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BARA Facts

Newsletter of the Binghamton Amateur Radio Association

May 2003

Website: <http://www.wtsn.binghamton.edu/bara>

2003 BARA Hamfest

Thanks to all who helped to make the 2003 BARA Hamfest a success. Thanks to *you* we had plenty of help for setup on Friday and on the day of the fest. We are grateful to each and every member who showed up to lend a hand as well as to all of the members and friends who attended. The weather was great — the clouds wrung themselves dry on Thursday and although Friday was cool and drizzly, Saturday dawned bright and moderate. The day was not hot, but it was dry and the moderate temperatures and breeze kept heatstroke and dehydration at bay.

Commercial vendors included our friend John with a fine collection of Weller products, tools, connectors & adapters, and articles too numerous to mention. Gene from KJI Electronics was there with several helpers and a full range of amateur products including — for the first time this year — the Kenwood line. Bob Caswell of SignIt Engraving was there so Callsign badges, clocks, and plaques were available as well. Food was provided by the 4-H whose “Clover Cafe” offered menu choices that were better (and cheaper) than those at many other Hamfests. We can be sure that the kids will put the money they earned to good use and it was a win-win arrangement across the board.

A Round of Thanks

It's always dangerous to try and thank all the Hamfest volunteers by name, but here is as complete a list as your editor can muster beginning with our Chairman Brian, K2DLB, and our ever-present anchor-in-chief Paul, N2NCB. Bob, WS2U, and Jack, WB2GHH, deserve kudos for publicity as do Victor, N2LJM, and Rich, N2MGM, who took care of the signs.

On the day of the Hamfest Ron, N2RWK, was there bright

although these dates conflict with the Rochester Hamfest it is hoped that local hams who are not attending the Hamfest will volunteer time to support the exercise. Remember, this is a chance to show the local Red Cross and the Broome County

and early to organize ticket sales. Ed, KB2SCF, and Jerry, KG2FY, ran the BARA table with Hedy, AA2MU; Bob, KC2DSS; and Blake, KC2GQY assisting.

Setup, Tear Down, Ticket Sales, and related tasks were covered by John, N2YZI; Paul, K2ABY; John, KC2KUW; Bill, KC2KUY; Ford, AB2HS; Sharon, N2WGM; Elmer, N2PQY; Mel, WE2K; Bill, NK2H; Malcolm, KC2EON; Ray, KC2GIL; Jack, KB2YEN; Bob, K2FU; Bill, N2BC; and Al, WA2FBT.

The VE Team — organized by Bob, WA2VCS — included Duane, K2DLT; Bob, KB2YEM; Bob, KC2DSS; and Kevin, WN2CVP.

If anyone was left out, your editor apologizes with the excuse that so many helped that he could not keep track of everyone. Thank You All, our success is due to your willingness to assist!

Red Cross Exercise, Change in Date

The Southern Tier Chapter of the American Red Cross has changed the date of their annual exercise to run from May 31 through June 1 in conjunction with an exercise sponsored by the Broome County Emergency Management Office. The Emergency Manager has released little information regarding the exercise except that it will commence at approximately 9:00 AM on May 31 and that it will incorporate all first responder services in the county plus the New York State Police and the local office of the FBI. The Red Cross has been asked to open two shelters at the direction of the Emergency Manager. Broome County Radio Amateurs have been asked to provide communications from the shelters to the Chapter Operations Center and possibly from response vehicles as well.

It is anticipated that two shelters will be opened, but it appears that staffing will be during the daytime hours only. Estimates for operator requirements range from a minimum of 9 operators to a maximum of 18 operators. More operators will, of course, make the operation more efficient.

Emergency Manager what amateur radio operators can do. — Thanks in advance from Jack Smith, KB2YEN, Communications Specialist Southern Tier Chapter American Red Cross and ARRL EC for Broome

Wanted: Field Day Champion

If the Club is interested in mounting a Field Day Effort we still need a Champion to take ownership of this effort.

If you would like to see W2OW make a showing for this event, please contact one of the Club Officers or step forward at the General Meeting. Our last few efforts have been pretty loose and informal, but this could be the chance for us to shine.

Broadband Over Power Line

THE FCC INVITES PUBLIC COMMENT ON THE CONCEPT OF USING EXISTING ELECTRICAL POWER LINES TO DELIVER INTERNET AND BROADBAND SERVICE TO HOMES AND OFFICES. **Broadband over Power Line (BPL)** is a FORM OF CARRIER-CURRENT TECHNOLOGY TYPICALLY KNOWN AS POWER LINE COMMUNICATION (PLC) AND THE TECHNOLOGY IS RAISING SERIOUS INTERFERENCE CONCERNS WITHIN THE AMATEUR RADIO COMMUNITY, SINCE BPL WOULD APPLY HIGH-FREQUENCY RF TO PARTS OF THE POWER GRID. ONE ASPECT OF THE NOI IS TO GATHER INFORMATION ON POTENTIAL INTERFERENCE EFFECTS ON AUTHORIZED SPECTRUM USERS.

"ENTIRE COMMUNITIES WILL BE AFFECTED, SO EVERY AMATEUR IN THAT COMMUNITY COULD HAVE PART OF THE RADIATING SYSTEM 'NEXT DOOR' ON THE POWER WIRING ON HIS OR HER STREET," CAUTIONED ARRL LAB SUPERVISOR ED HARE, W1RFL. HARE CHAIRS THE PLC WORK GROUP OF THE IEEE C63 ACCREDITED STANDARDS COMMITTEE ON ELECTROMAGNETIC COMPATIBILITY.

THE COMPLETE NOI WAS RELEASED ON 28 APRIL AS ET DOCKET 03-104 AND THE FCC IS ACCEPTING ELECTRONICALLY FILED COMMENTS ON THE PROCEEDING VIA ITS ELECTRONIC COMMENT FILING SYSTEM (ECFS) AT <<[HTTP://WWW.FCC.GOV/CBG/ECFS](http://www.fcc.gov/cbg/ecfs)>>. UNDER ECFS MAIN LINKS, CLICK ON **Submit a Filing**. IN THE **Proceeding** FIELD, ENTER "03-104" AND COMPLETE THE REQUIRED FIELDS. COMMENTS MAY BE TYPED INTO A FORM OR YOU MAY ATTACH A FILE CONTAINING YOUR COMMENTS OR SUBMIT THEM VIA E-MAIL (PER INSTRUCTIONS ON THE ECFS PAGE). THE COMMENT DEADLINE WILL BE 45 DAYS AFTER PUBLICATION OF THE NOI IN THE **Federal Register**. INFORMATION PREPARED BY THE ARRL LAB CAN BE FOUND AT <<[HTTP://WWW.ARRL.ORG/TIS/INFO/HTML/PLC/](http://www.arrl.org/tis/info/html/plc/)>>.

SO-CALLED **access BPL** WOULD USE MEDIUM-VOLTAGE (1 KV TO 40 KV) POWER LINES TO DELIVER INTERNET AND BROADBAND APPLICATIONS. HARE SAYS ACCESS BPL IS LIKELY TO BE A MORE SIGNIFICANT INTERFERENCE SOURCE THAN IN-BUILDING PLC TECHNOLOGY "BECAUSE OVERHEAD ELECTRICAL WIRING IS A MUCH BETTER ANTENNA

The obvious approach would be to use the general formula relating Wavelength to Frequency and the Speed of Light, but the reality is not quite that simple because the wavelength of an Electromagnetic Wave (at some frequency) in a wire is not quite so long as the wavelength for the same frequency in a vacuum. This is because Electromagnetic Waves propagate in a medium (like a wire) more slowly than in Free Space and the factor by which their velocity is reduced is called the

than the ELECTRICAL WIRING WITHIN A BUILDING."

ARRL CEO DAVID SUMNER, K1ZZ, EDITORIALIZED ON THE SUBJECT OF PLC IN **It Seems to Us...** IN THE OCTOBER 2002 ISSUE OF **QST**. AND NOTED "WHAT MAY BE A FINE TRANSMISSION LINE AT 60 HZ LOOKS MORE LIKE AN ANTENNA AT HF." HARE SAID HIS OWN COMPUTER ANALYSIS OF INTERFERENCE POTENTIAL FROM ACCESS BPL/PLC SUGGEST "A SIGNIFICANT INCREASE IN NOISE LEVELS" FROM DEPLOYED SYSTEMS.

THE FCC APPEARS ENTHUSIASTIC ABOUT BPL, HOWEVER, SAYING IT HAS THE POTENTIAL TO "PROVIDE CONSUMERS WITH THE FREEDOM TO ACCESS BROADBAND SERVICES FROM ANY ROOM IN THE HOUSE WITHOUT ADDING OR PAYING FOR ADDITIONAL CONNECTIONS." THE COMMISSION ALSO TOUTED BPL AS "A COMPETITIVE ALTERNATIVE TO DIGITAL SUBSCRIBER LINE AND CABLE MODEM SERVICES." NEW DIGITAL POWER LINE DESIGNS USE MULTIPLE CARRIERS SPREAD OVER A WIDE FREQUENCY RANGE — FROM 2 MHZ UP TO 80 MHZ — AND CAPABLE OF DATA RATES UP TO 20 MB/S, THE FCC SAID.

IN ADDITION TO VIEWPOINTS ON INTERFERENCE POTENTIAL, THE FCC ALSO HAS REQUESTED COMMENTS ON THE CURRENT STATE OF HIGH-SPEED BPL TECHNOLOGY; TEST RESULTS FROM BPL EXPERIMENTAL SITES; APPROPRIATE MEASUREMENT PROCEDURE FOR TESTING EMISSION CHARACTERISTICS FOR ALL TYPES OF CARRIER-CURRENT SYSTEMS; AND CHANGES THAT MAY BE NEEDED IN PART 15 TECHNICAL RULES, AND THE EQUIPMENT APPROVAL PROCESS TO FOSTER THE DEVELOPMENT OF BPL.

TESTS OF BPL ARE UNDER WAY IN SEVERAL STATES, INCLUDING NEW YORK. HARE SAYS ARRL LAB PERSONNEL WILL VISIT SOME OF THE TEST CITIES THIS SPRING TO TAKE FIELD MEASUREMENTS TO QUANTIFY THE POTENTIAL FOR INTERFERENCE TO AMATEUR RADIO OPERATIONS.

BPL/PLC TECHNOLOGY ALREADY HAS BEEN DEPLOYED IN SOME EUROPEAN COUNTRIES, AND AMATEURS THERE HAVE COMPLAINED ABOUT INTERFERENCE. JAPAN — RESPONDING IN PART TO CONCERNS EXPRESSED BY ITS AMATEUR COMMUNITY — DECIDED LAST YEAR NOT TO ADOPT THE TECHNOLOGY BECAUSE OF ITS INTERFERENCE POTENTIAL. — **from the ARRL Letter for 25 April with additional details from the issue of 2 May**

Waves in the Wire

Let's consider how a particular length of Feedline might be useful. This is a practical case that often arises in Antenna and Transmission Line work where a particular Line Length may be required for Phasing or Impedance Transformation purposes.

Velocity Factor. This factor can be measured for a particular Feedline and — as a general rule — the manufacturers of Feedlines attempt to maintain a given Velocity Factor across batches of a specific type of Feedline. The value is published in tables and can be used to calculate the Electrical Wavelength (in feet) for a particular line at a specific frequency by dividing the Frequency (in Megahertz) into 983.6 and multiplying the result by the Velocity Factor.

Notice that if we let the Velocity Factor equal one the formula becomes the “standard formula” for Wavelength in Free Space.

Another point to bear in mind is that we must always calculate with reference to some selected Frequency. If you are aiming for Frequency Agility, you must either select a “Compromise Frequency” or you must make provision for adjusting the length of your Feedline — perhaps by means of jumpers and switches.

But why would we ever care about the length of a Feedline? Previous notes indicated that SWR is constant along a Feedline and that losses due to SWR are not so great as often supposed, so why should the length of a Feedline be significant?

Impedance Transformation: If we have a mismatched Source and Load Impedance that we need to match we can use a length of Feedline to make an Impedance Transformer.

Antenna Phasing: Sometimes it is useful to feed an array of antennas with Electromagnetic Waves that are some number of Degrees apart (one Wavelength equals 360 degrees). By doing this we can affect the Pattern or Directivity of the Array and this is sometimes quite useful.

The Magic Half-Wavelength: At times we run up against a hard physical reality and are reminded that lines cut to a particular Electrical Length are shorter than the physical spacing required for an Antenna Array. Likewise, we may discover (especially in the region above VHF) that inserting our SWR Meter in a Feedline changes the length of the Feedline and thus its properties as an Impedance Transformer. This means that the SWR on the Feedline changes when we remove the SWR Meter and at times — especially at the Microwave Frequencies — this change may be significant. In these cases it is helpful to know that a Feedline with an Electrical Length of one Half-Wave repeats the Impedance presented at either end. Thus, except for loss due to Attenuation in the Line, the section is “invisible”.

So, if you add an Electrical Half-Wave to the Phasing Harness you get the additional length you need

for physical spacing of the Array. If you make allowance for the electrical length of the “Line Section” in your SWR Meter and add enough Feedline to make an Electrical Half-Wave, the meter cannot will not affect the SWR. Again, these lengths are always calculated with respect to some particular frequency or compromise frequency.

Are these adjustments *always* significant? No. But at times they are significant and the wise Operator (or practical Engineer) balances the theoretical ideal against attainable (or necessary) precision.

Review: *Seek*

Seek by Paul Fleischman is one of those difficult-to-categorize books that can be devoured in a few hours, but which provides food for days of thought. On the surface it is the autobiography of a teen-age boy searching for the disk-jockey father who ran from his life and whom he knows only through a tape recording and a sound-effects record left as parting gifts. What makes this book unique is the mode of telling: a series of disjointed and almost haphazard snippets of memories of his past mixed with bits and pieces of radio programs he heard as a child. These notes are the counterpoint to the constant hum of the boy’s voice introducing, recalling, and amplifying his story. His search, you see, was on the airwaves as he listened to late-night Broadcast DX in the hope that he might hear that voice long-gone, but never forgotten, the voice of the father he seeks. As a whole the effect is magic, giving the sense of a radio tuned across a busy band as stations fade in and out.

Seek (ISBN 0-689-85402-1) is available in paperback for \$6.99 from Simon Pulse, a division of Simon and Schuster.

May Program: The Early Days

WSKG television personality Bill Jaker, WB8RAE, will present an overview of a special segment of Commercial Radio History at the May BARA General Meeting. A number of related exhibits will be on display. Please join us!

Club Officers and Committees			
President	Bob McCabe	KC2DSS	748-9808
Vice President	Jack Connors	WB2GHH	724-8822
Secretary	Ron Regan	N2RWK	722-6790
Treasurer	Paul Slocum	N2NCB	687-2057

Directors	Bob Handel	K2FU	693-4310
	Steve Orzelek	N2MSB	775-0281
	Ed Plesnar	KB2SCF	754-3810
	Mel Snitchler	WE2K	723-9612
W2OW Trustee	Frank Scoblick	N2HR	729-4249
Newsletter	Ed Plesnar	KB2SCF	754-3810

BARA, The Binghamton Amateur Radio Association is an ARRL Affiliated Club

Next General Meeting

7:30 PM, Wednesday, May 21st Unitarian Universalist Church Riverside Drive, Binghamton, Next to Lourdes Hospital

Board Meeting

7:00 PM, Wednesday June 4th
Broome Community College Campus, Office of Emergency



Services (West Side of Campus)

Exam Session

7:00 PM Monday, May 19th (NOTE)
Vestal Public Library, Route 434 Vestal

1:30 PM, Saturday June 14th

Endicott Fire Station, Across from UE High School

BARA Dues

\$18/year Single Member; \$27/year Family