

Washington Amateur  
Communications, Inc.  
1696 East Maiden St.  
Washington, PA 15301

# The WACOM



## HAM

JULY-AUGUST  
2004

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WACOM'S ANNUAL PICNIC  
WILL BE HELD THURSDAY, AUGUST  
5<sup>TH</sup>, 2004, 6:00 PM AT THE SOUTH  
STRABANE FIREHALL #1

MEMBERS AND GUESTS ARE WELCOME!!  
THE CLUB WILL PROVIDE HAMBURGERS, HOTDOGS  
AND SOFT DRINKS

YOU ARE INVITED TO BRING A COVERED DISH,  
SALAD, SIDE DISH OR DESSERT

PLEASE LET US KNOW IF YOU'RE COMING AND HOW  
MANY GUESTS YOU'RE BRINGING SO WE CAN  
PLAN ACCORDINGLY

e-mail [n3zel@fyi.net](mailto:n3zel@fyi.net) , TELEPHONE 724-746-9235  
OR CONTACT US ON THE RADIO WITH YOUR  
INFORMATION

COME HUNGRY!!! HOPE TO SEE YOU THERE!!!

## UPCOMING MEETINGS!

Next WACOM Monthly Meeting & Picnic:  
Thursday, August 5th, 2004, 6:00 PM

Next WACOM Board of Directors Meeting:  
Thursday, July 29th, 7:30 PM

Meeting Location: South Strabane #1 VFD, 1696 East  
Maiden Street, Washington PA 15301



**All Welcome!**

# WA3COM Field Day 2004

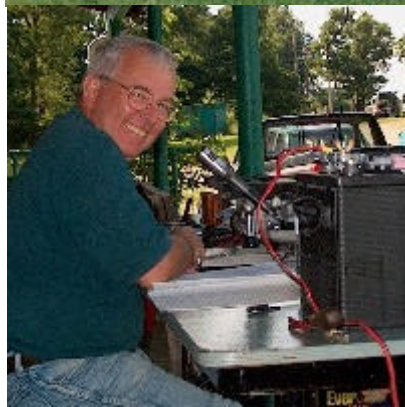
All photos this page are courtesy of & ©2004 Jacqué Gosselin N3ZEL



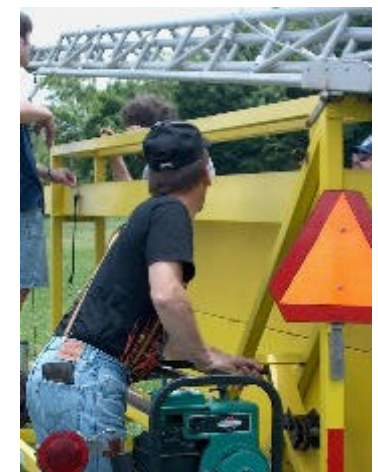
WA3COM "In Full Swing"



KC3HW on 80 Meters



KB3JHR



Crank It Up!



(L—R)  
N3XE, KB3JHR, N3ZNI, KB3JHM



KA3NIY & KA3ZLR





## Prez Notes

We have some interesting activities coming up in the next few weeks. First comes the picnic. Please see Page One for details on this most enjoyable annual event!

The West Alex Fair starts on Labor Day, September 6th. Bud Plants, N3TIR, has a booth there for the week and has offered to share the space with the club. We will run a Special Event from the fair on Friday, Sept. 10th and Saturday, Sept. 11th under the club call sign WA3COM. Operating hours are set for 6 p.m. to 11 p.m. local time each evening. Come out and

have fun with amateur radio at the fair. Everyone is welcome. Let's try to promote the club and the hobby.

WACOM's Hamfest is on October 3rd, 2004 at the Washington County Fairgrounds. We're in the new building this year, with lots of room for vendors and attendees. Our prize list is growing, and much more attractive this year. We're trying to have some prizes to interest hams and non-hams alike. Again, see the flyer. Calendar tickets will be available and we hope that our members will try to help sell them to support the club and the hamfest. Help at the Hamfest is always welcome and we would like to have a good turnout. Even an hour or two of help makes a big difference. Since there is an exam session we will need the assistance of some VEs. Sign-up sheets will be passed around or you can contact Ed to let him know when you can be there.

Again, hope to see you at the picnic

— 73, Jacqué N3ZEL

Statistics are like a bikini:  
What they reveal is interesting, but what they conceal is vital — John Warren NT5C

"There is no reason for any individual to have a computer in their home"  
Ken Olson, President, Digital Equipment Corporation, 1977  
(attributed)

## JOIN WACOM ON THE AIR

2 meter net: Every Tuesday at 8:30 PM on the W3CYO repeaters 145.49 and 443.3 MHz

10 meter net: Every Tuesday at 9:00 PM on 28.340 MHz

### FYI Networks

For Your Information needs

Make FYI

Your Internet Service Provider

CONTACT FYI AT 1-877-FYI-4NET

ON THE WEB AT WWW.FYI.NET

MENTION THAT YOU ARE A WACOM MEMBER FOR A SPECIAL PRICE OF \$18 / MONTH.

## ARRL Requests Clarification of FCC Response to BPL Interference Complaint

Page 3

ARRL Extra Courtesy of the American Radio Relay League

NEWINGTON, CT, July 23, 2004 — The ARRL wants the FCC to further explain its recent response to a North Carolina amateur's complaint of BPL interference. FCC Office of Engineering and Technology (OET) Deputy Chief Bruce A. Franca replied July 22 to an April 27 BPL interference complaint from Thomas A. Brown, N4TAB, of Wake Forest. Brown had complained of BPL interference to his amateur HF mobile station emanating from a Progress Energy Corp (PEC) BPL field trial in the Raleigh area. In his letter, copied to ARRL, Franca said an on-site investigation had concluded that PEC's BPL trial "is in compliance" with FCC rules and that the company's ham band notching efforts "are effective" to avoid the potential for harmful interference. ARRL CEO David Sumner, K1ZZ, however, cited evidence to the contrary.

"It is not at all clear that the tests and measurements taken by the FCC . . . established the absence of harmful interference to licensed stations," Sumner responded July 22. He said the League would like the OET to make its test report available to the general public or at least to the League for technical review and comment. The ARRL also wants to know what steps PEC took between April 27 and June 28--when the FCC began its testing--to address interference complaints from Brown and several other radio amateurs.

The FCC defines as "harmful" any interference that "seriously degrades, obstructs or repeatedly interrupts a radio communication service operating in accordance with the Radio Regulations."

According to Franca, FCC personnel "undertook extensive testing and measurements" of the PEC BPL system between June 28 and July 2. The complainant--Brown--says the FCC delegation never

(BPL Complaint Continued on page 4)

## Upcoming Events

- August 7 — Juniata Valley ARC Hamfest, Lewistown PA
- August 8 — *\*new date\** North Hills ARC Hamfest, Wexford
- August 29 — Skyview RS Hamfest, New Kensington
- September 4 — Uniontown ARC Gabfest, Uniontown
- September 6—11 — West Alex Fair
- September 10 & 11 — **WA3COM Special Event Station** at the West Alex Fair
- September 11& 12 — FARFest, the Gaithersburg Hamfest, Montgomery County (MD) Fairgrounds
- September 12 — Butler Co ARA Hamfest & WPA Section Convention, Roe Airport, Butler PA
- October 2 & 3 — California QSO Party
- October 3 — **WACOM Hamfest**, Washington Fairgrounds
- October 9 & 10 — Pennsylvania QSO Party
- October 30, 31 — CQ World Wide DX Contest SSB
- November 6 & 7 — ARRL Sweepstakes CW
- November 13 & 14 — ARRL Sweepstakes SSB
- November 27& 28 — CQ World Wide DX Contest CW
- December 3 — 5 — ARRL 160 Meter Contest
- December 11 & 12 — ARRL 10 Meter Contest

# DX News Briefs

Logs for **YO3APJ** through May 2004 have been uploaded to Logbook of the World. 150 pages of **9X5AA** logs are presently being transcribed and will be uploaded soon — W9OL

K8SIX is the QSL Manager for **T49C** for the 2004 June VHF Contest and 2003 Field Day operation. Please send an SASE with your request; QSL's without SASE's will not be answered — K8SIX

QSL **KHØN** direct to JA6CNL. They do not go to W8CNL — W8CNL

Congratulations and condolences to Mike K3AIR, who has now become the "A" sorter for the ARRL W3 Incoming QSL Bureau. "Now I get my buro cards first (the ulterior motive, of course)" — K3AIR

Dov 4Z4DX has a new PO Box address. QSL for **9N7DX**, **4Z4DX**, **VK3JDX**, **HBØ/MØDOV**, **JY8WW**, **ZC4DX**, **5B4XX**, **TL8DX**, **ZF2AB**, **OK8DG**, **OM9ADX** and **4XØAI** via Dov Gavish, PO Box 1331, Ramat Hasharon, Israel 47112 or email him at [4z4dx@iarc.org](mailto:4z4dx@iarc.org) — VA3RJ

Five members of the Florida DXpedition Group, Bill **J75WX** (W4WX), Clarence **J79AA** (W9AAZ), Larry **J79LR** (W1LR), Cory **J79CM**\* (N1WON), and Vance **J79VL**\* (N5VL) will be on Dominica 26 October - 2 November 2004. (\* calls requested) They will operate from the Picard Beach Resort Cottages using only vertical antennas. Look for them during the CQWW DX SSB Contest as **J75J**. They will be on all bands and modes prior and after the contest. QSL J75J via our manager KR4DA and others via home calls — W4WX

Bill **KG4DX** (W4WX), member of the Florida DXpedition Group, will be at Guantanamo Bay, Cuba 10-14 August 2004. Bill will operate from the GTMO club station. Look for him on SSB, RTTY, and PSK-31 on most bands. QSL with SASE via his home call — W4WX

Another press release was posted July 11th on the **3YØX** DXpedition Web page by Bob/K4UEE and Ralph/KØIR. The DXpedition, which is scheduled to take place between January 20/21st and February 5th, is planning to have multi-national team of twenty operators. They expect to be active with 4-6 high power stations operating around the clock for about 2 weeks. Operations will be on 160-6 meters CW, SSB, RTTY and PSK31. The team still needs funds, as well as additional financial sponsors for this DXpedition. For more details and updates, please visit the DXpedition's Web site <http://www.peterone.com> — KF2TI

Aves Island, **YVØ** DXpedition July 28 to August 8. All modes. More information at <http://usats.com/ce-dx.html> — NA2M

## QSL Managers & Routes

**4U1UN** via HB9BOU — W4YCH  
**5N9NDP** via IK5JAN — M5AAV  
**5R8FU** via SM5DJZ — N1NK  
**5U5Z** via G3SXW — RA3SL  
**5V7C** via F5TVG — W2IRT  
**7X2ARA** via DF2SA — ON7YX  
**9M2TO** via JAØDMV — RA3SL  
**9VØA** via VK4AAR — W9IXX  
**A52CQ** via S57DX — RA3SL  
**CD1C** via CE1VLY — K4KU  
**CN2R** via W7EJ — W2IRT, WØMM  
**CO8LY** via EA7ADH — W2IRT  
**CS6V** via DL5AXX — W9OL  
**E31AA** via ZL3CW — RW3RN  
**EK3SA** via DK6CW — W4YCH  
**EP2MKO** via UA6HCW — W9OL  
**ET3TK** via OK1CU — K4KU  
**HKØGU** via DL7VOG — W9OL  
**IR4X** via IK4QJH — W2IRT  
**KH2/NA8O** via JK1FNL — W4YCH

**KZ5BC** (1975) via N4PN — KZ21  
**LPØH** via EA7FTR — W2IRT  
**LU3HIP** via EA7FTR — VA7EWK  
**P4ØL** via K5WW — K5WW  
**PJ4B** via K2SB — RA3SL  
**PX2A** via PY2TO — VA7EWK  
**R1FJ** via DL6ZFC — W2IRT  
**SN7Q** via SP7GIQ — W2IRT  
**SV5RDS** via SV5AZP — KS4YT  
**TJ3G** via G3TXF — RA3SL  
**TT8VMFR** via CT1GG — KU4BP  
**TU2WL** via IN3ASW — K4KU  
**V63TXF** via G3TXF — RA3SL  
**V5BR** via VK3QI — RW3RN  
**VQ9JC** via WB9IHH — JQ2GYU  
**XF1K** via N6AWD — RW3RN  
**XF4IH** via XE1IH — W4YCH  
**XW1HS** via E21EIC — KC1F  
**XX9TVR** via VR2KW — WB6RSE  
**YI9ZF** via SM1TDE — AB5C  
**ZK1EAA** via HB9EAA — ON7YX  
**ZWØS** via PS7JN — W9OL

(BPL Complaint Continued from page 3)

contacted him while it was in North Carolina. Franca says FCC measurements indicated notch depths averaging 24 dB below Part 15 emission limits, which he characterized as "sufficient to eliminate any signals that would be deemed capable of causing harmful interference, including interference to amateur operations."

Franca maintained that "in no instances" were signal levels high enough to "cause serious degradation, obstruction, or repeated interruption" of amateur mobile or fixed communications. He conceded, however, that notching on 10 meters was somewhat less effective at the low end of the band and said the FCC would instruct PEC and its partner, Amperion, to widen its notch there.

Sumner noted that the Part 15 device operators "must eliminate all harmful interference, and therefore in some cases much achieve more--in certain cases, considerably more--than a 24 dB reduction in order to be in compliance." He also cited recent reports from amateurs in the area indicating that strong BPL interference continues in parts of the PEC trial zone.

"From consulting with the amateurs who have been and continue to receive harmful interference from the Progress Energy trials, we find that while the interference has been reduced (but not eliminated) in some parts of the amateur bands, it continues unabated in others," Sumner told Franca. Amateurs in the Raleigh area on July 17 and again July 22 monitored a BPL signal "at full strength and causing harmful interference" from 14.290 to 14.350 MHz. "Harmful interference" also was reported in the first 100 kHz of 15 meters as well as on the WWW/WWWVH frequencies of 15.000 and 20.000 MHz and on several international broadcasting bands.

"Even in the notched bands," Sumner said, "the interference was still evident on ordinary amateur equipment." He said it's clear to ARRL that the system's Holland Church Road site--where the most recent amateur measurements were taken--is in violation of Part 15.

For his part, Brown--an engineer with considerable RF experience--said he was glad the FCC finally took some action but found some of Franca's assertions "very troubling." He told ARRL that his 14-page complaint cited interference "sufficient to mask a weak signal," although it did not register on his S meter. "SØ is still microvolts of signal level," he pointed out. An active Amateur Radio Emergency Service District Emergency Coordinator, Brown said it's not unusual to have to copy similarly weak signals during an HF emergency net.

"This was an action on behalf of the FCC simply to show action," Brown asserted. "I suspect the principal reason for their coming down here was to say they've actually done something." He also worried that the FCC was attempting to define a standard of "acceptable interference" within the framework of what constitutes "harmful interference."

"If it interferes, it interferes," he maintained.

In his letter Sumner also requested that the FCC clarify some additional aspects of its testing and measurement, including specifics on tests at two fixed Amateur Radio station locations where Franca said the FCC observed "no BPL interference" on ham frequencies, and what kind of amateur equipment was used to "show little field strength or observable signal levels in the notched bands," as Franca reported.

"Until these points can be clarified," Sumner concluded, "we trust that the Commission will not permit its conclusion to be erroneously represented as having given the Progress Energy trials a 'clean bill of health.'"

Thanks to the NJDXA DX News & DX Chat Reflectors, the DX-QSL Reflector, 425 DX News, OPDX News, Diamond DX Club News, ICPO Bulletin, & ARRL DX Bulletin for our DX News information. Thanks also to Bill Moore NC1L / ARRL DXCC Desk, & Bernie McClenny W3UR / The Daily DX for confirmations & additional information.

# A High School Senior's Reply Comments on the BPL NPRM

Benjamin S. Gelb KF4KJQ courtesy of [www.qrz.com](http://www.qrz.com)

I have been a licensed Amateur Radio operator for eight years, completed multiple physics and electronics courses and have countless hours of hands-on experience experimenting with radio and electronics equipment. I am a graduating senior at Thomas Jefferson High School for Science and Technology in Alexandria, Virginia and will be attending MIT in the fall.

The following are reply comments to various comments on the NRPM (04-37) by Current Technologies and Ambient Corporation.

Current Technologies asserts that "Current Technologies implementation of BPL is noninterfering." I dispute Current Technologies' assertion that "Current Technologies implementation of BPL is non-interfering." There seems to be a great division between those who believe BPL will be a source of harmful interference, and those who do not. I contend this division is not a result of "misunderstandings about how BPL works" on the part of amateur radio operators and many other individuals and organizations but rather a mis-understanding of basic physics on the part of both the Commission and Current Technologies.

Current Technologies states on page 14 that "Access BPL devices do not use power lines as antennas. They use power lines to conduct data signals, not radiate them." I'm sure that Current Technologies' goal is to conduct signals rather than radiate them. Unfortunately, Current Technologies, no matter how much they wish to deny it, is bound by the same laws of physics as every one else. When an RF current is coupled into a conductor, that conductor will radiate. Period. This is because of the electric and magnetic fields created by the charge and current on the conductor.

In coaxial cable the fields are contained by a shield at ground potential. In balanced line, equal and opposite fields from correctly spaced parallel conductors mathematically cancel. Power lines have RF characteristics that are irregular and variable, and do not resemble either type of feed line. Therefore, BPL systems that couple RF to the power line will cause the power line to radiate. Period.

This has been shown to be true in the real world. A video produced by the American Radio Relay League demonstrates actual received interference in four trial areas, one of which is operated by Current Technologies.

Because of the great disagreement between BPL promoters and those who stand to be impacted by the implementations of BPL systems, it seems that the Commission ought to be obligated to, at the very least, conduct some sort of real world testing of its own to determine the radiation characteristics of power lines. To date, no effort to validate the claims of either side has been made by the Commission.

So far, the Commission's attitude seems to be to accept the word of BPL manufacturers as fact, no questions asked, despite the fact that many statements made by BPL proponents and subsequently parroted by the Commission are embarrassingly nonsensical to someone with even the most rudimentary technical education (e.g. stating that the characteristics of a power line are "somewhere between a waveguide and an antenna" in the NPRM). Meanwhile, the Commission has dismissed actual testing and analysis conducted by many technically adept individuals, as well as organizations such as the ARRL, AMRAD, and the NTIA as "unsupported claims" that cannot "stand in the way of such an innovation as BPL."

Current Technologies states that the debate has been "complicated further by the existence of several different technical approaches to BPL, each of which works differently."

Current Technologies seems to say that while some implementations of BPL may cause power line radiation, its own implementation does not. This cannot be for the reason addressed previously - all BPL systems will cause power line radiation - but assuming for a moment that Current has found a way around the laws of physics, it is clear that each of the "different technical approaches" to BPL needs to be addressed individually in the new rules, because even if Current Technologies' implementation may not cause interference, other implementations will.

More curiously, no sufficient detail has been provided regarding the operations of ANY of the "different technical approaches" or what technical property gives Current Technologies' system the ability to prevent power lines from radiating. It boggles the mind to think that the Commission plans

to implement effective new rules without evaluating such technical details.

This is not a matter of science, but one merely of common sense. A wider signal bandwidth means that BPL signals will occupy a greater set of frequencies. Therefore there are more frequencies where interference may occur. An isolated interfering signal of narrow bandwidth often does not constitute harmful interference because, while annoying, it can be easily avoided by simply moving to another frequency. A broad band BPL signal, on the other hand, could quite easily consume an entire BAND of operating frequencies, which are normally only a few hundred kHz wide in the HF range. There is a grave difference between a single narrow band signal and a broad band one like BPL.

In its comments, Ambient cites President George W. Bush's recent speech on broadband technology. "So how is some guy in remote Wyoming going to get any broadband technology? Regulatory policy has got to be wise and smart as we encourage the spread of this important technology. There needs to be technical standards to make possible new broadband technologies, such as the use of high-speed communication directly over power lines. Power lines were for electricity; power lines can be used for broadband technology. So the technical standards need to be changed to encourage that.

Ambient strongly supports the President's conclusion that '... technical standards need to be changed to encourage ...' the use of high-speed communication directly over power lines."

Ambient supports the conclusion that "technical standards need to be changed," but what about that guy out in Wyoming? Ambient seems to have artfully chosen its words so it can later deny promises of rural broadband. This is because, as I explained in my original comments to the NPRM, Access BPL is no more viable in a rural area than cable or DSL service. For the benefit of the Commission, I have reproduced those earlier comments here (paragraph references refer to paragraphs in the NPRM).

Access BPL will not provide service to rural areas for the same reasons that cable and DSL are not available in rural areas. As is stated in paragraph 3, access BPL is a means of "last mile" delivery." A BPL signal can only travel a few thousand feet down a power line. Neighborhood distribution lines still must be connected to the Internet via fiber optic cable, as is outlined in paragraph 4. This is viable in an urban or suburban setting, where the number of potential customers can justify the cost of the fiber backhaul, but will not float in a rural environment. The Commission seems to subscribe to a misconception that the national power grid can be magically connected to BPL and turn every outlet in America into an Internet connection. This is not the case. A substantial amount of new infrastructure must be constructed in the area of BPL service, and therefore will not promote BPL in rural areas any more than other broadband technologies.

As the promise of rural service is the sole pretense for the Commission's blind rush to deploy BPL at all costs, perhaps it might behoove the Commission to consider BPL for what it really is and reconsider its motivation for promoting it so relentlessly.

Ambient states that it "believes that such coexistence of BPL with other critical uses of spectrum is a goal which can be achieved."

The coexistence of Access BPL with other critical uses of spectrum is not a goal to be achieved; it is a BEDROCK REQUIREMENT for operation under the non-interferences conditions of the Part 15 rules. Compliance to this condition must be demonstrated PRIOR to operation of Access BPL systems. To apply regulatory power in any other way would simply turn Part 15 on its head.

To quote from the Part 15 label on the back of a small electronic device on my desk, "this device may not cause harmful



# 19<sup>th</sup> Annual North Hills ARC Hamfest

*New Date!*

Sunday, August 8<sup>th</sup> 8:00 AM to 2:00 PM  
Northland Library, Cumberland Road, Wexford  
Talk-in on W3EXW/3 147.09 MHz  
For more information, e-mail [aa3ta@verizon.net](mailto:aa3ta@verizon.net)

# 56<sup>th</sup> Annual Uniontown Gabfest & Tailgate

Saturday, September 4<sup>th</sup> 8:00 AM to ????  
W3PIE Uniontown ARC Clubhouse  
For more information, Carl Chuprinko WA3HQK  
84 Heaven Hill Road  
Morgantown, WV 26508-2626  
(304) 594-3779

# 27<sup>th</sup> Annual Butler Hamfest & Computer Show

## 4<sup>th</sup> Annual WPA ARRL Section Convention

Butler Farm Show Grounds at Roe Airport, Butler, PA

Sunday, September 12<sup>th</sup> 8:00 AM to 3:00 PM

Sponsored by the Butler County Amateur Radio Association, Inc.

\$5 Donation for Admission (includes 1 Main Prize Ticket) — Children Under 12 Admitted FREE!

Talk-in on W3UDX/R 147.36+ MHz

ARRL Representatives from Headquarters, Atlantic Division and WPA Section

Forums on a wide range of Amateur Radio topics

QSL Card checking at the hamfest for DXCC, WAS, VHF & UHF Awards

More Information at <http://www.qsl.net/w3udx>

To reserve indoor tables contact Kevin Berry KF4RMA (724) 586-1182 or [kf4rma@arrl.net](mailto:kf4rma@arrl.net)

For more information contact David Zibrat W3VXT (724) 282-9077 or [w3vxt@arrl.net](mailto:w3vxt@arrl.net)

*(KF4KJQ Continued from page 5)*

interference." This is a stark contrast from the interpretation of the rules regarding BPL, which goes something like, "BPL systems may cause interference, as long as some effort is made to correct said interference once it is identified by a party receiving interference." This is simply backward. The responsibility of identifying and initiating corrective action for interference must not fall on the licensed user of spectrum. Access BPL equipment must be conclusively proven to be able to operate under non-interference conditions through a thorough, documented technical analysis. To date, no such analysis exists.

There is a growing body of evidence, however, that suggests that Access BPL systems cannot be implemented without causing interference. Technical analyses by AMRAD, the ARRL and the NTIA point to a severe interference

problem. An official interference complaint has been filed by E. Alan Crosswell, a resident who lives in the area of Ambient's BPL trial in New York.

In the interest of protecting licensed users of spectrum, the Commission must undertake some effort to more thoroughly evaluate the interferences risks of BPL. To date, no thorough technical analysis exists that suggests BPL can be implemented in a manner consistent with the noninterference conditions of the Part 15 rules, and many analyses, as well as real world observation and simple physics, suggest the contrary.

Respectfully submitted,

Ben Gelb KF4KJQ  
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(703) 281-1371 [ben@gelbnet.com](mailto:ben@gelbnet.com)

# WACOM HAMFEST

SUNDAY, OCTOBER 3<sup>RD</sup>, 2004  
WASHINGTON COUNTY FAIRGROUNDS  
WASHINGTON, PA 15301

8:00 AM – 1:00 PM

DOORS OPEN FOR VENDOR SETUP AT 6:00 AM

**V E SESSION AT 10:00 AM**

WALK-INS WELCOME, BUT PREREGISTRATION IS APPRECIATED.  
CONTACT JACQUE AT [n3zel@arrl.net](mailto:n3zel@arrl.net) OR (724) 746-9235

## PRIZES:

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- ◆ SGC 239 ANTENNA TUNER
- ◆ DIGITAL CAMERA
- ◆ MFJ ANTENNA ANALYZER
- ◆ ICOM 2100 2M MOBILE

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*We're On the Web!*  
[www.wacomarc.org](http://www.wacomarc.org)

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The editor welcomes articles and timely information of interest to members and the general amateur community.

## The WACOM HAM

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### Board of Directors

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## PLEASE SEND YOUR 2004 DUES AND APPLICATION INFORMATION

Annual WACOM membership dues are only \$15 .  
A couple pays only \$22.50.

Send your check payable to WACOM to:

Ed Oeschlager, N3ZNI,  
Washington Amateur  
Communications Inc.  
1696 East Maiden St.  
Washington, PA 15301



## WACOM e-Mail Reflector

An e-mail reflector has been set up for WACOM members.

What's a reflector? It's a mailing list which lets you send one e-mail message to the list address — [wa3com@yahoo.com](mailto:wa3com@yahoo.com) — and have it "reflect" to all members of the list. Unlike a personal mailing list, you don't need to know all of the e-mail addresses for every single member of the list. Only group members can send e-mail to other members of the reflector — no spam allowed!

E-mail reflectors are being used by many area Amateur Radio clubs as a means to facilitate news and information at a moments notice. Yahoo! Groups (formerly eGroups) provides this service for free to anyone who wants to avail themselves of their list server. Yahoo! also provides calendar, file storage, & additional services.

To join the WACOM reflector, simply send a blank e-mail to:

[wa3com-subscribe@yahoo.com](mailto:wa3com-subscribe@yahoo.com)