

December 2011 Volume 41, Number 12
Happy Holidays! www.fars.k6ya.org

December Club Meeting

Date: Friday, December 16th, 2011
Time: Socializing at 7PM, Meeting starts at 7:30PM
Place: Covington School, 205 Covington Road, Los Altos
(near Foothill Expressway and El Monte Rd)

Speaker:
Eric Norris, WD6DBM

“Moonbounce and Meteor Scatter for the Masses”

It used to take BIG antennas, BIG amplifiers, and a LOT of patience to work EME.

Now with the WSJT revolution, many hams may *already* have the equipment they need to get'er done.

Eric will show us how!

Snacks: Cookies and coffee will be served.
Questions: Bring your hardest radio questions. The mysterious Dr. Know-It-All reveals all answers.
Post-Meeting Snacks: Denny's on Mathilda in Sunnyvale.

Raffle Prizes

First Prize: Yaesu FT-60R
2m/70cm Dual Band HT w/ 5W Transmit

Second Prize: LED Worklight
27 LED's with hanger and magnet

Third Prize: ARRL 2011-2012 Repeater Directory



The **Wish-You-Were-Here** prize is a **CASH** prize awarded each meeting to a member who is present and has paid their dues. Are you on the list for the drawing?

Membership Meeting. Our next membership meeting is scheduled for Friday, December 16th. This month we will hear about a mode not many hams have tried – Mounbounce. New techniques developed in recent years have made this mode possible with even modest equipment. Our speaker, Eric Norris, WD6DBM presents “Moonbounce and Meteor Scatter for the Masses.”



Winter Banquet 2012 is scheduled for Friday, January 20th. Sign up in advance to reserve your seat for this special annual event presented by FARS and PAARA. This is open to everyone, but reservations are necessary and tickets cost \$28-\$42 in advance (see info on ticket purchases later in newsletter). We allocated \$1200 for raffle prizes and worked hard to select a nice assortment. A Yaesu FT-857D is the top prize! This radio is an all mode transceiver covering 160m through 70cm. Also, a big thank you to Howard at HRO for your personal donations to our raffle. The event will take place at Michael's at Shoreline in Mountain View as we have the past several years.

Dues Reduced for 2012. The FARS board has voted to extend the \$15 reduced membership dues through 2012. Use your \$5 savings to purchase raffle tickets, or put in in your pocket and be \$5 richer.

Electronics Flea Market. The electronics flea market is on hiatus for the winter and returns on March 10, 2012. Check out www.electronicfleamarket.com for details.

de Mikel KN6QI

It's that time of year!

FARS **Membership Renewals**

Renewing your membership to FARS provides much needed support for your club activities.

Including Field Day, the upcoming 160m contest in February, the California QSO Party, and much more!

Thank you and 73.

CLUB INFORMATION

www.fars.k6ya.org

President: Mikel Lechner KN6QI
Vice President: Steve Stearns K6OIK
Treasurer: Dick Baldwinson N6ATD
Secretary: (open)
Radio Officer: Phil Hawkins KA6MZE
Training Officer: Kevin Weiler K6XXX
Relay Editor: Joanna Dilley K6YL
FARS Board: Robert Flemate KE6TFU
Mark Hardy K6MDH
Peter Chow AF6DS
Charlie Morrin KI6FX
K6YA Trustee: Phil Hawkins KA6MZE

Contact the FARS Board of Directors at fars-board@svpal.org.

Email Announcements: Members and non-members are encouraged to subscribe to the FARS Announcement list to receive reminders of FARS activities and other news. Browse www.fars.k6ya.org/mail, click on Subscribe/Unsubscribe and follow 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 require approval by the moderator.

Meetings: FARS 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 November & December (for holidays). **Visitors are always welcome!** Directions on the website as well as in this newsletter. Talk-in: N6NFI (145.23-/100Hz) or W6ASH repeater (145.27-/100Hz).

Membership: Annual FARS membership is \$15. A club badge is \$9. With membership you'll receive the monthly FARS Relay, and you'll also qualify for the monthly CASH Wish-You-Were-Here drawing at each membership meeting.

Newsletter: 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! Photos, operating news, articles, etc. can be submitted to the editor at any time. Contributions are subject to editing and/or compression.

Newsletter Editor:

Joanna Dilley K6YL Joanna.K6YL@gmail.com
PO Box 51985 Also available at FARS meetings.
Palo Alto, CA 94303 Photos © K6YL unless noted otherwise.

**What can YOU do
to help protect and preserve
spectrum and privileges
for all amateur radio operators?**

SUPPORT YOUR NATIONAL SOCIETY →



**The Amateur Radio Relay League
(ARRL)**

www.arrl.org

CALENDAR OF UPCOMING EVENTS

www.fars.k6ya.org/events/calendar

Visitors are welcome at all events!

DECEMBER

16 [Club Meeting](#), Covington School, Los Altos, 7PM
(The third Friday instead of the fourth Friday)

JANUARY

5 Board Mtg, Los Altos Town Crier, 7:30PM

tbd [BARC Meeting](#), Tech Shop Menlo Park, 7PM
the Bay Area Radio Builders Club
a FARS Special Interest Group
(See page 5 for details)

20 [Winter Banquet 2012](#), Michael's at Shoreline, 6PM
This annual event brings together FARS and PAARA
and features a special speaker and a grand raffle.
Tickets are now on sale.

FEBRUARY

2 Board Mtg, Los Altos Town Crier, 7:30PM

24 [Club Meeting](#), Covington School, Los Altos, 7PM

26-27 [CQ World Wide 160m Contest](#), Maryknoll
(same location at Field Day and CQP)
FARS will again participate in this annual event, w/
a full operation including a 160m Beverage antenna
for receive and a vertical antenna for transmit.

MARCH

1 Board Mtg, Los Altos Town Crier, 7:30PM

10 [Electronics Flea Market](#), DeAnza College, 5AM

23 [Club Meeting](#), Covington School, Los Altos, 7PM

FARS Membership Dues Reduced for 2012

Payment of dues supports the club and provides you with current membership status – you'll qualify for the **CASH** Wish-You-Were-Here prize awarded at each membership meeting, and you'll also receive the FARS Relay in your email each month.

The FARS board has voted to extend the \$15 reduced membership dues through 2012. Use your \$5 savings to purchase raffle tickets, or put it in your pocket and be \$5 richer.

FARS is a California 501(c)(3) non-profit corporation, so donations and membership dues are tax deductible with the California Franchise Tax Board and the Internal Revenue Service.

NOVEMBER MEETING REPORT


Congrats to the November raffle prize winners!

Bob K6RWY – Yaesu FT-1900R
2m 55W Mobile Rig

Rob KI6INR – ARRL Handbook 2011
for Radio Communications

Del K6JPX – Two Nylon Dog Bone Insulators

Patricia KG6HRJ – Unfortunately this selected FARS member was not present to collect the **ca\$h Wish-You-Were-Here** prize.



November Speaker:
Howard Califf W6HOC
Ham Radio Outlet

“Ham Radio Holiday Treats”

Just in time for the holiday season...
Howard showed us all the goodies, including the newest and most popular amateur radio gear.



From left to right:

*Del K6JPX,
Bob K6RWY,
Rob KI6INR*



Howard W6HOC



HRO show n tell



*Friday, January 20th
Save the date for the
Annual FARS / PAARA Banquet !*

Dr. Know-It-All

December 2011

Dear Doctor,

Assume I have an antenna that has a SWR of say 6:1 at the end of the feed coax opposite the antenna connection end. I then wrap a bunch of turns of the feed line around a ferrite torroid to make a K9YC common mode and measure the SWR again. What happens to my measured value of SWR?
- A West Virginia Ham

Answer: SWR is defined as that of the differential mode on the coax, and is independent of the common mode. A good SWR meter will measure SWR correctly, a cheap one may not.

So, to answer the question, if the line is lossless, the measured SWR should be 6:1. Putting torroids or a common mode choke on the line cannot change the SWR of the differential mode of the line provided the load is a passive linear load like an antenna. If the measured SWR changes, then it tells you that the measurement is faulty (cheap meter), and the measurement is somehow corrupted by the common mode current.

If the line has loss, the answer more complicated and depends on whether the losses are in the center conductor, in the shield, or in the dielectric. Losses in the center conductor or dielectric won't matter, but ohmic losses in the shield may permit a phenomena called mode coupling whereby the common mode current perturbs the differential mode current. Mode coupling, if it occurs, complicates the explanation. We'll cover it another time.



Heathkit HM-102, circa 1970-1981.

Most SWR meters use two directional couplers to sample the voltage across, and current through, the line's conductors. If the sampled current is that on the inner conductor, there is no problem because common mode current affects only the current on the coax's outer conductor. If the bridge were to sample the current on the outer conductor, there could be a problem. So that is a problem to avoid when designing a SWR meter.

The principle factors responsible for SWR meter inaccuracies are: (1) diode nonlinearity; (2) insufficient directional coupler isolation; and (3) harmonics on the transmit signal. Diode nonlinearity is an issue at low power. The meter's SWR scale is nonlinear and is calibrated assuming a specific forward power and anything else leads to error. Directional couplers typically have 25 dB of isolation between forward and reverse power measurements. This may sound like a lot, but at near unity SWR, the reverse power is easily dwarfed by the forward power that leaks into the reverse measurement. Finally, transmitter

harmonics can corrupt an SWR measurement. Even if harmonics are 30 dB down, they can reflect from the antenna with near unity reflection coefficient, which puts them at levels comparable to the forward power leakage in a directional coupler that has typical isolation. Consequently, harmonic power can corrupt SWR measurements even when good directional couplers are used. The interested reader should consult the references below.

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>.

References:

1. H.W. Silver, N0AX, "Hands-On Radio: Experiment #52 – SWR Meters," QST, pp. 57-58, May 2007.
2. A.E. Weller, WD8KBW, "Theory, Limitations and Adjustment of Reflectometers and Other SWR Meters," QEX, pp. 3-7, Dec. 1984. Errata p. 2, Feb. 1985.
3. A.E. Weller, WD8KBW, "Errors in SWR Indicators," QEX, p. 2, June 1982.
4. W. Orr, W6SAI, "Ham Radio Techniques: Accuracy Test for SWR Meters," Ham Radio, pp. 76-79, June 1982.
5. W. Orr, W6SAI, "Ham Radio Techniques: A Final Word on SWR Meter Accuracy," Ham Radio, pp. 26-30, April 1982.
6. L.D. Breetz, W3KDZ/W8QLP, "Possible Errors in V.S.W.R. Measurement," QST, pp. 22-23, Nov. 1959.
7. W.B. Bruene, W0TTK, "An Inside Picture of Directional Wattmeters," QST, pp. 24-28, April 1959.
8. L. McCoy, W1ICP, "The Monimatch," QST, pp. 11-14, Oct. 1956.
9. M.C. Jones, W1PNX, and C Sontheimer, "The Micromatch," QST, April 1947; and Additional Notes, July 1947.



FARS / PAARA Winter Banquet 2012



Raffle!

When: Friday, January 20th, 6PM
 Where: Michaels Restaurant at Shoreline (Mtn View)
www.fars.k6va.org/events/banquet



The FARS / PAARA Winter Banquet 2012 is scheduled for Friday evening, January 20, 2012. The **Foothills Amateur Radio Society (FARS)** and the **Palo Alto Amateur Radio Association (PAARA)** are presenting this annual ham radio event and fete. This event is open to all who want to attend, but [reservations](#) are required.

*** FIRST PLACE RAFFLE PRIZE ***

Yaesu FT-857D

160-6m (100W), 2m (50W), 70cm (20W)

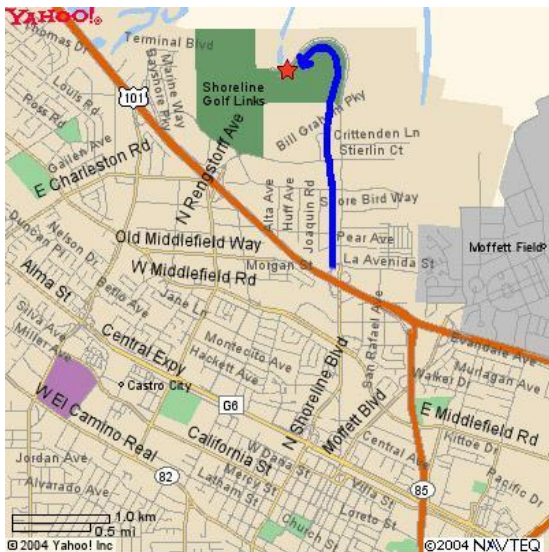
The Yaesu FT-857D is the world's smallest HF/VHF/UHF mobile transceiver, but provides base station-type performance from an ultra-compact package that's ideal for mobile or external battery portable work. Wide frequency coverage, outstanding receiver performance, and the convenience of optional remote-head operation make the FT-857D the expert's choice for high-performance mobile operation! The new FT-857D version includes coverage of the U.S. 60-meter (5 MHz) band, plus the previously-optional DSP circuitry.



\$1200 in Raffle Prizes!



- 6:00 PM - Open Bar (No Host)
- 7:00 PM - Dinner
- 8:00 PM - Presentation
- 9:00 PM - Announcements, Awards, Raffle



Directions

The easiest way to find Michael's is to take highway 101 to Mountain View. Exit onto Shoreline Blvd. (aka Stierlin Road) north (towards the bay). Follow for about 1 mile until you reach the gate for Shoreline Park. Alternatively, you can exit onto Amphitheatre Parkway from 101 and follow it north/east (towards the bay) to Shoreline Blvd. Turn left (north) onto Shoreline and follow until you reach the gate for Shoreline Park. Enter the park through the gate, which will be open. Follow the road (~3/4 mi.) in a wide left curve around the park. Look for a sign pointing left for Michael's. Take a left turn and enter the parking lot. The building next to the parking lot is Michael's.

TALK-IN via the N6NFI 145.230-/100Hz repeater or the W6ASH 145.27- /100Hz repeater

*RSVP by 12 noon on Jan. 16th
 Sign up form on last page.*

REPORT:
Bay Area Radio Builders Club - "BARC"
A FARS Special Interest Group

Over 20 members of this new FARS Special Interest Group turned out to the December 8th BARC meeting, which was the 2nd meeting for the group. The first phase of the LM-317 build was highly successful – a DC voltage regulator. January's reading assignment and meeting will focus on transistors. By March I believe we should be smelling solder.



Interested? Join the Yahoo Group:

http://groups.yahoo.com/group/ba_radio_builders

Next Meeting: Thursday, January TBD
at the TechShop in Menlo Park

FARS Member Badges

We're ready to take your order online or at the mtg.

Available for pick up at the next club mtg

FARS Relay

Have a photo, article, or operating news to share?

Please contact Joanna.K6YL@gmail.com

FARS Weekly Net

Thursdays @ 8 PM

N6NFI repeater, 145.23-/100Hz

This net is open to all interested hams.

The purpose of the net is to keep club members informed about club activities; to exchange other club-related info; and to socialize.

9AM Talk Net

Weekdays @ 9 AM

N6NFI repeater, 145.23-/100Hz

This net is open to all interested hams.

This is an informal net that is very popular.

www.9amtalk.net

Ready to Upgrade Your License?

What is a Passing Score you might ask?

Technician & General exams – 26 out of 35 (74.2%)

Amateur Extra exam – 37/50 (74%)

www.baears.com – This group holds "Ham Crams" 4 times a year. Pre-registration required, sign up on the website. \$30

- Saturday 1/28/12, 8 AM @ San Francisco

www.amateur-radio.org – The Sunnyvale VEC holds test sessions on Saturdays often alternating between Sunnyvale and Redwood City. Walk-ins only, no pre-registrations. \$15

- Saturday 12/17, 10:30 AM @ Redwood City
- Saturday 1/14, 10:30 AM @ Sunnyvale

www.pdarrrl.org/vec/vecscv – The Silicon Valley ARRL VE holds test sessions on the 1st and 3rd Saturdays of each month. Arrive between 8 AM and 11 AM to the Saratoga Fire Station at 14380 Saratoga Avenue. Walk-ins only, no pre-registrations. \$15

- Saturday 12/17
- Saturday 1/7

www.sbara.org – The Tri-City VE Group holds test sessions at Hurricane Electric in Fremont each month, alternating between Saturday morning and Tuesday evening. The address is 48233 Warm Springs Blvd. Walk-ins welcome. \$15

- Saturday 1/14, 9:00 AM
- Tuesday 2/14, 6:30 PM

BAEARS Ham Cram

Next Session: Saturday, January 28th
8 AM
San Francisco, CA
www.baears.com

Electronics Flea Market

Saturday, March 10th
Host: Silicon Valley Chapter, American Red Cross
www.electronicfleamarket.com

FARS Email Notices

Easy to subscribe!
www.k6ya.org/mail
Receive reminders of activities and other news.

Weekly FARS Net

Thursdays @ 8 PM
N6NFI Repeater 145.230(-), 100 Hz PL

WRTC 2014 is coming to the USA

The [World Radiosport Team Championship](#) (WRTC) is held every four years and consists of approximately 50 two-person teams of amateur radio operators competing in a test of operating skill. Unlike most on-the-air competitions, all stations are required to use identical antennas from the same geographic region, eliminating all variables except operating ability. The 2012 event will be held in New England! Previous WRTCs were held in Russia (2010), Brazil (2006), Finland (2002), Slovenia (2000), San Francisco (1996), and Seattle (1990).

Contesting (aka *radiosport*) is a competitive activity pursued by amateur radio operators. In a contest, an amateur radio station, which may be operated by an individual or a team, seeks to contact as many other amateur radio stations as possible in a given period of time and exchange information. Rules for each competition define the amateur radio bands, the mode of communication that may be used, and the kind of information that must be exchanged. The contacts made during the contest contribute to a score by which stations are ranked. (<http://en.wikipedia.org/wiki/Contesting>)

Ham Radio in Hollywood: Comedian Tim Allen Stars as Radio Amateur on New TV Show

Mike Baxter, KA0XTT
(*specially assigned fictitious call sign*)

Tim Allen -- star of *Home Improvement*, *Toy Story*, *The Santa Clause* and *Galaxy Quest*, just to name a few -- stars in *Last Man Standing*, an ABC comedy airing at 8 PM (EST) on Tuesday nights. Allen plays Mike Baxter, KA0XTT, a married father of three and the director of marketing at an outdoor sporting goods store in Colorado whose life is dominated by women. While Amateur Radio has not been prominently featured in the first episodes, according to John Amodeo, NN6JA -- the producer of *Last Man Standing* -- it is a part of the show and an important part of Mike's character. The episode that will establish Mike as a radio amateur is currently scheduled to air in mid-January.

Read the full ARRL article:

<http://www.arrl.org/news/em-ham-radio-in-hollywood-em-comedian-tim-allen-stars-as-radio-amateur-on-new-tv-show>

Bay Area Radio Builders Club

"BARC" with a silent "B"

A new FARS Special Interest Group

Next Meeting: January
TechShop in Menlo Park

We are a group of mostly Amateur Radio operators who want to gain a better understanding of the advanced topics covered in the General and Extra class tests.

We want to learn electronics, antenna theory, kit building, and kit design.

For more info join the Yahoo Group:

http://groups.yahoo.com/group/ba_radio_builders/

FARS Membership Renewal Form

Note that the annual dues for 2012 has been reduced to \$15. You may also renew online by logging onto the FARS website, then using PayPal to pay.

<https://www.fars.k6ya.org/membership> Date: _____
PLEASE fill out the form for all new/renewal members.

Name(s) & Callsign(s) & Class (E-A-G-T-N-None): _____

Mailing Address: _____

Home Phone: _____ Work Phone: _____

ARRL Member? _____ Email: _____

Preferred Modes (e.g. HF-SSB/CW/VHF/QRP/Other): _____

I'm willing to Elmer new hams with: _____

Special topics of interest / suggestions for club meeting speakers: _____

Dues: \$15 per year. Membership runs from January 1 to December 31. New membership applications accepted later in the year may have their dues prorated (see dues schedule). Please include \$9 for a club badge if desired. Your call sign and first name as it appears above will appear on the badge. Renewing members should provide at least their name, call, and the date. Also include any info that may have changed. Put "N/A" where you wish to remove (or not provide) info.

Send your check payable to FARS, to:

FARS c/o Michael Lechner, 436 Memphis Drive, Campbell, CA 95008



How to get to FARS meetings *(Visitors are 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 / PAARA 2012 WINTER BANQUET SIGNUP

January 20th, 2012 at Michaels Restaurant at Shoreline

Deadline for signups for the banquet is 12 noon on January 16th, 2012. Mail no later than January 12th.

Please note you do not need to be a member of FARS or PAARA to attend this event.

<u>Name & Call Sign</u>	<u>Meal Choice</u>	<u>\$ Amount \$</u>
You _____	_____	_____
Email _____		
Guest1 _____	_____	_____
Guest2 _____	_____	_____
Guest3 _____	_____	_____
Guest4 _____	_____	_____
	Membership Dues	_____
	Total	_____

You may renew your FARS membership for 2012 or become a FARS member at the same time you sign up for the banquet by including a [membership form](#) and \$15 [[regularly \\$20](#)] dues with your banquet sign up.

Send your check payable to FARS, to:

FARS
c/o Kevin Weiler
14341 Liddicoat Circle
Los Altos Hills, CA 94022

Dinner Selections:

Roast Prime Rib of Beef \$42
Broiled Salmon, Lemon Beurre Blanc \$37
Breast of Chicken, Florentine \$32
Vegetarian Brochette w/ Wild Rice \$28



\$1200 in Raffle Prizes!

*Including a Yaesu FT-857D HF/VHF/UHF transceiver -
Powerful enough for a base station but small enough for mobile and portable operation!*

Banquet Sign-Up – *Must be received by noon on Jan. 16th*

Paper Sign-up – You may print and complete the above form, and mail along with your check for payment. All mailed sign-ups should be posted by Thursday, January 12th to arrive in time. Last minute sign-ups should use the online form. You may also bring your form and payment to the December FARS meeting.

On-line Sign-up – You must logon to the FARS website and have a credit card or a PayPal account to make your payment. It's easy to register for a logon to the FARS website if you have an email address. All online payments are handled by PayPal. Online sign-ups must be completed and paid by noon on Monday, January 16th, 2012.

WEBSITE: <http://www.fars.k6ya.org/events/banquet>