



cross talk

NEWS BULLETIN OF TRW AMATEUR RADIO CLUB



Sponsored by Systems Employee Association



WAC
WAS
DXCC
FD'71
FD'73

March, 1980

SWAPMEET

The February 23rd Swapmeet - another good one. The 7-Day Rain had subsided, it was a beautiful day and the Swapmeet site was full for second straight month. Our club's booth was ably manned by Dave Gilmore (WB6IDJ), Ed Thornley (W6RXD), and Stan Johnson (W6EKK). These guys dispensed 24 dozen donuts, 150+ cups of coffee, and lots of softdrinks.

Mid-morning we had an auction to sell the donated equipment that had accumulated for the past few months. Jack Clarke (WB6TER) was the Auctioneer, with helpers Bill Dews (K6AWO), Jim Hill (W6IVW), Wayne Hale (WB6IZK), Steve Oneal, and myself (WA6EVS). This auction was a lot of fun, drew a nice crowd, and netted \$154.00 for the club. (This included \$45 received for the club's Lafayette 2 Meter Transceiver, which we surplused.) Now that we have space to store more equipment, we are again accepting donated parts and equipment. If anyone has any parts or equipment that they wish to donate, call a club officer to arrange for pickup, or deliver to the next Swapmeet or to our building 65 Ham Shack.

Reminder to club members having Booth Duty at next month's Swapmeet (March 29).

Task A : Open*
Task B : Bill Rodner
Task C : Bob Hume

* There are several unfilled openings for Swapmeet Booth operators in future months. Please call me if you wish to fill one of these. See you all at next month's Swapmeet.

Bill Schreck
WA6EVS 51583

POTENTIALLY DEADLY THREAT

A potentially deadly threat exists in many hamshacks due to PCB, the potent cancer-causing chemical widely used as a high-voltage insulator until a recent ban was imposed on its use by the Environmental Protection Agency. Polychlorinated biphenyls have been widely used in the manufacture of capacitors and transformers since the early 1930s, and many Amateurs are currently using PCB-filled capacitors in their high-voltage supplies without being aware of the potential hazard.

There is no danger so long as seals are intact, but exposure to liquid PCB seeping from a leaking capacitor could have grave health consequences for an Amateur or his family. Amateurs who suspect their oil-filled capacitors might contain PCB --GE's Pyranol is one well-known example --should check all seals carefully for leakage and make sure the capacitors are run well below their ratings to avoid stress.

Damaged or leaking PCB-filled components should not be thrown in the garbage; in fact, it is illegal to dispose of more than three pounds (one quart) of PCB except in a sealed drum at a government-approved disposal site! At presstime, HR Report is discussing alternative disposal arrangements for PCB-filled components with the EPA.

TNX HR Report

FROM THE PRES.

Al Lee W6KQI

At the last Feb. 27th monthly meeting, Gary Komatsu, K6HPD volunteered to continue handling the ordering of club badges so if you're interested, see Gary. \$1.50 will get you a new badge.

We have been asked by the Los Angeles Area Council of Radio Clubs to participate in the 1980 ARRL Southwestern Division Ham Convention that takes place at the Marriott Hotel near the airport in September. We have been asked to participate by submitting a check for \$150.00 which automatically allows us to have a club member on the board of directors of HAMCON, INC. Bill Daley, K6BO has volunteered to fill that position. With this participation, the club is eligible to share in the profits of the convention which will be larger and more spacious than last years in Anaheim.

Charley Speelman, WA6RUZ has done an excellent job of sorting and assembling the clubs collection of ham magazines. He has listed the missing issues and determined which are surplus. Donations of radio magazines and books are appreciated as they can either fill out our collection or can be sold at our monthly swapmeets.

Speaking of which, Bill Schreck, WA6EVS, our ever busy swapmeet chairman, has declared that we will probably soon need a larger lot. Fortunately, its available nearby so the outcome of the March meet will determine if we change locations.

73's

NEW LICENSES

Steve O'Neal

Fred Garrett

Both have recently passed the Tech. license and are awaiting their calls, Congratulations!!

FEBRUARY DOOR PRIZE WINNERS

Fred Garrett	Battery charger
Emmett Ingram	2 dinners Red Union
Bill S.	Nibbling tool
Dave Gilmore	Crimping tool

10-MHZ AD HOC COMMITTEE

A "10-MHZ Ad Hoc Committee" has been appointed by ARRL President W2HF to study how that future new band can best be utilized. Chairing the committee is League Vice President W4WHN, with the first meeting scheduled for Gaithersburg, Maryland, in conjunction with the QCWA meeting this weekend. Suggestions that 10 MHz be kept out of 5BDXCC and contests have already been made to the DXAC and CAC; other comments can go to Max's Callbook address.

Also holding meetings in Gaithersburg this weekend are ARRL's Executive, Long Range Planning, Management and Finance, Membership affairs, and AD Hoc Malicious Interference Committees.

TNX HR Report

HANDI-TALKIE HAZARD?

Each time I transmit with my 2 meter Handi-Talkie (2 $\frac{1}{2}$ watts out), I find myself being concerned that RF Radiation from the antenna, just 2 to 3 inches from my face, may be damaging my eyes and brain. Several of our Radio Club members use handi-talkies and may also be concerned about this possible hazard. If any of you crosstalk readers have knowledge, or articles concerning this subject, please call me, or send a copy to: Bill Schreck (WA6EVS), M5-0206, X51583. Such information will be published in future crosstalk issues.

Bill S. WA6EVS

CLUB LIBRARY

Charley Speellman has taken over as Librarian and has found we need the following issues to complete the set. If anyone has one he would like to donate to the club Library please send it to Charley at 65-1674.

QST	1977	July
QST	1979	Mar, Apr, June, Sept.
QST	1980	Feb., Mar.
73	1976	Mar., May, June, July
73	1977	May
73	1978	June, Nov., Dec.
73	1979	Feb., Mar., July, Oct.
73	1980	Jan., Feb., March
H/R	1978	Mar., May, July
H/R	1979	Mar., Apr., July
H/R	1980	Feb., Mar.

GSA SURPLUS BIDDING

A word of caution for any of you readers who have obtained a Government Services Administration (GSA), surplus sheet, and being impressed with all the electronic goodies, vehicles, etc., that are for sale, decide to bid on one or more items. Before sending in the sealed bid, inspect the items at their place of storage or you are buying a pig-in-a-poke. I am speaking from experience. I bid on 5 such lots and was awarded one. What I got was not worth the \$115.00 I bid even though its A/C (Aquisition cost) was \$4,000. I will be lucky to get \$60 out of the entire lot. I do feel fortunate that I didn't win all 5 bids since the pickup points were San Diego, Riverside, Camarillo, etc. Anyone want an FAA 75 MHz Marker Beacon - (Full Rack, Tube Type).

Bill Schreck, WA6EVS

AMATEUR RADIO EXPENSES

Write off some of your Amateur Radio expenses! This proven HAM TAX SAVINGS booklet is itself tax-deductible and can easily save you many times its price. Applies to 1979 taxes, and the information can be used again every year you have ham-related expenses in the future. Perfectly legal, not a "gimmick."

While nationally advertised for \$3.95, this booklet is being made available to members of radio clubs for \$2.95 each. In addition, every tenth order received from any radio club member mentioning the ad in his club's newsletter will be filled free; that is, your check will be returned with your copy of the booklet if yours is the tenth order received as above. Your chances are improved because this offer is being made simultaneously to several radio clubs. Send \$2.95 to R. Day, 27131 Indian Peak Road, Rancho Palos Verdes, CA 90274.

YAGI/ QUAD DESIGN SCALING CONSTANTS

BOB HUME KG6B

Do you want to build a VHF QUAD antenna or an HF wire antenna and come close to the desired antenna array resonant frequency on the first cut of element dimensions? If so, then Figures A and B derived from an antenna scaling article on Page 59 of the July issue of Ham Radio will be of use. Fig. 1 of the article shows a graph of wave velocity $\sqrt{\epsilon}$ (normalized to 1.0 for the speed of light in a vacuum) versus conductor (L/D) ratio where L is a half wavelength and D is the conductor diameter.

The reference arrays were taken as 3 elements with 0.15λ spacing between director, driven, and reflector elements.

Reference arrays used for scaling were --

Yagi : W. Orr W6SAI "Beam Antenna Handbook" p. 103
Driven = 33.417 ft $F_0 = 14.15$ MHz
Element diameter $D_0 = 1.5$ inch
 $K_0 = 472.846$ (L/D) = 278.04 $\sqrt{\epsilon} = .9416$

Quad : R. Hume using noise bridge for F_o
 Driven = 70.125 ft F_o = 14.32 MHz
 #11 Wire D_o = .0907 inch diameter
 K_o = 1004.19 (L/D) = 4543.6 V_{r_o} = .9674

Note that K_o = (Driven Element Length in Feet) * F_o
 The scaled value of the design constant K is $K = \left(\frac{K_o}{V_{r_o}} \right) V_r$

Using the reference array results gives

$$K_{YAGI} = 502.17 V_r$$

$$K_{QUAD} = 1038.08 V_r$$

Where V_r is a function of (L/D) which is given by

$$\left(\frac{L}{D} \right) = \left(\frac{5901.4}{F D} \right) \quad \text{for other values of F or D}$$

A tabulation of the results follows

```
$ LIST
100 SIGNIFICANCE 5
110 MATREAD R(19),V(19)
120 PRINT "L/D","V SUB R","K YAGI","K QUAD"
130 FOR I=1 TO 19
140 PRINT R(I),V(I),502.17*V(I),1038.08*V(I)
150 NEXT I
160 DATA 20,25,30,40,50,70,100,150,200
170 DATA 300,500,700,1E3,1500,2E3,3E3,5E3,7E3,1E4
180 DATA .8322,.855,.869,.8846,.8944,.9074,.9189,.9287,.9348,.9432,.9517
190 DATA .9563,.96,.9628,.9644,.9662,.9677,.9685,.9692

$ RUN
```

L/D	V SUB R	K YAGI	K QUAD
20	.8322E+00	417.91	863.89
25	.855E+00	429.36	887.56
30	.869E+00	436.39	902.09
40	.8846E+00	444.22	918.29
50	.8944E+00	449.14	928.46
70	.9074E+00	455.67	941.95
100	.9189E+00	461.44	953.89
150	.9287E+00	466.37	964.06
200	.9348E+00	469.43	970.4
300	.9432E+00	473.65	979.12
500	.9517E+00	477.92	987.94
700	.9563E+00	480.23	992.72
1000	.96E+00	482.08	996.56
1500	.9628E+00	483.49	999.46
2000	.9644E+00	484.29	1001.1
3000	.9662E+00	485.2	1003
5000	.9677E+00	485.95	1004.6
7000	.9685E+00	486.35	1005.4
10000	.9692E+00	486.7	1006.1

SOUTHWESTERN DIVISION CONVENTION

Don't forget to set aside the weekend of September 5,6,7, 1980, as the 1980 ARRL Southwestern Division Convention will be with us. This years Convention will be held nearby at the Los Angeles Marriott Hotel, Century Blvd. & Airport Boulevard.

10,000

FIG B QUAD DESIGN CONSTANT "K" VERSUS (L/D) RATIO

3 EL. QUAD WITH .1 TO .2 λ SPACINGDRIVEN ELEMENT LENGTH = (K/F) FT.

F = ARRAY RESONANT FREQ - MHZ

D = ELEMENT DIAMETER - INCHES

 $L = \lambda/2$ IN INCHES

$$(L/D) = \left(\frac{590.4}{F D} \right)$$

REFLECTOR +2.8% OF DRIVEN EL

DIRECTOR -2.0% " " "

K QUAD

(L/D)

100

10

880

900

920

940

960

980

1000

10,000

FIG A YAGI DESIGN CONSTANT "K" VERSUS (L/D) RATIO

3 EL YAGI WITH .1 TO .2 λ SPACING
DRIVEN EL LENGTH = (K/F) FT.
F = ARRAY RESONANT FREQ - MHE
D = ELEMENT DIAMETER - INCHES
 $L = \lambda/2$ IN INCHES

$$(L/D) = \left(\frac{5901.4}{F \cdot D} \right)$$

DIRECTOR - -4% OF DRIVEN EL
REFLECTOR +5% " " "

(L/D)

K YAGI

46 5813
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420 430 440 450 460 470 480 490

U.S. AMATEURS OPERATING IN CANADA

United States Amateurs operating in Canada must use "the callsign, radio frequencies, type of emissions, and modes of transmission he is authorized to use in his own country, if those frequencies, types of emissions, or modes of transmission are authorized by these (DoC) regulations."

Tnx CARF News Service & HR Report

OTHER STATION'S CALL

Amateurs must still send the other station's call when ending a contact, despite an item in a recent DX newsletter that notices of such violations during the recent ARRL CW DX contest were being held pending new rule making. Though proposals to relax the requirement have been made, they are opposed by the Field Bureau. It would be very irregular for "pink tickets" to be held back awaiting a possible future rules change.

Tnx HR Report

ARRL INSURANCE FORMS

Bill Dews reports that he has just received 10 copies of the ARRL insurance form. If you need one please call him. 53392



HAVE

A

HOPPY

EASTER