerator Center. Check the FARS web site ([www.fars.k6ya.org/amtechday/](http://www.fars.k6ya.org/amtechday/)) for the program schedule, directions, and the latest news. Subscribe to the FARS Announcement list ([www.fars.k6ya.org/mail/](http://www.fars.k6ya.org/mail/)) to make sure you get an email reminder for this and other FARS activities.

**FARS/PAARA Winter Banquet 2008.** The banquet is set for January 25<sup>th</sup> at Michael's at Shoreline in Mountain View. We are again teaming up with PAARA to make this event the big to do that it is. We are planning to have \$1,000 in prizes for the raffle, a great meal, and of course our speaker. Our speaker is Martin Knutson, W0BBV. Marty was a U-2 pilot during the cold war and later went to work for NASA where he stayed until he retired in 1997. He will talk about some of his experiences as a U-2 pilot. Mark your calendars for that date and check out the details at <http://www.fars.k6ya.org/events/banquet>.

**On-line Roster.** The membership roster is on-line, so you can update your information on-line. You can also use the on-line roster to find out how to contact other FARS members and to renew your membership ([www.fars.k6ya.org/cgi-bin/r-edit](http://www.fars.k6ya.org/cgi-bin/r-edit)). You can also renew your membership on-line via PayPal.

- de Mikel, KN6QI

## November Meeting Report

Howard Califf, W6HOC, from Ham Radio Outlet, showed some of the most popular products – in time for the holiday season. These included cables, a PL generator, a battery tender, power-pole connectors, battery packs, PSK31 gear, books on GPS and other topics, and much more.



**Howard Califf, W6HOC**  
November Speaker



**Clark Murphy, KE6KXO**  
**Del Harbold, K6IPX**  
**Kevin Weiler, K6XXX**

Kevin Weiler, K6XXX, won the raffle and took home the Daiwa CN-103L Cross Needle SWR Meter and Power meter for 140 - 525 MHz. Second prize, an Arrow 2-meter/440 MHz J-Pole Antenna, went to Del Harbold, K6IPX. The Wish You Were Here number for Clark Murphy, KE6KXO, was chosen (same as last month). This time, Clark was present to claim the prize.

November was the annual FARS meeting. Three FARS members were re-elected to the FARS board for three-year terms: Pink Foster, KG6ILA; Mark Hardy, AF6DO; and Kevin Weiler, K6XXX. Congratulations!

## FARS / PAARA 2008 Winter Banquet

Mark your calendars. The FARS / PAARA annual banquet will take place on Friday evening, January 25, 2008. FARS is again teaming up with [PAARA](#) (Palo Alto Amateur Radio Association) to put on this special Ham Radio event. By popular demand we are returning to Michael's at Shoreline:

**Where:** Michael's at Shoreline  
2960 No. Shoreline Blvd  
Mountain View, CA  
650-962-1014

**When:** 6:00pm - Open Bar (No Host)  
7:00pm - Dinner  
8:00pm - Presentation  
9:00 pm – Announcements, Awards, Raffle



Our speaker is **Martin Knutson, W0BBV**.

Marty was a U-2 pilot during the cold war and later went to work for NASA where he stayed until he retired in 1997. He will talk about some of his experiences as a U-2 pilot.

Note that unlike regular meetings, attendance at the banquet is by reservation only. To attend this event, fill out the Banquet Signup form in this newsletter and include payment for the appropriate amount. You can also use the [Paper Signup](#) or [On-line Signup](#) at the FARS website. You can renew your FARS membership if you have not already done so.

**Raffle Prizes:** We are planning to raffle over \$1,000 in prizes at the banquet.

**Menu:** We have decided on the following menu choices:

Menu Choice	Price
Roast Prime Rib of Beef	\$40
Breast of Chicken Florentine	\$31
Broiled Salmon Lemon Beurre Blanc	\$35
Vegetarian Brochette w/Wild Rice	\$27

Each entree is served with seasonal greens, fresh vegetables, potato du jour, French rolls and coffee. For dessert we have an ice cream parfait. Prices include all taxes and service.

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! For reference you might want to print out a copy of the [Banquet Flyer](#) (from the FARS website) which includes a map.

## CLUB INFORMATION

President: Mikel Lechner, KN6QI  
Vice President: Steve Stearns, K6OIK  
Treasurer: David Cooper KE6PFF  
Secretary: Rob Riley, KI6INR  
Radio Officer: Phil Hawkins, KA6MZE  
Training Officer: Kevin Weiler, K6XXX  
Relay Editor: Mark Hardy, AF6DO

FARS Board: Dick Baldwinson N6ATD, Robert Flemate KE6TFU, Pink Foster KG6ILA, 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](http://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](mailto: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](mailto: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 *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 are subject to editing and/or compression. All readable forms welcome.

Here is how to reach the editor:

Mark Hardy, AF6DO  
Mail: 2998 Jerald Avenue  
Santa Clara, CA 95051  
Voice: 408-243-0701 (Before 9 PM, preferred)  
Email: [kg6grr@arrl.net](mailto:kg6grr@arrl.net), At FARS meetings.

## FARS Field Day Results

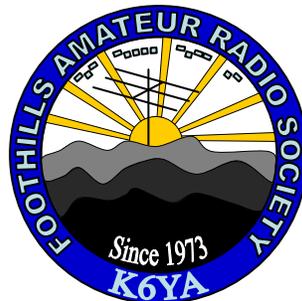
FARS participated in the 2007 ARRL Field Day. There were 2331 entries, with 467 novice/GOTA stations and 34,833 participants overall. FARS reported a score of 3536 points, which came in at number 501 of the 2331 Field Day entries. This score qualified FARS in tenth place (of 31 entries) in the Santa Clara Valley (SCV) Section and in third place of nine entries in the 2A category in the SCV Section. FARS was in sixth place out of 27 entries in the 2A category in the Pacific Division and in 25<sup>th</sup> place out of 117 entries in the Pacific Division overall. Thanks to all who participated in the FARS field day and we look forward to next year!

### All entries for the Santa Clara Valley Section:

#	Call	Score	Cat	QSOs	Power Mult	GOTA Call	Participants	Club
1	W6YX	17,158	4F	5,057	2	K6SU	40	Stanford ARC
2	K6MI	10,940	1AB	992	5		6	Chews' Ridge Gang
3	W6ARA	10,774	3A	3,207	2	K6OTA	123	Palo Alto ARA
4	N6N	10,745	8AB	1,119	5	W6PIY	30	West Valley ARA
5	K6SA	6,878	2A	2,026	2		21	Saratoga ARA
6	N6TV	5,516	1E	1,570	2		1	
7	W6BX	5,458	3A	1,089	2	AE6RF	26	
8	W6UQ	4,520	2A	1,481	2	KI6HJJ	12	San Mateo RC
9	K6LY	4,116	3A	850	2	K6NPS	28	Naval Postgraduate School ARC
<b>10</b>	<b>K6YA</b>	<b>3,536</b>	<b>2A</b>	<b>779</b>	<b>2</b>	<b>AE6RM</b>	<b>25</b>	<b>Foothills ARS</b>
11	W6UW	2,536	2A	529	2	W6UU	47	Santa Clara Co ARA
12	W6YL	2,468	2A	578	2		8	San Jose State Univ ARC
13	WA6TOW	2,100	2A	521	2		16	Coastside ARC
14	W6HUL	1,820	1F	216	2		19	Cal Fire - Santa Clara Unit VIPS
15	W6SJC	1,458	3A	304	2		21	San Jose RACES
16	WR6HMB	1,444	2A	426	2		20	HMB ARES
17	K6KP	1,396	2A	160	2		10	Cupertino ARES
18	N6HM	1,390	2A	150	2		67	SARES
19	K6TD	1,318	1E	399	2		3	
20	K6MTV	1,168	2F	75	2		34	Mountain View ARES
21	W6PRI	1,072	1E	269	2		1	
22	AC6P	974	1A	253	2		7	Jack Baskin School of Engineering
23	K6MM	894	1D	443	1		1	
24	W6MSB	584	1E	135	2		1	
25	K6OTT	388	1E	19	2		1	
26	K6MPN	310	1F	5	2		7	South Co ARES
27	W6RXQ	292	1E	71	2		1	
28	AE6ZY	265	1B1B	3	5		1	
29	KG6ZHC	221	1D	122	1		1	
30	KI6DAR	196	1A	23	2		5	
31	KG6YUN	102	1D	26	2		1	

### FARS Needs a Logo!

FARS does not currently have an official logo and is looking for ideas. Below are a few examples of possible logos. If you have any comments, thoughts and/or ideas, please pass them on to the Relay Editor at [kg6grr@arrl.net](mailto:kg6grr@arrl.net) or any member of the FARS board.



## A Cheap Simple High Performance 802.11 (2.4 GHz) Antenna

By Ross Anderson, W1HBQ

FARS Homebrew Contest 2007 Third Place

Reprinted, with permission, from

[http://home.comcast.net/~ross\\_anderson/2400MHzAntenna.htm](http://home.comcast.net/~ross_anderson/2400MHzAntenna.htm)

There is a lot of good information available on the internet for homebuilt 2.4 GHz WLAN antennas for 802.11. Here is one that will outperform most of those antennas and most commercial ones as well. It's called a Curtain Quad. It is cheap and simple and has a gain of about 17 dBi.

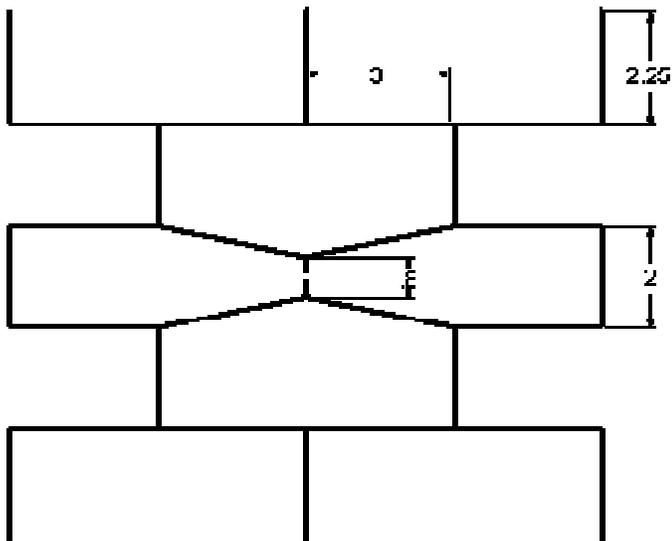
The following describes a version of this antenna that I built and tested.

### Parts List

The material list is as follows:

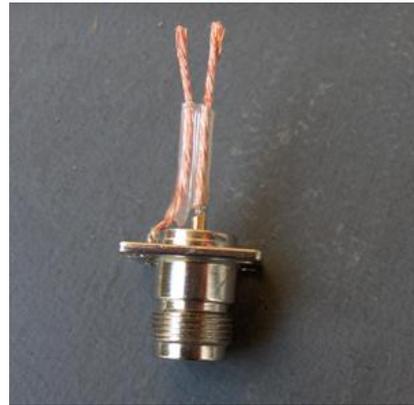
- 3 inch by 2 inch welded wire fence (bought locally from Orchard Supply Hardware). The wire radius is about 0.031 inch, which is what #16 steel wire is when galvanized.
- Foam insulation 1 inch thick (from Home Depot or Lowes).
- Heavy duty aluminum foil.
- Short piece of two conductor speaker wire.
- Scrap piece of aluminum sheet 3 or 4 inches in diameter
- Flush mount female type N connector.

### Antenna Construction

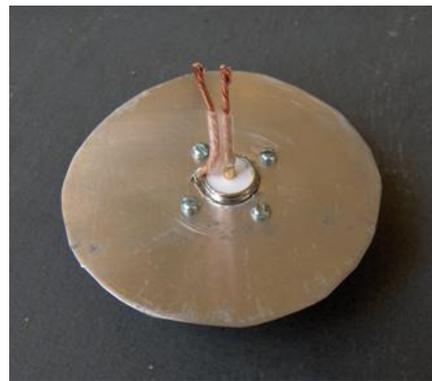


1. Cut the antenna out of the fencing wire to the dimensions shown.

2. Remove about 1 3/8 inch from the center of the center wire. Squeeze the wires near the center wire until the gap is about 1/8 inch. Scrape and tin the ends of the wire stubs. The speaker wire transformer will be attached here later.



3. Solder a 1+ inch piece of speaker wire to the N connector. One wire goes to the center pin; the other wire to the outside part of the connector. I drilled a small hole in the connector flange for the wire to be inserted into and soldered in place. Leave about 3/4 inch of insulation on the speaker wire (as measured where the two wires are together). This is the transformer, transforming the antenna impedance to about 50 ohms.



4. Mount the N connector onto the piece of aluminum sheeting.

5. Cut out a 14 by 12 inch section of the foam sheet and glue aluminum foil to the backside.

6. Cut a hole through the center of the foam sheet. Make sure the hole is big enough to allow the transformer to bow slightly.

7. Mount the antenna to the other side of the foam sheet. Secure with tape, thread, or glue.



8. Pass the speaker wire transformer through the foam and solder to the center wire stubs. Make the final total length of the transformer to be 1 inch, the same as the foam thickness, with 3/4 inch of insulation still remaining in the middle of the transformer. If you are using a newer type of N connector with about 1/8 inch of connector sticking out beyond the flange (as shown in step 3 above), then the transformer will be bowed slightly in the hole in the foam.



9. Secure the mounted connector to the back of the antenna with duct tape or aluminum backed tape.

As shown in these pictures, the polarization is vertical. For horizontal polarization, rotate the antenna 90 degrees.

### **Further Comments**

The hardest thing to control is the transformer because it depends on the design of the connector, the speaker wire, and the length and spacing of the sections of the speaker wire where the insulation has been removed. Try to keep the total length of the transformer about 1 inch between the face of the connector and the antenna. If you have access to SWR measuring equipment, the transformer and the 0.8 inch dimension on the antenna can be adjusted for best SWR. But even an "imperfect" transformer should work ok. See the following link for a discussion of SWR and other topics: <http://www.oreillynet.com/cs/weblog/view/wlg/448>.

For use out-of-doors you will need to figure out how to weatherize this antenna. One way to make an outdoor version of this antenna would be to replace the aluminum foil with 1/2 inch by 1/2 inch or smaller hardware cloth and remove the foam.

It's up to you to make sure this antenna is used in a system that obeys all FCC regulations.

For more information on the Curtain Quad, see my web page [http://home.comcast.net/~ross\\_anderson/CurtainQuad.htm](http://home.comcast.net/~ross_anderson/CurtainQuad.htm)

My homepage "Ross's Antennas", with links to my other pages, is [http://home.comcast.net/~ross\\_anderson](http://home.comcast.net/~ross_anderson)

Photography by Joane Anderson.

Ross Anderson [ross\\_anderson@comcast.net](mailto:ross_anderson@comcast.net) June 10, 2007

## **December Meeting Raffle Prizes**

The December Raffle main prize will be the Alinco DM-330MV Switching power supply. It has a maximum output current of 32 Amps, 30 Amps continuous. The output voltage is variable from 5 to 15 VDC with a variation of less than 2%. It has a single volt/current meter that is back-lit and weighs approximately 2 Kg.



The second prize is a DBJ-2 Portable dual band J-Pole Antenna. This is the portable "roll-up" version which Edison Fong WB6IQN designed and appeared in the March 2007 QST.

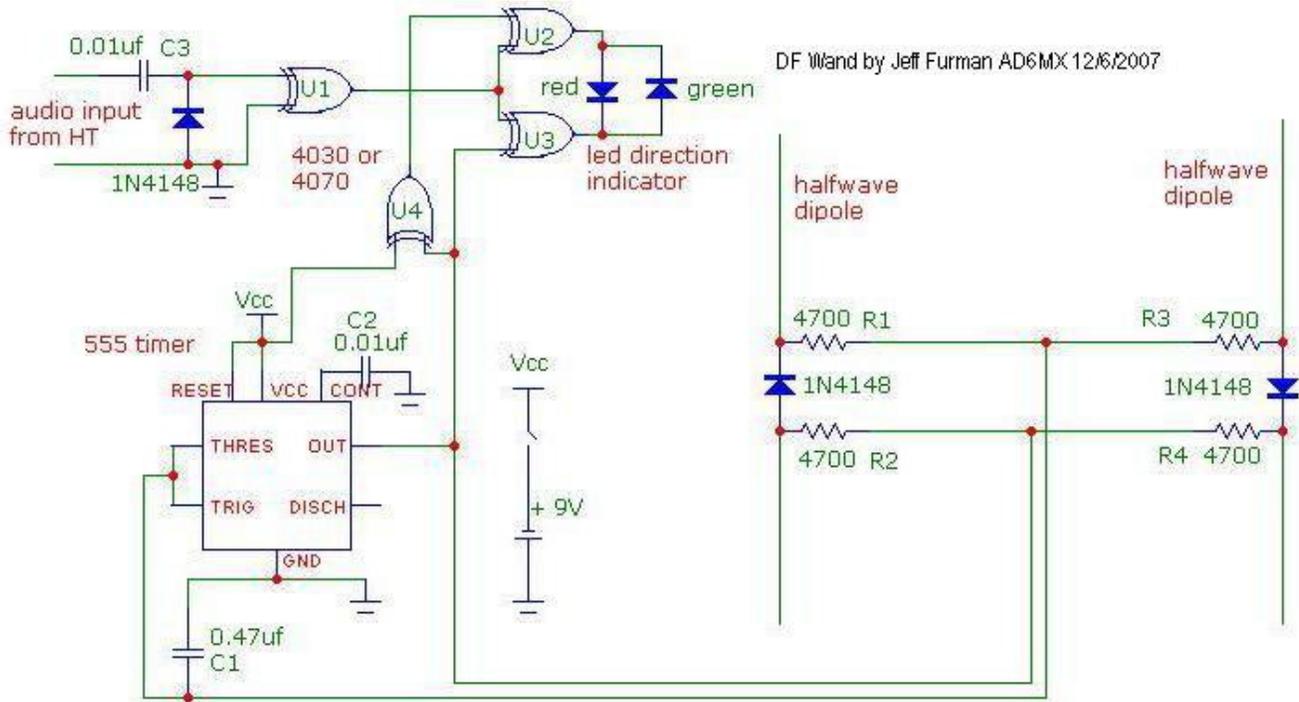


Ed Fong, WB6IQN, with the PVC pipe mounted version of the DBJ-2, which Ed presented at the FARS October 2005 club meeting.

## **Passing of Helen M. Hamer**

FARS is saddened at the passing of Helen M. Hamer, wife of club member Arv Hamer, WA6UUT. Most will remember Arv for his presentations at the FARS home brew contests. You can read about Helen's life and family, and sign the guest book in the article at the San Jose Mercury News website, <http://www.legacy.com/MercuryNews/DeathNotices.asp?Page=LifeStory&PersonId=98908389>. You can also read about Helen at the Los Altos Town Crier website, <http://www.losaltosonline.com/2007/12/05/helen-m-hamer-february-17-1920-november-27-2007/>.

## DF Wand by Jeff Furman, AD6MX



This device is for "transmitter hunting" (T-hunts), finding jammers on repeaters, etc.

Basically, it's an improved version of the so-called "time of arrival" (TOA) type of radio direction finder wherein two dipoles mounted on a stick of some sort with a handle about 1/4 wavelength apart are rapidly switched ON/OFF by diodes in their middle, thereby resulting in an audio tone heard superimposed over the received signal. When the dipoles are held parallel to the oncoming wavefront, there is a null in the tone heard, but the user of an "ordinary" TOA device doesn't know if the signal is coming from the front or from behind.

Jeff's circuit provides left/right indication that, in effect, resolves the 180 degree ambiguity, so when using it you can quickly swing the device and your HT hooked to it to get a null forward instead of backward, and you will be confident that you are not going to chase the signal the opposite wrong direction. This saves time roaming around trying to find a transmitter when hunting alone without a cross-bearing from anyone else. Furthermore, the L/R indicator can tell you where to point next when there are only short bursts, as from a "kerchunker" on a repeater.

- de Andy Korsak, KR6DD

The diodes connect directly to the dipole feed points-- the 4.7k resistors serve as RF isolation 'chokes' as well as the charge/discharge resistors for the oscillator feedback. You can add chokes in series with the resistors if more isolation is necessary. Notice that the voltage drop across one set of resistors increases the reverse bias voltage across the non-conducting diode, which further reduces its capacitance, more than having the two diodes just back to back (with low resistance chokes instead of resistors for isolation) and a single charge/discharge resistor. The totempole output of the bipolar 555 has a Darlington emitter follower as a pull up, so, the high voltage doesn't reach the supply as well as the CMOS version does. An external helper pullup resistor might be needed to get 50% duty cycle.

- de Jeff Furman, AD6MX

FARS 2008 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.

**FARS/PAARA 2008 WINTER BANQUET SIGNUP (January 25, 2008 at Michael's at Shoreline)**

<u>Name &amp; 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  
PMB 41  
270 Redwood Shores Parkway  
Redwood City, CA 94065-1173

<b>Choice</b>	<b>Menu Description</b>	<b>Price</b>
Beef	Roast Prime Rib of Beef	\$ 40
Chicken	Breast of Chicken, Florentine	\$ 31
Fish	Broiled Salmon, Lemon Beurre Blanc	\$ 35
Veg	Vegetarian Brochette w/ Wild Rice	\$ 27



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

Meetings are held on the fourth Friday at Covington Elementary School (directions below), 205 Covington Road, Los Altos. Socializing at 7:00 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.

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FARS RELAY 12/07

FARS Meeting  
 FRIDAY 14 December 2007  
 Covington School