



CROSSTALK

NEWSLETTER OF THE SPACE PARK EMPLOYEES ASSOCIATION ARC

Volume 35 Number 10

November 2003

From the editor:

There will be no club meeting this month, since we will be having the Awards Banquet this month, Saturday Nov. 22. Be sure to get your reservations in.

The December club meeting will be on Dec. 9 and the speaker will be Paul Charbonneau, W6BZH, an *Interference Inspector for L.A. Department of Water & Power*. Along with knowledge of many different sources of RFI, he has some very interesting stories on several experiences he has run into over the years.

Reminder that the swap meet can always use more volunteers. In September there were only 6 people there to run the whole swap meet! The swap meet generates 99% of the club's funds and enables us to do what we do, including those nice raffle prizes at the banquet. It is not fair that a small number of members should be doing all the work to support the rest of the club. Support your club by helping out at the swap meet at least once per year!

And keep sending articles and information for the Crosstalk to:

- jim.harrison@ngc.com
- *Crosstalk Editor, Jim Harrison K6OUE*

Don't forget!

- **No monthly club meeting this month, see you Dec. 9**
- **Swap meet: Saturday Nov. 29, 7:30 AM to 11:30 AM**
- **Annual Awards Banquet: Saturday Nov. 22, 4:45 to 8:45 PM**

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SEA ARC Monthly Calendar of Events

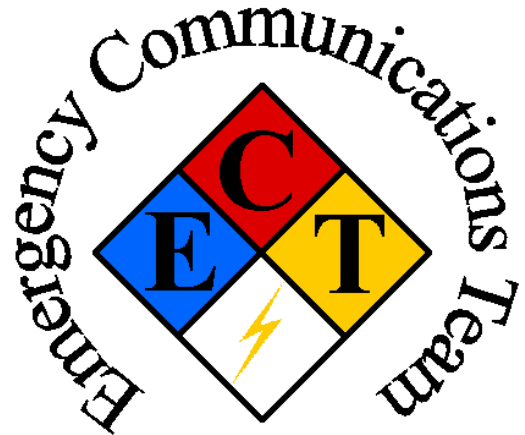
Second Tuesday of each month	5:30pm	Club Meeting Round Table Pizza, southeast corner Redondo Bch. Blvd. and Hawthorne Blvd.
Second Tuesday of each month	12:00 noon	Emergency Communications Team Meeting R3 Emergency Operations Center
Third Monday of each month	5:30 pm	Executive Board Meeting, R3/1036 (All Club Members are invited)
Last Saturday of each month (Rain or Shine & Holidays)	7:00 am	SEA ARC W6TRW Swap Meet Marine and Aviation (Southeast Corner)
During the Swapmeet	10:00 am	VE Exam Sessions in Cafeteria

Weekly Events

Every Monday Night (Except the 1st & Holidays)	7:30 pm	Disaster Communication Systems (DCS) Net DCS Members: Check in on 2m Rptr
Every Wednesday	12:00 noon	ECT Net on 2 meter Repeater All Amateurs Welcome
Every Wednesday	12:00 noon	All NG Net 21.360 MHz
Every Thursday	6:30 pm	W6TRW Net on 2m Repeater All Amateurs Welcome
Every Thursday	7:00 pm	Space Hams Net on 2 meter Repeater with N6SHI and W6EKK
Every Mon, Wed, Fri	2:00 pm	W6TRW Retirees Net 7185 KHz
Every Friday Morning	7:30 am	SEA Amateur Radio Club Breakfast Building S Cafeteria - Everyone is invited Talk-in on 2 Meters

New Club Logo Contest Results

The results of the new club and ECT logos contest are out. The club logo was decided by an email vote of the entire membership, the ECT logo by an email vote of the ECT members. Both winning logos were designed by Jason Fujino KD6ELS. There may still be some final artwork cleanup before these are officially released for use by the club.



NOAA "Space Weather" Service Threatened

Craig N6ED

The service on which many amateurs depend for reports on ionospheric conditions may have its funding sharply cut or eliminated under two versions of a Congressional spending plan for Fiscal Year 2004. The Space Environment Center, part of the Commerce Department's National Oceanic and Atmospheric Administration (NOAA), provides "space weather" reports on solar and geomagnetic activity that affect the ionosphere, which in turn affects radio propagation. In addition, solar flares and similar events can damage satellites, so advance knowledge can help protect them. Propagation predictions in CQ and other publications depend on these space weather observations.

The Space Environment Center is actually operated jointly by NOAA and the Air Force, but its funding is in the NOAA budget. The SEC suffered a 40% budget cut in the current fiscal year, and the House budget proposal for 2004 calls for an additional 40% cut. The Senate version of the bill cuts funding for the SEC altogether, along with the somewhat cynical comment in an accompanying report that "the 'Atmospheric' in NOAA does not extend to the astral. Absolutely no funds are provided for solar observation. Such activities are rightly the bailiwick of the National Aeronautics and Space Administration and the Air Force."

We understand from SEC staff that the House Science Committee's Environment, Technology and Standards Subcommittee will be holding a hearing next week (October 30) on the funding bill, and that letters and comments from the public will be entered into the record. If you are concerned about the possible loss of information gathered and disseminated by the SEC, you may write to the House Committee On Science, Environment, Technology and Standards Subcommittee, 2320 Rayburn House Office Building, Washington, DC 20515. You should direct your comments to the Chairman, Rep. Vernon Ehlers (R-MI), ask that they be included in the record of the Oct. 30 hearing, and explain in NON-TECHNICAL terms how you benefit from the "space weather" services provided by the SEC, and how

you would be adversely affected if those services were further reduced or eliminated.

A full list of the members of the Environment, Technology and Standards Subcommittee is below. If the list includes your Representative, and you are inclined to write, you might also send a letter or comment directly to your Representative.

House Committee on Science
Subcommittee on Environment, Technology, and Standards

Republican Members

Vernon J. Ehlers, Michigan, Chairman
Nick Smith, Michigan
Gil Gutknecht, Minnesota
Judy Biggert, Illinois
Wayne Gilchrest, Maryland
Timothy Johnson, Illinois
Michael Burgess, Texas

Democratic Members

Mark Udall, Colorado, Ranking Minority Member
Brad Miller, North Carolina
Lincoln Davis, Tennessee
Brian Baird, Washington
Jim Matheson, Utah
Zoe Lofgren, California

Ex-officio members:

Sherwood L. Boehlert, New York, Chairman, House Science Committee
Ralph M. Hall, Texas, Ranking Minority Member, House Science Committee

To contact any Member of Congress by e-mail, go to <<http://www.house.gov>> and follow prompts to find contact information for the member you want to reach.

(CQ magazine newsletter)

For Sale

Retro 1962 Grundig Majestic Stereo Console Model #S0230 -- AM/FM, SW I & II, and Record Changer 14/33/45/78
Excellent condition. Rare find, must see. \$250 obo

Niva Oghigian

Internal Information Services

310-813-6459

niva.oghigian@ngc.com

For Sale: Ten Tec OMNI VI HF transceiver. Includes the VI+ modifications and narrow CW filters. Very good condition. \$1000. Bill Shanney, W6QR, X38159

Crosstalk History

Dave Nelson AB6DU

A few years ago, we found that Ed Thornley, now W6RXD, had kept a complete copy of all Crosstalks issued. This trove of club history dates from January 1968, and Ed loaned his collection to the club for copying. We owe thanks to Carey Briggs, KE6GPC, who took on the task of scanning every page, and producing a two CD set of the record for posterity. You have seen the mention on the club web page (<http://w6trw.com>) about a Crosstalk archive, which some day just might happen. Unfortunately, the huge

volume of Crosstalk .pdf files is more than our webpage can store, so a complete online access to club history is not possible. A copy of the CD set is available to any interested member. We will attempt to provide some glimpses of this record in current Crosstalk issues. Look for the “25 Years Ago” column in upcoming issues.

There are few remaining members who could have read all issues. This writer has not had that experience, but a perusal of the files shows there is much of interest there, e.g. when the call sign was changed to W6TRW, swapmeet startups, operating events such as Field Day and club banquets, and personal glimpses into the people who brought the club along to its current status. We hope this interests and motivates members for even higher club accomplishments, and provides a perspective of our historical lineage. You may better appreciate the work club officers do on your behalf to keep this effort alive and well, as we read back to the beginnings of things we so easily take for granted.

Since Crosstalk has been electronically produced, it is much easier to keep this record up to date. Unfortunately, not all issues have been saved, and 1999 was lost in my hard disk crash. If anyone has these, please send copies to me at ab6du1@juno.com. A few other issues are also missing.

The monthly newsletter was created for the TRW Amateur Radio Club with the first issue in January 1968. The first issue was edited and produced by the president, Doug Heydon, WB6WDS, and included “THE PREZ SEZ,” by him, “SECRETARY’S REPORT,” by John Kroemer, W6SMH, “TRESURER’S REPORT,” by Ed Thornley, WA6JHD at that time, “SAGA OF THE SHACK,” by Carl Rothrock, W6MYC, and ‘MEMBERSHIP NOTES,’ without author credits, Carl was filling the role of Shackmaster, and he was outlining plans to install antennas on Bldg. 65, with a mention of an upcoming Saturday work party.

This first issue was entitled “Bulletin.” It took several months to settle on the newsletter name as Cross Talk, later modified to one word. Readers will notice some similarity and some differences in the reporting, club problems and issues, and changing attitudes in the club over the years.

In “THE PREZ SEZ,” Doug outlined the purpose of the newsletter. “We intend to try to keep you better informed and more actively interested in what’s going on in your club, as well as some items of interest on amateur radio in general.” I see no reason to change that, as it seems so relevant today. Doug added, “...we will publish the previous meeting’s minutes and the Treasurer’s report each month.”

In “MEMBERSHIP NOTES,” three new members were introduced. One, Fred G. Suffield, had donated a SRI (Stanford Research Institute?) report on “Amateur Radio: an International Resource for Technological, Economic, and Sociological Development,” to the club. Could this still be buried in club archives someplace? Twenty-two members were reminded their memberships were about to expire. A membership list was mentioned as attached, but was not found in the scanned copy of issue #1. I wonder how many members in the club in 1968?

In the “SECRETARY’S REPORT,” the actual minutes from the December 27, 1967 meeting were provided. Mention was made of a loan for 2 and 6 meter transceivers, a 10 student license class with interest in a high speed code class, and that the 1968 officers were all unanimously elected.

The “TRESURER’S REPORT” listed receipts and expenses with a remaining balance of \$95.55. Carl Rothrock’s “SAGA OF THE SHACK” outlined plans for four operator positions so that WB6WPO can be on the air from 80 through 2 meters, phone and CW. Reprising themes were a call for workers to get the

shack outfitted, a plea to find old members delinquent in their dues, and to find new interested people to join the club. The president was also looking for someone to take over as editor of the Bulletin.

Multi-band Wire Antennas

Bill Shanney W6QR

A general approach to the problem of using a single wire antenna on multiple bands

Many hams can only install a single wire antenna and desire good multi-band performance. The most famous and common approach is the G5RV (Ref 1), which provides good performance from 80-10M. This design will work as published when up high and in the clear. Proximity to structures, actual antenna geometry and height above ground all effect the feed-point impedance. This antenna may not fit conveniently into your available space, changing the length also changes the impedance. It is important to have an antenna and feedline design that is easily matched to your transceiver (ie:50 Ω)

My approach has been to model the actual antenna geometry as accurately as I can using W7EL's EZNEC antenna analysis software. Any NEC based analysis program will work for this purpose. If the antenna is low to the ground I use the real ground modeling feature (ground dielectric constant = 13, conductivity=4 mS/m²). I compute the feed-point (source impedance) impedance for each band of interest. I've found this gets me close enough since I'll be using a wide range antenna tuner for matching.

The next step is time consuming but very instructive and saves lots of frustration in the long run. I pick a transmission line (usually commonly available 450 ohm window line) and calculate and/or measure the length from the antenna feed-point to my tuner. I've usually used an in-shack tuner but today there are excellent remote tuners available for output power levels <200 watts. The impedance at the tuner is computed using TLW software that comes with the recent ARRL Antenna Book. It takes a while to manually input the data for each band and manually record these results:

- Change the frequency to the band you are analyzing
- Input the type of transmission line and it's length
- Input the antenna feed-point impedance in the band of interest
- Record the computed impedance at the tuner end of the transmission line
- Push the TLW tuner button to compute the tuner performance
- Select the type of tuner you have (T, L or Pi network...see the instruction manual for your tuner to determine it's type)
- Review the matching network values computed by TLW
 - Make sure they are within the range of Inductance and Capacitance of your tuner
 - Make sure the power losses are low (ie: <0.5 dB or 10%)
- Repeat for each frequency you will or could use the antenna on

If one or more of the frequencies of interest show a problem such as matching network element values out of the tuner range (or near the extremes of the range) or high losses then you need to change the feedpoint location, length or impedance of the transmission line and repeat the process until you reach a satisfactory result. Ladder type transmission lines are recommended for this application due to their low loss. They are available in impedances of 300, 450 and 600 ohms. I don't recommend 300 ohm line since it is not readily available in a high power version. TV twin-lead is OK for QRP use.

Now that you have done all this analysis and install your antenna the first thing to do is try tuning it on all bands. I usually adjust the antenna tuner for maximum receiver noise and then use the transmitter at a low power setting (ie: 10 watts or less) to get a match with the VSWR <1.5:1. You don't have to go all the way to 1:1 VSWR, you will never notice the performance difference. If it tunes easily on all bands you're

done, have fun operating. If it is difficult to tune or you are near the limits of your tuner's adjustment range, don't panic, the fix is usually as simple as adding or removing 5 or 6' of your transmission line. That is usually enough to make tuning easier.

I'll round out this discussion with a few words about tuners. QST has published several excellent reviews in recent years (Ref 2). For 200 watts or less transmit power most commercial tuners work fine. I will only comment on the three I presently own.

- MFJ Model 986 Differential tuner → a T-network, tunes a very wide range of impedances on 80-10M. T-networks in general can be very lossy due to the resistive loss in the shunt inductor, this model is better than most because it is designed for 1500 watts and has a large, high Q inductor.
- NYE Viking Model MB-V-A → a Pi-network, works best for high impedances, designed for >1500 watts, outstanding workmanship and components. Limited tuning range on the lower bands (80 & 160M).
- Ten Tec Model 238B → L-network tuner, reversible to tune either high or low impedances, very wide tuning range on the low bands, outstanding workmanship and components. Limited tuning range on 10M.

As you can see, there is no one tuner that is perfect for every application. I always rely on the TLW analysis to determine which tuner is best for the antenna I'm working with. I go for low tuner loss every time. A schematic with tuning element values and ranges is in each tuner instruction book.

Now some of you are thinking that your transceiver has a built in tuner, so you don't need an external unit...think again! The internal tuner is only good for VSWR <3:1. That is perfect when you make a small frequency change and the VSWR goes up a little, but they can't handle the range of impedances you will encounter in a multi band antenna.

An interesting option is to use a remote antenna tuner. There are several fine models on the market today (all are L-networks). These units automatically tune for lowest VSWR and remember the settings for the next time you use a particular band. This permits you to use a shorter transmission line, which often makes multi-band matching easier. It is also not necessary to feed the antenna in the center, you might find an offset feed more convenient (a well known example of offset feed is a Windom, see the Radio Works web site, www.radioworks.com).

You can always put up an antenna and try it, however, my experience is not good with this approach. Today's user friendly analysis tools give the average Ham the ability to understand the performance of his/her antenna system before investing time and money.

73.

References: 1. See www.qsl.net/aa3px/g5rv.htm for a copy of Louis Varney's original article. 2. *QST* Product Reviews, February 2003 & March 1997.

Repeater Monitoring

Jim K6OUE

If you hear someone identifying themselves as KG6IRO on our club repeaters, please note the date and time of the transmission and send it to Jim K6OUE at jim.harrison@ngc.com. I am keeping a log of these transmissions for possible future use. Note that KG6IRO is not a valid call sign, so do not reply to this person.

SEA AMATEUR RADIO CLUB

ELECTED OFFICERS

President	Wendell Young	KE6ASC	R3 / 1086	(310) 813-7691
Vice President	Mike Hamada	KF6UCN	M5 / 0560	(310) 814-2628
Secretary	Wendy Crawford	KQ6CG		(310) 374-0795
Treasurer	Jason Fujino	KD6ELS	R5 / 2130	(310) 812-5461

APPOINTED STAFF

2m Repeater	John Cheatham	KE6OJM	R9 / 2896	(310) 813-5903
447 Repeater/Autopatch	Duane Park	WA6EIK	O1 / 1080	(310) 813-4219
Activities Chairperson	Mike Hamada	KF6UCN	M5 / 0560	(310) 814-2628
Crosstalk Editor	Jim Harrison	K6OUE	R6 / 2541	(310) 814-1937
Emer. Comm. Coordinator	Wendell Young	KE6ASC	R3 / 1086	(310) 813-7691
Librarian	Jim Harrison	K6OUE	R6 / 2541	(310) 814-1937
Membership Chairperson	Wendy Crawford	KQ6CG		(310) 374-0795
Past President	Bob Briggs	KD6WYQ	O1 / 1250	(310) 813-2622
Publicity Chairperson	Wendy Crawford	KQ6CG		(310) 374-0795
QSL Manager	Rod Scott	KE6PI	R7 / 2041	(310) 813-1493
Shack Master	Pete Livingston	W3CRI	R1 / 1096	(310) 813-9550
S.P. Packet/Internet Sysop	Chris Wachs	WA2KDL	201A / 5386	(310) 813-1506
SEA Representative	Chris Wachs	WA2KDL	201A / 5386	(310) 813-1506
Swap Meet Manager	Greg Martens	N6RRY	M1 / 1275	(310) 813-4049
Technical Chairperson	John Cheatham	KE6OJM	R9 / 2896	(310) 813-5903
Training Chairperson	Bryan DeAro	KN6OW	120 / 1020B	(310) 812-4789
Trustee of W6TRW License	Duane Park	WA6EIK	O1 / 1080	(310) 813-4219
Webmaster w6trw.com	Duane Park	WA6EIK	O1 / 1080	(310) 813-4219

SEA ARC Hotline (Club Answering Machine) (310) 813-8569
W6TRW 2 Meter Repeater (Open Repeater) 145.32 (-600) PL 114.8Hz
W6TRW UHF Repeater (Open Repeater / Closed Autopatch) 447.00 (-5 MHz) PL 100 Hz
W6TRW-3 Packet Radio Internet Gateway and BBS (1200 Baud Port) 146.745 (-600)

W6TRW Internet Home Page

<http://www.w6trw.com/>

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