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The monthly Newsletter of the Monongalia Wireless Association
Morgantown, West Virginia

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Next Meeting

MWA Club meeting July 16 will be in Room G-39 of the WVU Engineering Sciences Building. The MWA meeting is the third Tuesday of the month. The June meeting will be preempted by Field Day.

Bill WA8YCG

Field Day Rule Change

The ARRL has announced a change to the field day rules. They have added a new "Get-On-The-Air" station category. The station may make 400 QSO's and does not count as a transmitter. The intention of the new station position is to provide an operating space for un-licensed people to have fun at field day.

Bill WA8YCG

Special Olympics Time

Special Olympics will be held on June 7, 8, and 9, 2002. Mike Palmer K8LG will lead the expedition. The Olympic Village will again be at the WVU Coliseum. If history is any indicator, 10 radio operators will be needed to handle the communications duties. If you want to help show up at the shell building by the coliseum

Friday	1:00to 3:30
Saturday	7:45 to 3:30
Sunday	7:45 to 2:00

Bill WA8YCG

National Weather Service Radio

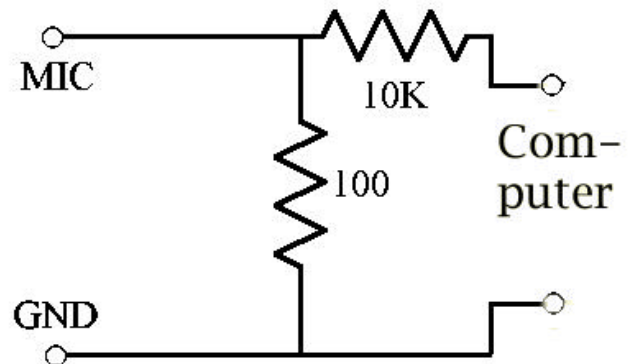
There is a new National Weather Service Radio station in Monterville, WV. It operates with 300 watts on 162.525. Monterville is about 20 miles east of Webster Springs and 30 miles south of Elkins. There is also a temporary station in Tucker County. It operates on 162.450 with 150 watts. It is near the Tucker County High School.

Bill WA8YCG

More on the Sound Card

Part 3

We have seen that it is important not to overdrive the microphone (or other audio) input to the transmitter when we operate AFSK. The easy way to bring the 5-volt output of the computer sound card down to the 50-millivolt range desired by the transmitter (which is a step-down of 100 times), is to use a simple 100:1 voltage divider.



The signal from the sound card is now at the correct order of magnitude, but there is still some adjustment to make sure that it is really clean. Also, there are some rules of thumb that will keep you on the safe side of transmitting a clean signal.

First rule of thumb: Turn off the transmitter's voice processing.

Second rule of thumb: If you want to transmit a REALLY BIG signal, buy yourself a REALLY BIG amplifier. Drive that amplifier with a VERY CLEAN signal. I have no problem with a simple amp running a pair of 3CX-1500's in push-pull, just don't drive those puppies with distorted audio. Oh, yes, get your shack wired with a dedicated 220-volt line: think commercial welding shop or the power station for the PRT.

Here is a method for setting a the microphone gain so that a digital signal does not distort. This method requires that you transmit PSK31, but if you set the gain correctly in this mode, it will be set correctly for other modes.

You need an average-reading power output meter to use this method. The meter on your modern radio is probably not suitable, but older external power meters and swr-bridges were average-reading, and most of the new ones can be switched to read either peak or average power. An old swr bridge will work fine, you only need a relative power reading, not a precise one.

You also need a program that outputs a steady tone. The PSK31 and RTTY program Zakanaka does this.

- (1) Put the rig on a dummy load, through the power meter set to read average power.
- (2) Set the microphone gain to the same place that you would use for SSB.
- (3) Start your PSK31 program and output a steady tone (tune mode).
- (4) Adjust the Windows gain control so the power just starts to drop.
- (5) Note the power output on the relative power meter.

- (6) Stop transmitting and go to regular BPSK transmission mode.
- (7) Transmit, but do not type.
- (8) Adjust the mic gain so that the BPSK signal is about 1/2 the power of the steady tone. If you did the first adjustment properly, there is probably no further adjustment needed.

Note the microphone gain setting and the setting of any Windows mixer controls that affect the audio output on transmit. On my computer, these are Volume and Wave, but double-check your computer controls to be certain which ones change the transmit output level. Write these values down in indelible marker on the face of your \$2500 transceiver or your new 21-inch computer flat-panel display screen, so you will be able to reset them when you operate digital modes again. Better yet, scratch them in.

These settings work for PSK, which generates noticeable distortion products very easily, and for all digital modes.

Next time we will deal with some of the other issues that make digital operating interesting, like transmit/receive control. Other future topics will concern calibrating the sound card frequency, and what happens when you take advantage of the modern PSK programs that let you see a number of signals and then call right on frequency.

Thanks Jan KX2A

WV QSO party

The WV QSO party will be June 15, 2002. West Virginia QSO Party--CW/SSB--sponsored by the West Virginia State Amateur Radio Council from 1600Z Jun 15 to 0200Z Jun 16. Frequencies: 80-10 meters, CW--35 kHz from band edge, Phone--35 kHz from General band edge and Novice/Tech 10-meter segment. Categories: SO, MS, MM and Mobile, all categories may be HP, LP (<100 W), QRP (<5W), Phone, CW or mixed mode. Work stations once per band/mode and WV stations from each county (WV mobiles keep separate log for each county). Exchange: RS(T) and WV county or SPC. QSO Points: Fixed stations: CW--2 pts, SSB--1 pt;

Mobiles: CW--5 pts, SSB--3 pts; Bonus--100 pts for QSOs with W8WVA once per band/mode, WV mobiles add 100 points per county activated with minimum of 15 QSOs. Score: QSO points × WV counties (+ SPC for WV stations), add bonus to final score, multipliers count only once. For more information--<http://www.qsl.net/wvarrl>. Logs due Jul 15 to WA8WV@aol.com or to Dave Ellis, WA8WV, 610 Hillsdale Dr, Charleston, WV 25302.

Thanks, ARRL

Rules for the WV QSO Party

WEST VIRGINIA QSO PARTY

Sponsored by the West Virginia State ARC. 1600Z-0200Z...Saturday, June 15, 2002

MAIN CATEGORIES

Single op (Fixed)

No more than one signal on the air, one person operating and logging.

Multi op (Fixed)

No more than one signal on air, any number of operators.

Multi/Multi (Fixed)

Unlimited number of signals and operators

Mobile

MOBILE OPERATIONS

Mobile stations may work and may be worked by other stations upon changing counties. Mobile stations may operate from a county line if the definition* of a county line is met. A station working a station on a county line may receive credit for both counties as multipliers and mobiles may receive bonus points for each county

*County line definition: County lines are defined as where two counties meet as long as the line is not wet. "Wet" is defined as two counties that are separated by water, i.e., creek, river, lake, etc. You may not operate from a bridge connecting two counties.

Mobiles: Keep separate log for each county.

POWER CATEGORIES

QRP 5 watts or less at all times.

Low Power 100 watts or less

High Power 101 watts and above

MODES

CW, SSB, MIXED

BANDS

80m through 10m, no WARC bands.

Suggested frequencies, CW 35 kHz up from low end; phone 35 kHz up in the general sub band and Novice portions of 10M.

MULTIPLIERS

West Virginia stations use WV counties, states, Canadian provinces, and DXCC countries.

All others use only WV counties (max 55). Multipliers count one time regardless of band/mode.

POINTS

Mobile QSOs:

CW= 5 points

SSB= 3 points

Other:

CW= 2 points

SSB= 1 point

Work stations once per band and per mode.

EXCHANGE

WV stations send RST and county.

All others send RST and State/Province/or DXCC country.

BONUS

Bonus Points: Work W8WVA once per band per mode and receive 100 points for each contact (to be added to final score). Mobiles may claim an extra 100 points per county run as long as there are at least 15 contacts made from those counties.

FINAL SCORE

Multiply QSO points by the number of multipliers. Then add the W8WVA bonus points for the final score.

REPORTING

Logs must be e-mailed or postmarked no later than July 15, 2002 to WA8WV@ aol.com or Dave Ellis WA8WV, 610 Hillsdale Drive, Charleston, WV 25302.

Confirmations will be sent to all entrants who send electronic logs.

AWARDS

Plaques to high score in all main categories in state and high score over all in and out of state. Certificates to high score in each category in and out of state, WV county, state, Canadian Province and DXCC country.

Specially designed WV QSO Party T-shirts will be available to all participants who submit entries with at least 25 QSOs. To get your WVQP 2002 commemorative T-shirt, send a check for \$10 payable to Dave Ellis, along with your shirt order size M/L/XL/XXL. Please allow 6-8 weeks for delivery.

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ON-CHIP VACUUM MICROTRIODE.

Integrated, solid-state design had many advantages over the old vacuum-tube style electronics. But some of the tube characteristics, such as the ability to handle high power, might be nice to have on a chip. With carbon nanotubes, acting as miniature emitters of electrons, this might be possible. A new innovation in this regard is the development of an on-chip system of vacuum triodes. Scientists at Agere Systems (a company spun off from Lucent Technologies) build their chip using microelectromechanical (MEMS) technology; a lateral field of carbon nanotubes is grown on a cathode which can then be rotated into a vertical position in order to face a grid (10 microns away) and anode (100 microns away). Radar, electronic warfare, and satellite communications are expected to be the chief applications areas.

Applied Physics Letters, 20 May 2002

A New Band or Two May Be in the Works

The FCC has started the process for 2 new amateur bands. There is the possibility that amateurs will receive a new LF (low Frequency) allocation in the 135.7-137.8 kHz band. This low frequency is not used by any radio service however it is used by electric power companies as a way to remotely trip breakers and switches for the distribution of electric power. The proposed band would allow General Class licenses to transmit up to 200 watts of SSB, RTTY, CW, and data.

There is also, a proposal for amateurs to receive a new HF allocation in the 5250-5400 KHZ band. The new 60 meter band would be most useful for shorter (500 miles) communication at night. The limitations on this band would be the same as the current 80 and 40 meter bands.

For a look at the notice of rule making from the FCC web site, one should look at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-02-98A1.txt

Bill WA8YCG

A SINGLE-PHOTON LED

A SINGLE-PHOTON LED, a light-emitting diode that fires one photon at a time, has been created, offering a potentially inexpensive and easy-to-manufacture component for quantum cryptography and a host of other applications. At the CLEO/QELS meeting last weekend Long Beach, scientists at Toshiba Research Europe Limited described a tiny, nanometer-scale indium arsenide quantum dot embedded in a gallium arsenide LED structure. The quantum dot is so small that it can at most capture a few electrons and holes from a pulse of electric current. A single photon is created by the recombination of a single electron and single hole in the dot. The researchers believe this is the first electrically driven single-photon source. Such single-particle-emitting sources are essential for a truly secure form of quantum cryptography. Otherwise, if several photons spill out from a device at a time, the extra ones can be siphoned off by an eavesdropper, who could then intercept a message without being detected. (Paper QTuG1 at meeting; contact Andrew

Shields, andrew.shields@crl.toshiba.co.uk; see also Yuan et al., *Science*, 4 January 2002.)

PHYSICS NEWS UPDATE May 29, 2002

MICROSATELLITE PLASMA PROPULSION. The development of launch-light, kilogram-class microspacecraft has gone well owing to new MEMS (microelectromechanical systems) technology, with one notable exception: matching miniature thrusters, the mini-rockets that steer the orientation of the craft and make orbital adjustments. John Foster, a researcher at the NASA Glenn Research Center in Cleveland, has now built a tiny rocket that develops thrust by accelerating xenon ions from a plasma generated in millimeter sized cavities. The device accomplishes this on a millimeter scale without the need for exotic permanent magnets or bulky electromagnets. The device is extremely fuel efficient; 88% of the fuel is successfully turned into ions. The new compact accelerator produces a beam of ions in the 50-200 eV range and so, besides maneuvering microsattellites in orbit, the device might be useful for doing surface chemistry and thin film production. (John Foster, *Review of Scientific Instruments*, May 2002, john.foster@grc.nasa.gov; see picture of test firing at <http://www.aip.org/mgr/png>)

PHYSICS NEWS UPDATE May 29, 2002

Special Events Stations Operating in June

Asheboro, NC: Randolph ARC, NC4ZO. 1300Z-2000Z Jun 1. Warbird Air Show D-Day Commemoration. 28.400 21.320 14.240 7.240. Certificate. Randolph ARC, 6747 King Mt Rd, Asheboro, NC 27205.

Richfield, PA: Susquehanna Valley ARC, W3VPJ. 1600Z-2300Z Jun 1. 3rd Annual Spring Bison Festival from the Bison Farm II. 7.240. Certificate. Chris Snyder, NG3F, 3 N Maple St, Selingsgrove, PA 17870.

Russell, MA: BSA Venture Crew 510, W1W. 1400Z-2300Z Jun 1. Demonstrating ham radio to over 500 Cub Scouts in one day during "Webelos Woods 2002" at H.A. Moses Scout Reservation. 146.94 28.390 21.360 14.290 7.270. Certificate. BSA Venture Crew 510, NE1C, PO Box 562, Agawam, MA 01001.

Grosse Ile, MI: Motor City Radio Club, W8MRM. 1400Z Jun 1-2200Z Jun 2. Annual Spring Island Fest and 70th Anniversary of the MCRC. 28.375 21.375 14.244 7.244. Certificate. MCRC, PO Box 337, Wyandotte, MI 48192.

Minden, NE: Hastings Amateur Radio Club, W0WVV. 1400Z Jun 1-1800Z Jun 2. Celebrating the 49th Anniversary of Pioneer Village. 146.820 28.350 14.250 7.250. QSL. Ron Blecha, 221 N Garber Ave, Minden, NE 68959.

Niles, IL, and Pisa, Italy: Metro Amateur Radio Club and Pisa Amateur Radio Club, K9Y and IZ5AXT/TWR. Jun 1-2. Pisan Leaning Tower Event/Award. 21.370 21.030 14.270 14.030. Certificate. Michael Dinelli, N9BOR, 9423 Kolmar Ave, Skokie, IL 60076-1321. Pisa ARC at Leaning Tower of Pisa; MARC at America's Leaning Tower in Niles. QSL for one station; certificate for both stations.

DX QSL manager is IK5ZTT. www.qsl.net/mac

Olathe, KS: Johnson County ARES, KS0JC. 1800Z Jun 1-2200Z Jun 2. From Ensor Museum, honoring Marshall Ensor, code teacher. 28.400 18.150 14.250 10.125. Certificate. Dan Reed, N0ZIZ, 29545 West 152nd Ter, Gardner, KS 66030. QSL available upon request.

Wentzville, MO: Wentzville Lodge #46 AF&AM, W0M. 1400Z Jun 1-2200Z Jun 2. 136th Anniversary of Wentzville Lodge #46 AF&AM. 14.240. Certificate. Scott A. Schultz, 1853 Queen Anne Ct, Wentzville, MO 63385.

Streetsville, ON, Canada: Mississauga Amateur Radio Club, VE3MIS. 1400Z Jun 1-2000Z Jun 2. 30th Streetsville Founders Bread & Honey Festival. 28.340 14.240 7.230. Certificate. MARC, c/o Michael Brickell, 2801 Bucklepost Cr, Mississauga, ON, Canada L5N 1X6. <http://www.manrc.on.ca/>.

Crowborough, UK: Crowborough and District Amateur Radio Society, GB4ASP. 0800Z Jun 1-0800Z Jun 3. 60th anniversary of the British Government's Wartime Propaganda Radio Station, ASPIDISTRA. HF 6 and 2 meters. QSL. Via bureau or direct to Andy Hagland, G0MSA, 11 Coppice View, Heathfield, East Sussex TN21 8YS UK.

Atkinson, NH: Atkinson Amateur Radio Club, K1D. 0400Z Jun 1-0400Z Jun 16. Celebrating Kid's Day and Amateur Radio Awareness. 28.380 21.380 14.270 7.230. Certificate. Peter Schipelliti, W1DAD, 7 Dearborn Ridge Rd, Atkinson, NH 03811.

Baton Rouge, LA: USS Kidd ARC/Baton Rouge ARC, W5KID. 1400Z-2200Z Jun 6. Honoring D-Day—Normandy Invasion. SSB: 10, 15, 17, 20 m inside General band and above RTTY subband; CW: QRP sub bands. QSL. W5KID, 305 River Rd, Baton Rouge, LA 70803.

Buffalo, NY: Erie County ARES/RACES, N2R. 2200Z Jun 7-2000Z Jun 8. American Red Cross Mash Bash event honoring M.A.S.H. Units. 14.250 7.110 7.230. QSL. James Moxon, N2OSL, <http://www.eqsl.cc/> (preferred method) or 81 Moorman Dr, Cheektowaga, NY 14225.

Baltimore, MD: Historical Electronics Museum ARC, W3GR. 1200Z-2200Z Jun 8. Role of electronics in D-Day. 28.348 21.115 14.240 14.040. QSL. HEMARC W3GR, PO Box 746, MS 4015, Baltimore, MD 21203.

Bedford, VA: Roanoke Valley ARC and Franklin County ARC, WW2DDM. 1400Z-2400Z Jun 8. First anniversary of the National D-Day Memorial. 40 20 15 10 m. QSL. Charlie Beckwith, K4BSF, 563 Buzzard Rock Ln, Rocky Mount, VA 24151-4844; <http://www.qsl.net/ww2ddm>.

Lander, WY: Fremont County Amateur Radio Society, KD7PPP. 1600Z Jun 8-2400Z Jun 9. Spring Time Comes Late in the Wind River Mountains of Wyoming. 28.360 21.330 14.330 7.240. Certificate. Ray H. Snyder, 300 Wood St, Lander, WY 82520.

Richlands, NC: Onslow Amateur Radio Club, WD4FVO. 1300Z Jun 8-2100Z Jun 22. Opening of the North Carolina Opry and relocation of the WSMO studio. 10-80 m and local 2-m FM. QSL and certificate. OARC, PO Box 841, Jacksonville, NC 28541-0841.

Las Vegas, NV: Microcomputer Network ARA, KD7VA. 1600Z-1900Z Jun 9. Celebrating Microcomputer Network ARA's 20th anniversary and 1000th session. 14.325. Certificate. David Byrd, KD7VA, 1513 Commanche Dr, Las Vegas, NV 89109.

Austin, TX: 3M Amateur Radio Club, W3M. 1700Z Jun 12-2359Z Jun 26. 3M-A Century of Innovation. 28.448 21.348 14.248 14.048 Certificate. W3M@callsign.net (no QSL needed) or 3M ARC, 6801 River Pl Blvd #147-5N-01, Austin, TX 78726-9000; <http://www.qsl.net/w3mrc>.

St Paul, MN: 3M Amateur Radio Club, K3M. 1700Z Jun 12-2359Z Jun 26. 3M-A Century of Innovation. SSB: 14.248 3.948 1.948; CW: + 0.048. Certificate. k3m@usa.net (no QSL needed) or 3M ARC, W0JH, Attn: Ed A. Jacobson, WBOVHF, 3M Center Bldg 220-03E, St Paul, MN 55144; <http://www.qsl.net/w0jh>.

Logan, OH: Hocking Valley Amateur Radio Club, K8LGN. 2100Z Jun 14-0200Z

Jun 16. 2nd Annual International Washboard Festival. 28.450 14.250 7.250. Certificate. HVARC, 52 E Second St, Logan, OH 43138.

Bell Buckle, TN: Radio Amateur Transmitting Society, W4PQP. 1300Z-2100Z Jun 15. RC Cola & Moon Pie Festival. 28.340 14.240 7.240 2 m rpt. Certificate. Ariel M. Elam, K4AAL, 1065 Barnes Rd, Antioch, TN 37013.

Clarksville, TN: CORE Group, AA4TA. 1600-2300Z Jun 15 and 1800-2300Z Jun 16. International Museums on the Air Weekend from the Customs House Museum. 50.170 28.470 14.270. Certificate. Hank Koebler, N3ORX, 1150 Hutcheson La, Clarksville, TN 37040.

Highland County, OH: Highland Amateur Radio Assn, W8N. 1600Z-2100Z Jun 15-16. Ohio Covered Bridge Weekend--Lynchburg Covered Bridge. 28.420 21.325 7.240. QSL. Highland Amateur Radio Assn, John Levo, WA8KIW, PO Box 203, Hillsboro, OH 45133.

Mobile, AL: Mobile Amateur Radio Club, W4IAX. 0000Z Jun 15-0400Z Jun 17. Celebrating Mobile's 300th Birthday. SSB 28.330 21.330 14.233 7.230 3.930; CW 21.030 14.069 14.030 7.030 3.530 iLINK 3.003. Certificate. W4IAX, 6656 Sugar Creek Dr S, Mobile, AL 36695.

Warren, OH: Western Reserve Amateur Radio Assn, W8P, Jun 15-17. Ohio Covered Bridges on the Air. All modes/all bands. Certificate. Gail Wells, KC8LRH, 708 Delaware SW, Warren, OH 44485. 16 OH clubs are participating; QSL individual club.

Marietta, GA: Southeast Wireless Club, K4S. 1200Z Jun 15-2000Z Jun 23. Cub Scout Day Camp--Covered Bridge District, Atlanta Area. 28.450 21.350 18.150 14.250. Certificate. James Olson, W4JO, 3442 N Cook Rd, Powder Springs, GA 30127.

Simi Valley, CA: Ventura County Amateur Radio Society (VCARS), N6R. 1800Z Jun 22-2100Z Jun 23. Commemorating the lives of President Ronald Reagan and Mrs Nancy Reagan. 28.360 21.360 14.260 7.260. Certificate. Peter S. Heins, N6ZE, PIO, Ventura County ARS, 1559 Norwich Ave, Thousand Oaks, CA 91360-3533.

Albuquerque, NM: NM SCARES, N5M. 0000Z Jun 22-0000Z Jun 27. New Mexico's 90th birthday. 28.390 21.290 14.290 7.290. QSL. Jay Miller, 4613 Jupiter St NW, Albuquerque, NM 87107.

Hagerstown, MD: Antietam Radio Assn, W3CWC. 0001Z Jun 24-2200Z Jun 30. Fiftieth Anniversary of ARA Club Founding. 147.09 50.140 28.440 14.240 7.045 7.240. Certificate. Antietam Radio Assn, PO Box 52, Hagerstown, MD 21741.

Milpitas, CA: Milpitas Amateur Radio & Electronics Society, W6MLP. 1900Z Jun 28-1900Z Jun 29. Cancer Society Relay-for-Life. 28.390 21.360 14.290. QSL. Milpitas Amateur Radio & Electronic Society, 777 S Main St, Milpitas, CA 95035; <http://www.w6mlp.org/>.

Yucaipa, CA: Yucaipa Valley Amateur Radio Club, KF6LLS. 1700Z Jun 28-0600Z Jun 29. 10th Anniversary of Landers/Big Bear Earthquake. 28.353 21.353 14.253 7.253. Certificate. Yucaipa Valley ARC, 34428 Yucaipa Blvd E-188, Yucaipa, CA 92399.

Cape Lookout, NC: United States Power Squadrons Amateur Radio Net, N1C. 1400Z Jun 28-2200Z Jun 30. National Safe Boating Campaign from Cape Lookout Lighthouse. 28.367 21.367 14.267 7.267. Certificate. Donald Stark, N3HOW, 65 Stark Spur, Eighty Four, PA 15330.

Los Alamos, NM: Los Alamos Amateur Radio Club, W5PDO. 1800Z-2200Z Jun 29. Earthwatch Institute's Student Challenge Awards Program from Fenton Hill Observatory. 28.450 21.350 14.250. Certificate. Don Casperson, AA5PA, 984 Nambe Loop, Los Alamos, NM 87544.

