



February 2006 Volume 37, Number 2

February Club Meeting

Date: Friday, February 23, 2007

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

Place: Covington School, 205 Covington Road, Los Altos

Speaker: Wayne Burdick, N6KR, co-founder of Elecraft.

Topic: HF Pedestrian Portable - Equipment and Operating

Summary: Wayne's topic is HF pedestrian portable - equipment and operating. This is a repeat of his Pacificon 2006 presentation to HF Pack enthusiasts. Wayne will discuss the ergonomic issues of operating a miniature, hand-held HF transceiver, focusing on Elecraft's popular KX1 transceiver. Outdoor operation presents various challenges for antennas, log-keeping, keyer paddles, and the operating position.

Station size, weight and current drain are also important factors when traveling light. Wayne will show how the rig is being used in different situations, including many innovations created by KX1 owners.

About the Speaker: Wayne Burdick (N6KR) is a co-founder of Elecraft, and principle designer of the Elecraft K2, K1, and KX1 transceivers. He also created the Wilderness Radio kits (NorCal 40A, Sierra, and SST), refinements of his popular NorCal QRP Club designs. Wayne and his co-founder, Eric Swartz (WA6HHQ) have both been inducted into the QRP Hall of Fame, and jointly received the ARRL's Technical Excellence Award for their transceiver designs.

Two great prizes will be raffled at this meeting: A Yaesu FT1802M/E 2 meter base transceiver and an MFJ 281 ClearTone Speaker.

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.

Upcoming Events

- Feb 23 7:00 PM, [Club meeting](#), Covington School
- Mar 1 7:30 PM, Board Mtg at the Los Altos Town Crier
- Mar 3 8 AM to 9 PM, [Am-Tech Day](#), SLAC, 8AM-9PM
- Mar 10 [Electronics Flea Market](#), De Anza, 5 am to Noon
- Mar 23 7:00 PM, [Club meeting](#), Covington School
- 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>>

Presidents Corner

Membership Meeting. Our next meeting is Friday, February 23 at 7pm. Our speaker is Wayne Burdick, N6KR from Elecraft. He will talk about some of their latest product offerings.

Am-Tech DAY. The next Amateur Radio Technology Day is scheduled for March 3rd at the Stanford Linear Accelerator Center. For the latest details and changes, check the FARS web site (www.fars.k6ya.org/amtechday/). Subscribe to the FARS Announcement list (www.fars.k6ya.org/mail/) to make sure you get an email reminder.

FARS/PAARA Winter Banquet 2007 was a big success. Thanks to everyone who attended. Thanks to our speaker Dr. Alan Eshleman , K6SRZ for a great talk. Thanks to Dave Cooper, KE6PFF for handling the signups, working with the restaurant, and more. Thanks to Jim Rice, K6AK, Ron Green, KG6RLG, and Kyle Rice, KG6MSK for handling the raffle and the prizes.

Membership. A new year is upon us, and now is the time to renew your membership for another year. Remember your membership entitles you our monthly newsletter, voting rights, and supports FARS educational programs and activities.

You may now update your membership information on-line at the FARS web site at <https://www.fars.k6ya.org/cgi-bin/r-edit>. You may also use PayPal to pay your membership fee, or print out the membership form and send it in with a check for \$20.

On-line Roster. The membership roster is on-line, so you can update your information on-line. You can also use the roster to find out how to contact other FARS members. You can also check to see if your membership is paid up for 2007!

- de Mikel, KN6QI

January Meeting Report – Winter Banquet

Alan Eshleman, K6SRZ, spoke about his experiences at the Kure Atoll. He told the story of this DXpedition from his perspective as a HAM operator and a doctor. The video presentation was especially entertaining as it showed what the long trip to and from the island was like and how life was during the trip. Nearly 100 people attended the banquet.



Alan Eshleman, K6SRZ



Top Four Raffle Winners

Twenty three prizes were raffled at the banquet (see the list later in this Relay). The top four prizes went to Rolf Klibo, N6NFI; Les Zweibel, WB6ORZ; Carrol Kerns, KG6YPH; and Gerry Tucker, N6NV. Special thanks go to Howard Califf and HRO for many of the prizes, the books, accessories and calendars so useful to HAMs.

2007 Winter Banquet Prize Winners

Place/Prize	Winner
1-Yaesu FT-857D w/YSK-857 Separation Kit	Rolf Klibo, N6NFI
2-Yaesu FT-1802M, 2M Mobile	Les Zweibel, WB6ORZ
3-Anderson Connectors and West Mountain Crimper	Carrol Kerns, KG6YPH
4-Grundig FR200 Emer. Radio	Gerry Tucker, N6NV
5-2007 ARRL Handbook	Byron Beck, KG6UOB
6-Kilo-watt Usage Monitor	Ron Green, KG6RLG
7-ARRL HF Antenna Book	Richard Tsukushi, KA6IXN
8-Maha MH-C204W Charger	Elaine Gibbons, WA6UBE
9-ARRL 20th Ed. Antenna Book	Steve Stearns, K6OIK
10-Maha MH-C204W Charger	Ron Green, KG6RLG
11-Samlex 3.5A/13.2 Volt Switching Power Supply	Kristin McIntyre, K6WX
12-DXing 101 book	Mike Gavin, W6WZ
13-Powerwerx PS-8 Red-Dee 2 Connector	Terry Finn, AA6T
14-ARRL Radio Frequency Book	Ron Green, KG6RLG
15-ARRL RF Exposure and You	Kristin McIntyre, K6WX
16-Powerwerx Red-Dee 2 Connector, PS-4T-Plus	Bob Golder, WA2CFN
17-ARRL Vintage Radio Classics	Mike Gavin, W6WZ
18-Powerwerx Red-Dee-2 Connector, PS-4	Rebar Rebarchik, KI6CCH
19-Rod Dinkins' Using FM Repeaters book	Barbara Neuhauser, AE6RM
20-CQ Radio Classics Calendar	Doug Teter, KG6LWE
21-CQ Amateur Radio Calendar	Kevin Weiler, KG6YYW
22-Pro-Am 2M/440 Dual Band Antenna	Howard Califf, W6HOC
23-50 Ft Coax Cable	Steve Sabram, KI6FYG

New Newsletter from ARRL

The ARRL has started a new newsletter, the "ARRL Club News." Current issues are available at the ARRL web site <http://www.arrl.org/FandES/field/club/clubnews/>. There is also a link that describes how ARRL members can sign up to receive the newsletter by email.

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 Baldwin 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.

Technician License Class

Chris Swartout, N6WCP, will be teaching a Technician Amateur Radio Class the last two Saturdays of March (the 24th and 31st, 8:30 to 5:00 pm each day) at the San Jose Police Communications Building. One can register for the class either via email to cas30@pacbell.net, or phone message to 408-272-6835 (press 2 and leave the name and an evening phone number). The License exam will be proctored by ARRL on 31 March at 5:00 pm. The class is open to anyone at \$35.00 per person (which includes all course materials and text), and the exam fee is \$14.00 per person.

Dr. Know-It-All

February 2007

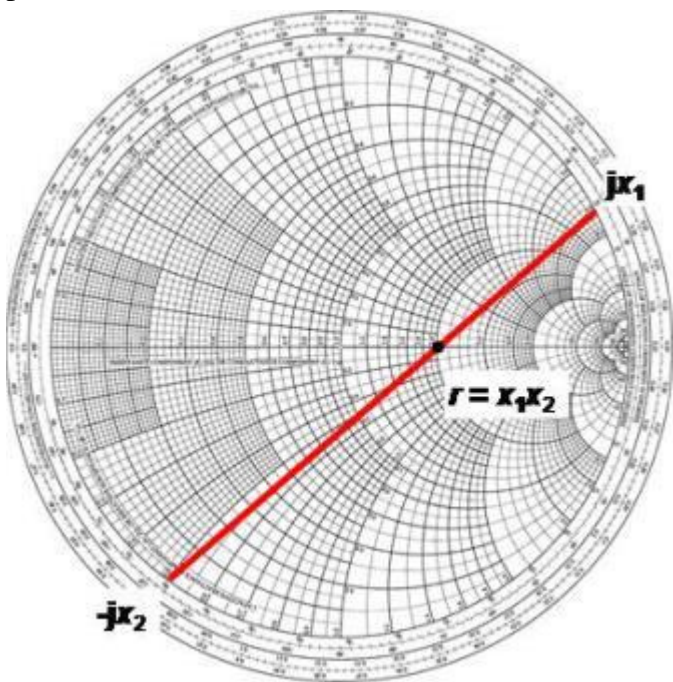
Dear Doctor,

After reading about how to calculate trigonometric and inverse trigonometric functions and squares and square-roots on the Smith Chart, I am now curious about multiplication and division. Can you multiply and divide numbers on a Smith chart?

Anonymous

Answer: You can do many wonderful mathematical calculations using nothing more than a Smith chart, straight edge, and compass. You can multiply and divide numbers with just a Smith chart and straight edge. The method is a generalization of the one given in December for finding squares and square-roots. Here is how to do it.

Given two positive numbers x_1 and x_2 , we find their product x_1x_2 by first locating the impedance points $z_1 = 0 + jx_1$ and $z_2 = 0 - jx_2$ on the chart. These points are on the perimeter of the chart, the $r = 0$ circle, in the upper and lower halves of the chart respectively. Now, draw a line that connects them, i.e. a line from jx_1 to $-jx_2$. Because this line connects a point in the top half with one in the bottom half, it must cross the horizontal line that divides the chart, the $x = 0$ reactance arc. The point of intersection is at a real impedance $z = r + j0$ that can be read directly from the scale printed on the chart. Miraculously, r equals the product x_1x_2 .



The method given in December for calculating squares is nothing more than this method applied to multiply a number by itself. The reader should check that this is so.

You can divide one number (a dividend) by another (a divisor) to obtain their quotient. First, mark a point on the horizontal line at the dividend $z = r + j0$. Letting x_2 be the divisor, mark a second point in the lower half at $z_2 = 0 - jx_2$. Now draw a line from the divisor point $-jx_2$ up through the dividend point r to the upper perimeter of the chart. The perimeter point represents the impedance $z_1 = 0 + jx_1$, in which x_1 is the quotient, $x_1 = r / x_2$.

The procedures for multiplying and dividing are easy because the values x_1 and x_2 are read directly from the labels on the reactance arcs while the value of r is read directly from the labels on the resistance circles. As with analog slide rules, one should put numbers in scientific notation consisting of a mantissa and an exponent. The scientific notation used for Smith chart math is different from that used with a slide rule in a key respect. Slide rule math represents mantissas as numbers between 1 and 10, whereas in Smith chart math, it's preferable to represent mantissas as numbers between 0.3 and 3. When multiplying two numbers, their exponents are added mentally. In slide rule math, if a resultant mantissa is out of range, it is brought into range by shifting its decimal place to the left while simultaneously incrementing the exponent by one. In Smith chart math, we shift the decimal left or right as needed, while simultaneously incrementing or decrementing the exponent by one. For example 3×3 is 9, but 9 is outside the range 0.3 to 3. So we shift the decimal place left to get 0.9×10^1 , or a mantissa of 0.9 with an exponent of 1. Readers who are familiar with slide rules will find this method similar.

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>.

Pictures from the 2007 Winter Banquet



Raffle Winners

FARS 2007 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 \$8 for badge fee. **Please note:** Membership runs from January 1 to December 31.

Send your check payable to FARS, to:

David A. Cooper, KE6PFF
PMB 41
270 Redwood Shores Parkway
Redwood City, CA 94065-1173



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 [N6NEI](#) (145.230-; 100Hz PL) repeater or the [W6ASH](#) 145.27- (100Hz PL) repeater.

**FARS Meeting
FRIDAY, 23 February 2007**