
ACTIVITIES ... from my “workbench”



Hello again Guys! Well, another year has just passed us by. I hope you accomplished more than I have. It's funny about being retired. One would think you would finally have enough time to finish (or start on) that project you've been thinking about for a few years. However, NOT TRUE!!! I can't fully explain it but it appears there is now less time available to do the things I WANT to do. Maybe that's because there are more things that I HAVE to do. Yes, I do spend a little more time on the front porch with beer but...that's another story.

OK, repeater time. Finally, I've made time to clean up the wiring at the repeater site. It was a mess as a result of simple problem fixing from time to time and not wanting to shut things down to do it right. As a result, we ran out of 120VAC outlets because wall wart supplies were taking up too much room. Instead of adding a power connector to the controller, for instance, I added a wall wart supply to power that newly added preamp, and so on. Finally, the controller died the other day so I had to bring it home for repair. The problem turned out to be an intermittent IC socket on the PIC microcontroller IC but at the time I thought the PIC itself had died. Intuitive Circuits sent me new hex code for a replacement PIC but I found later that it was not needed. In the process, while I had the controller home, I decided to completely re-work it to add a connector to power external devices (There goes two wall warts) and re-route all audio and video connectors to the front of the controller module. The end result was the elimination of almost a full box of assorted cables and power supplies! What a difference. All video and audio cables now connect on the front of our rack mount cabinet while the RF cables, AC cords and control lines are on the back. I can actually see the rear of the modules when I open the cabinet rear door now! How everything worked before is a mystery to me but it is sure rewarding to finally “do it right”! To put credit where due, note that the controller unit designed by Dale, WB8CJW, in 1994 has been in 24/7 continuous problem free operation since then. A little corrosion on the IC socket after 16 years can be expected.

The video ID generator has been a source of problems lately. We use a SanDisk “Picture frame” unit that works great as long as AC power is maintained. (The SanDisk unit was powered by a wall wart to furnish 5VDC power and now furnished by the controller 5V source. One MORE wall wart gone). If the supply is interrupted, the unit must be re-started by pushing the “Power” and then the “Play” buttons. Yep, there goes another trip to the repeater. Our “button pushing” replacement only works some of the time so a new solution is in order. Usually there is no power interruption problem at the repeater because there are quite a few “mission critical” transmitters located there but they are installing new air conditioning equipment now so interruptions for the next few weeks are common. Until then, the ID on the transmitters may be a blank screen.

Presently, I'm working on a new ATV controller design with Charles, WB8LGA. He is doing all of the software and hardware for the controller portion and I am working on a companion single board computer to go with it. When complete, we will have a controller with 12 inputs and 9 outputs with a separate output feeding each transmitter. That way it will be possible to dedicate an input to a specific transmitter allowing full duplex operation if desired. All selections will be controlled from the companion computer hopefully connected to the internet. The companion computer will also handle the ID and bulletin board so all material will originate from the repeater rather than feed to it from remote sources. We are actively working on this project but realistically it won't be available till mid year at best. More details later.

Recently we've added another remote input to the FM 147.48MHz simplex channel. In order to have Dick, W8RVH, and others near Dayton participate in net night, we put a separate transmitter/receiver at the Jones Road site near South Vienna, Ohio (halfway between Columbus and Dayton). It's a crossband repeater with input on 147.45MHz and output on 449.975MHz. It also has an input on 446.350MHz and an output on 147.45MHz. Dick and the Dayton hams can then talk into and listen to us on 147.45. Our signal on 147.48 goes out on 446.350 from our link to the Jones road repeater input on 446.350 and out to them on 147.45. Got that???? In any case, the arrangement allows the folks around Dayton to talk on 147.45 and participate in our nets on 147.48. See also the details and pictures later.

That's just about it for now. Remember the Mansfield Hamfest is in mid February. Don't miss it!

Also, please send me any information you think might be Newsletter worthy. I'll sort out the details and re-word it if necessary. We're a few pages short on length this time but I'd rather not insert topics of little or no interest. For those “out-of-town” members, let's hear from you! Do you have a local ATV repeater? If not, would you like to have one? How about your own projects? What are you building or what have you seen that you'd like to build? Have you seen any DX lately. Take a picture of it and send it to me. Are any of you working on any digital ATV experiments or plan to do so? All of these are of interest to the rest of us.

73, WA8RMC



ATCO MEMBERSHIP POLICY CHANGE

Lately, I have become painfully aware of the difficulty Bob, N8NT, and I have had keeping the ATCO membership dues correct. Our initial basic policy of the January 1 to December 31 membership period is good but problems arise. Mid year new memberships sometimes create a difficult entry in Bob's computer figuring out how to apply it. Also, I keep sending Newsletters to those with expired memberships hoping they would eventually catch up. The fiasco I create is how to treat those who let their membership lapse and then decide to "re-join". Bob assumed dues were always for the current year but sometimes the member was paying back dues. OK, enough. I think you get the picture. Now, how to fix it?

I have a strong desire to keep the financial part of our club simple and accurate. Even though \$10 per year is not a great amount, I don't want to short change anyone so if you think any records are not correct, please let Bob or myself know and we'll fix it. I have reason to believe that I am not 100% correct in my listings.

Here's what I'd like to do from now on.....

- All dues paid will be for the current year and beyond.
- I'll send out January 2011 Newsletters to all but those with an expired membership will also get an expiration notice.
- The mid year joining rule will be unchanged.
- The January 1 to December 31 membership period will be unchanged.

The only thing that really changes is the elimination of complimentary Newsletters after dues expiration and the addition of an expiration notice in January. That helps me keep it simple and assures you receive a notice when dues are needed. If you get an expiration notice, send dues to receive future Newsletters. I've amended the membership policy at the end of this Newsletter to reflect these changes.

To make it easy to pay dues, use either PayPal or a check direct to Bob.

If you write a check:

Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026.

If you select Paypal:

Pay via the Internet with your credit card. Go to www.atco.tv, log in with your password and fill out the "pay ATCO dues" section. You can also use the ATCO web site www.atco.tv/PayDues.aspx directly. (Credit card payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no "PayPal" involvement).

MOST HDTVS USED FOR VIEWING IN STANDARD DEFINITION

NEW YORK: Nielsen says 56 percent of U.S. households now have HDTV sets, but HD viewing continues to lag. Just 13 percent of total-day viewing on cable TV is in HD, the media measurement company reports. The ratio's a bit higher on broadcast networks--19 percent.

"In other words, despite the billions of dollars that Americans have spent buying high-definition TVs, more than 80 percent of television viewing is still a standard-definition experience," Nielsen said.

About one-fifth of viewing on HDTV sets is via non-HD feeds. And although HD is available to everyone free over-the-air, the majority of U.S. households subscribe to cable or satellite and don't switch to other sources. HD content is typically restricted to more costly premium programming tiers.

Nielsen broke out a few demographics on HD viewing, including genre and age. More people watch cable sports in HD than any other type of programming--21 percent of all equipped households. Viewing was highest among people 18-34, with 28 percent of that group tuning in. Just 2 percent of people 35-64 watched sports in HD, however. The older demo went primarily for news, with 20 percent watching. Of all HD-capable households, 15 percent watched news in the format. Entertainment edged out news with 16 percent. Just 2 percent of HDTV households watched kids programming in the higher-resolution format.

An ethnic breakdown of adoption indicated that Asian households exceeded all other groups. Around two-thirds of Asian households have HDTV. About half of African American homes have HDTV sets. White and Hispanic homes lay between the two.

The schism between HDTV set and content adoption has persisted throughout the introduction of the format. The disparity has stayed at roughly 10 percent since July of 2007.

... *Deborah D. McAdams* TV Technology Magazine 11/10/10. <http://www.tvtechnology.com/article/109056>

NEWS FLASH...N8NT LOSES ATCO REPEATER ACCESS

Bob writes,

"Hi Art,
I thought about transmitting today but a little bird told me that was not a good idea.

I was waiting for a tropical duct but the duct tape failed."
...N8NT Bob

Bob needs to use a better brand of duct tape....or....mast clamps work too! Look closely as the WU8O can antenna now rests directly on the roof.



SK: CRAWFORD L. "BUD" NICHOLS KC8ASD

NICHOLS Crawford "Bud" L. Nichols, age 80, of Hilliard, returned to God's hands on Saturday, December 18, 2010. He was a member of St. Brendan the Navigator Catholic Church; served in the [US Marine Corps](#), member of the Masonic Lodge for many years, former member of Torks Model Airplane Club, Hilliard Model Airplane Club. Survived by loving wife, Margaret; sons, William (Jill) and Lee (Yvonne); granddaughters, Christina and Theresa. Family will receive friends Monday, from 4-8 p.m. at St. Brendan the Navigator Catholic Church, 4475 Dublin Rd. Hilliard, OH 43026 where a Mass of Christian Burial will take place 10 a.m. Tuesday with Father Kittsmiller officiating. Entombment St. Joseph Cemetery. www.tiddfuneralservice.com

Published in The Columbus Dispatch on December 19, 2010

Published online in The Columbus Dispatch from December 18 to December 19, 2010

TIPS, HINTS AND TECHNIQUES

I am creating a Newsletter section here to appeal to anyone who has had an electrical problem and made a gadget to solve it. I'm sure everyone has made a creative "invention" to solve a problem around the Hamshack at some point so let's collect these ideas and describe them here. Some are novel and worthy of duplication and others just amusing. In either case, they can be very interesting so let's collect the ideas here.

For example: my soldering gun tip broke the other day in the middle of a project. Not wanting to stop and go to the store to buy another, I fashioned one from a piece of #12 wire bent into shape using my broken one as a template. I think mine will outlast the store bought one!

Dale, WA8KQQ writes,

"I have been using homemade tips for my guns and irons for many years - I finally broke down at the Ft Wayne fest and bought some tips for my 250 watt gun - \$1.00 each - ought to last a long time - also had a run in with my 300 watt American Beauty iron the other day - was pulling on a part and when it let go the little finger and the one next to it on my left hand said hello to the iron - the answer was "sissss" - hope you have a great 2011"

...WA8KQQ

Bob, N8OCQ says,

"There are many GE Master II radios in service in the Ham bands. These radios require re-tuning to achieve desired results. Since some coils in the exciters and receivers have been adjusted so much, the threads in the coil forms wear out. The coil forms I have seen are made of a paper coated with a substance that hardens. To solve this, I came up with a solution to cure it. Here are the steps I used:

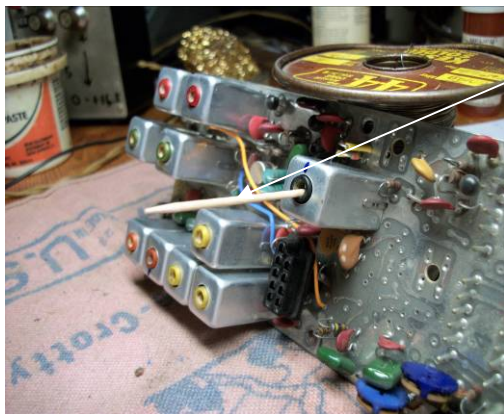
- 1.) Remove the board from the radio.
- 2.) Check all coils to see which ones need repair.
- 3.) Remove the slug from one tuning coil at a time.
- 4.) Use a Q-Tip to remove some cotton for a snug fit.
- 5.) Push Q-Tip through the coil form to clean out any residue.
- 6.) Clean threads on the slug and form inside with alcohol.
- 7.) With a toothpick, apply THIN coating of RTV Silicone, such as Permatex ultra blue, to the inside of the coil form from top to bottom.
- 8.) Allow to cure overnight.
- 9.) Re-thread slug into coil form.

I have done this to several boards with successful results.

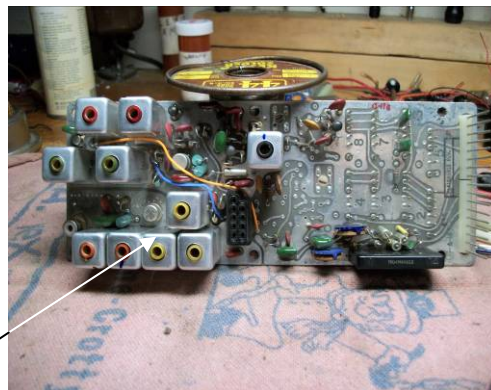
...Bob N8OCQ



Above is the RTV sealant brand I used.



This is the toothpick inserted in the coil form. The end is coated with sealant.



Top view of the 2 meter exciter I worked on.

OK, here's something I found:

Use Velcro straps for cable ties. For many years I've been using Ty-Raps to keep wire bundles together but most times the cable Ty is not permanent. That is, by the time my project is finished, the Ty is cut off and replaced a number of times as the wire bundle increases and there is a need to re-position it. Instead of using the Ty-Rap non-reusable ties I found Velcro ties 8" long that will secure most bundles. Either use as temporary ties and replace with Ty-Rap's when the product design is stable or leave in place permanently. They are also great for securing cable bundles and line cords behind the equipment.

They are available from Middle Atlantic called "Lacer Bar". Their web site is: www.middleatlantic.com/rackac/cablem/cablem.htm but they don't sell locally. Besides, they cost about \$1.30 each. It's better to go to the hobby store or Jo-Ann Fabric, buy the sheets and cut them into the sizes you need!

...WA8RMC

Chris, WG8I asks,

Hi Art. I haven't been too active in ATV recently, but decided to poke around for a potential topic for you. I have a big interest in DSTAR so I thought to Google ATV and DSTAR and came up with this URL:

<http://www.dstartv.com/faq.htm> (I have no vested interest in the products mentioned)

In DSTAR we can do data transmission up to I think 128K baud at 1.2 GHz frequencies by using an ICOM ID-1 transceiver along with a DSTAR repeater on port A along with a data controller. I admit I have not personally worked with 1.2 GHz on DSTAR but I have had QSO's with Hams using an ID-1 by hooking up with them using a DV-Dongle or DVAP by going through REF0014A (a reflector is kind of like a party line). I know you may not know too much about DSTAR but maybe some of this information will broaden your horizons and possibly be of interest to you.

I have conceptualized in my thoughts about transmitting video though the use of DSTAR. A possible scenario: in a Columbus Marathon Race a runner falls and needs help. A ham in ARES comes and takes video of the individual which is then fed into an ID-1 transceiver which is then fed to the DSTAR gateway via a local repeater which is being received at a local hospital because they have DSTAR radio equipment there, the doctor there can do a visual inspection of the runner via this DSTAR video feed to determine whether first aid will suffice or they need to be transported to the hospital (a fire dept and local police station could also have DSTAR radios to monitor these transmissions to be aware if they are needed as well). I thought this might be a new avenue of interest for ATCO ATVer's here in Central Ohio. What do you think?

...Chris, WG8I

Chris, you're right, I don't know that much about DSTAR. I have no practical experience with it so I hope one or more of the readers will respond to your suggestion. Can it be done? Is it practical? Is there anyone out there that wants to try? Let me know.

WA8RMC

PROBLEMS ANYONE? ASK THE EXPERTS

It occurred to me that we solve our Ham TV issues very informally if at all. Sometimes, it's via a Net night discussion or conversation with a fellow Ham. Sometimes we get a correct answer, sometimes not. Even worse, we sometimes get no answer at all which often drives us away from Ham radio/ATV. We definitely don't want the later to happen so I suggest we form a group Q/A section here so the question can be asked to the group. I'll collect answers and research questions to report in this space. I'll start it off with a concern by Hank, W4HTB:

Art,

I have a really weird problem with our repeater. It's got us stumped for now. Since you tuned our repeater filters, the RX/TX filter from 426.25 to 421.25 and our DCI interdigital filter, we are seeing a "fixed" reflection on our video just like multipath. It is the same no matter where you receive the repeater. I have eliminated the cable modulator and amp. I have not removed the 2 filters or reversed the inputs to them yet. Do you think they are directional sensitive? I first thought it was an un-terminated video line but checking all that it's good. I am using a Downeast amp that takes cable modulator out put and puts out around 10 to 12 watts. It is not being over driven. It can put out up to 25 - 30 watts. Out of the amp I am using double shielded coax to the DCI filter, and then to the RX/TX (transmit) filter side of the duplexer. Then headline on out.... What do you think? Thanks, Hank W4HTB.

Hank,

We had a similar problem here. I checked a number of things to no avail so for years I assumed it was due to the multipath among the downtown buildings so we just lived with it. Then when I replaced the Mirage D1010 with a commercial Comark amplifier and cable modulator, the problem went away! I know now that the terrible linearity of the Mirage was creating unwanted harmonics and intermodulation distortion products that were reflected by the output filter back to the amp. causing the ghosting. We have an isolator (circulator) in the output line but it's AFTER the filter. It never occurred to me at the time to place it between the amp and filter (probably because available physical space made it impractical). I'd advise you to add a circulator at the amp output. That way, out of bandpass signals rejected by the filter will be trapped in the circulator dummy load and not flow back to the output amp.

Hi Art,

I was trying to figure out how to enter my call/name on the BATC website for the repeater streaming video. I decided to copy and paste what I found and save it for reference and thought it might be useful for others if you want to publish it in the newsletter. 73, Dale WB8CJW.

Dale,

You issue commands to the chat system by starting a new line with a forward slash "/". All commands must be in lowercase. Commands are not echoed to the message window. However some do output text, e.g. this /help command. System messages appear in red, while user messages appear in green. To get help on a specific command, type "/help cmd" where "cmd" is the command you want help on. HINT: Untick the "Chat active?" checkbox below after typing a /help command to read the text that scrolls off the top of the message window. Remember to tick it again to view new messages! /nick newname Changes your displayed name to "newname", eg:/nick Fred will change your displayed name to "Fred". Names must be upper or lowercase letters and numbers only, any other characters will be discarded. Length of name must be between 1 and 16 characters. For example when I log on, it may say, "guest123". Then I type in the white box "/nick WA8RMC" ENTER (don't type the quotes) to get WA8RMC displayed in the online box. The message "WA8RMC joined the chat" will appear to the left. That's all there is to it. You do NOT sign in on the login screen unless you're a member of the BATC. If you're a member, your call will be entered automatically upon login. (It only costs about \$6/ year for a cyber membership which also gets you their quarterly magazine via Email.)

NEW “REPEATER” LINK ON JONES ROAD

Recently we’ve added a remote input to our 147.48MHz simplex channel. In order to have Dick, W8RVH, near Dayton participate in net night, we put a separate transmitter/receiver at the Jones Road site near South Vienna, Ohio (halfway between Columbus and Dayton). It’s a crossband repeater with input on 147.45MHz and output on 449.975MHz going toward Columbus, with an input on 446.350MHz and output on 147.45MHz going back to Dayton. Dick can then talk and listen on 147.45. Our signal on 147.48 goes out on the local 446.350 link to the Jones Road repeater input on 446.350 and out on 147.45. Dick, W8RVH, Charles, WB8LGA and myself had fun that day in November installing the antenna and transceiver but the strong northeast wind at about 50 degrees was too cold for me on the tower to spend much time thinking about where the antenna should go! There was concern on my part that the dual band omni-directional antenna up only about 40 feet would be sufficient. To be on the safe side I decided to leave an extra coil of coax on the roof so we could move the antenna higher if it was necessary. It wasn’t!!!



This is all that’s in the rack at the present time, folks. The Kenwood transceiver (donated by W8RUT) sits on top of the 1280MHz transmitter not used at the present time. When activated, it sends received 439 ATV signals at Jones Road to our repeater in Columbus on 1280MHz.

Here’s the Jones Road repeater site. Our dual band 147/449 stick antenna is mounted about 40 feet up on the tower (just above the windmill generator on the tower next to it. Yes, that little sucker is REALLY spinning today!

MIND BENDER #1

Problem: The marketing team has taken the afternoon off to play golf. (It’s a common occurrence!) As they finish the third hole, they encounter three paths with accompanying signs. The scorecard states that only one of the three signs is true. The signs read as follows:

- Sign #A The sign at path B is false
- Sign #B Follow this path to the fourth tee
- Sign #C This path is not the way to the fourth tee

Which path should be taken? Solution: *Later in this Newsletter.*

W8DMR RECOGNIZES “BREAK THROUGH” INVENTION

The First Year OSU Engineering Student Arthur C. Clark once said: "Any significantly advanced technology is indistinguishable from magic."

Three scientists, each with a Doctorial degree: Chemist, Physicist, and Electrical Engineer, namely, Brittan, Bardeen, and Shockley, accomplished in totality what no one else had prior to 1947.

An example of team effort and the result of company R & D funds on an idea proposed by William Shockley.

One dark December evening in 1948, I attended an IRE meeting in an auditorium in the Physics Building on The OSU Campus. An OSU graduate student, recently hired by Bell Labs, returned to present a technical program.

The program concerned the development of a device not requiring a heated filament in an evacuated glass envelope. With the auditorium filled to SRO, projecting B&W, 35 MM slides, he lectured less than an hour. Then he invited those in attendance to come forward where he'd placed the tiny device with battery and single earphone connected to hear the signal generated.

One by one, many of the 200 attendees held the earphone to ear, listened briefly, passing the earphone to next in line.

At last, it became my turn to listen. Listening longer than I should have, I heard a faint audio tone of near 400 Hertz. The tone also contained nearly an equal amount of random noise (hiss?) produced by the tiny fragile-looking device. I was disappointed after having waited so long.

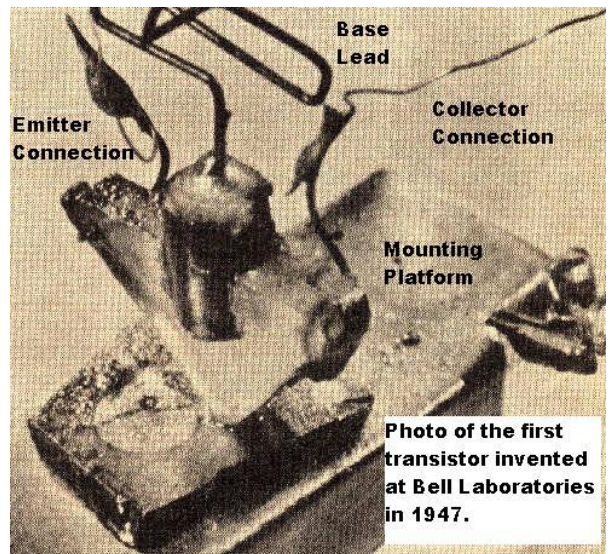
With little thought, I immediately formed an opinion about what I then considered a novelty. The noisy, weak, and non-sine wave audio tone didn't compare with vacuum tube audio oscillators I'd heard many times prior. The tube oscillator outputs were louder, harmonic free, contained little noise, and pleasant sounding.

Departing the auditorium, having experienced the device demonstration, my thought was, "that toy will never amount to much", and felt my evening wasted. The IRE (Institute of Radio Engineers) should select better programs for students such as myself, I reasoned.

Today that grossly misjudged novelty permits HDTV, cellphones, ipods, speedy computers, color flat screen monitors, ad infinitum.

The first year electrical engineering student couldn't appreciate the MAGIC the first transistor offered.

... W8DMR



JIM REED AT MARSHALS RESTRAUNT

Attention ATCO members. It seems rare to see Jim, WA8UZP, join us at a Saturday morning breakfast gathering. However, this morning he decided to join us but got disturbed when told it was his turn to buy breakfast for the rest of us. Jim has a much laid back personality and seldom gets excited but.....just mention money he may have to shell out and....well, I think you get the “picture” displayed here.

No one was hurt in the scuffle. (Well, maybe the waitress **did** freak out a little!)

(Just kidding Jim. Admit it, you're good discussion material)

... WA8RMC



NEW MOBILE TV

Posted in [Broadcasting](#), [Mobile](#), [New Product](#) on January 4th, 2011 by Russell Brown –

RCA is coming out with three new portable TV sets that receive both ATSC (normal DTV) and ATSC-M/H (Mobile DTV). This is really good news as mobile TV maybe the only way to keep the FCC's hands off the broadcast spectrum. The more people use and view off the air television, either fixed or mobile DTV, the more important it becomes and having portable TVs that capture both can make a real difference in the way the public sees and uses over the air television.

There are three new RAC models -



RCA helps Broadcasters with new Mobile TVs

3.5" Hybrid Portable Television – Model DMT335R (suggested retail price \$109), with a bright LED backlit LCD screen, hybrid ATSC or Mobile DTV reception, AC power or up to 4 hours of playback time on rechargeable AA batteries, real-time signal strength indicator, closed captioning capability, easel-back stand, English/Spanish display and monopole antenna.

New from RCA model DMT336R Hybrid Fix/Mobile TV

3.5" Hybrid Portable Television – Model DMT336R (suggested retail price \$149), with a widescreen, ultra-bright LED backlit LCD screen, hybrid ATSC or Mobile DTV reception, FM radio reception, AC power or up to 4 hours of playback time on internal Lithium Polymer battery, real-time signal strength indicator, closed captioning capability, easel-back stand, English/Spanish display and monopole antenna.



Model DMT270R receives ATSC and ATSC-M/H mobile TV
7" Hybrid Portable Television – Model DMT270R (suggested retail price \$169), with an 800×480 high resolution widescreen LCD screen featuring 500:1 contrast ratio, hybrid ATSC or Mobile DTV reception, AC power or up to 3 hours of playback time on built-in Lithium Polymer battery that can recharge while plugged in to a wall outlet or auto power source, real-time signal strength indicator, closed captioning capability, easel-back stand, English/Spanish display and 360 degree adjustable antenna.

Then there is a hybrid tuner built for the card -
Pocket Mobile DTV Car Tuner Receiver – Model DMT3BR (suggested retail price \$119), featuring a discrete design that is smaller than a deck of cards, hybrid ATSC or Mobile DTV reception, powered by car charger, easy connection to the car infotainment system's audio and video input jacks, remote control, and a monopole antenna.

...Henry in Chicago. A9xw

MIND BENDER #2

Problem: What occurs once in every minute, twice in every moment, yet never in a thousand years?

Solution: (See answer later in this Newsletter. Search for it!)

Mind bender #1 solution:

Solution: Consider that only one of the signs is true.

Assume that path A is the correct choice. If so, the sign at path A is true; the sign at path B is false; and the sign at path C is true.

Therefore, path A is not the right choice. Assume that path B is the right one. If so, the sign at path A is false, and the signs at path B and C are both true. Therefore, path C is correct: the sign at path A is true and the signs at paths B and C are both false.

FALL EVENT 2010

Here we go again guys. It's Fall Event time. I didn't take an official count but think there were about 29 people this year, up a bit from in the spring. Good show as it proves to me that our hobby is not shrinking. However, I don't see it EXPANDING either. We really need to address this but it's probably not the time to elaborate. Suffice it to say that we don't have enough young people entering our hobby.

Work on it guys!
Show prospective ATVers this Newsletter to demonstrate we are just a bunch of really great guys having a good time.



Ahhh! That infamous food line. Well, not quite "infamous" but I didn't hear anyone complaining either.

Jim, we need to talk! You're only supposed to be in one picture per event. (By the way, why aren't you at the food table?)

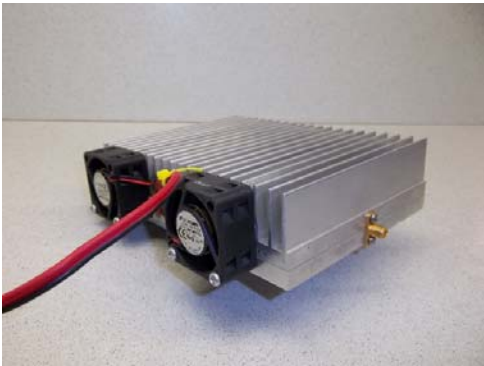


Finally!!!! The door prize tables. NUF said!

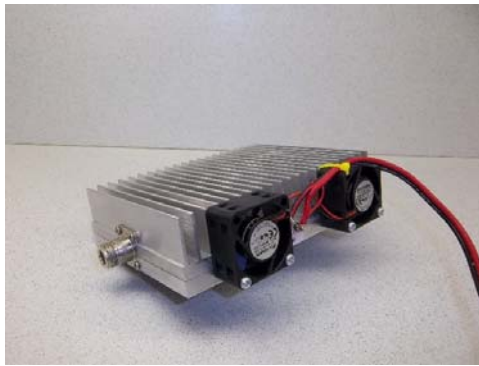
SUPER 1280 MHZ AMPLIFIER

A short time ago Charles, WB8LGA, alerted me to the availability of a series of high gain and high linearity power amps available in kit form from Dave Klitzing, W6PQL, in California (http://www.w6pql.com/xrf-286_amplifiers_for_23cm.htm) for about \$150 for all parts except heat sink. I investigated and eventually bought one for our analog 1280MHz repeater amplifier which works great. (See the ATCO Newsletter Vol. 27#1). After thinking about it again recently, I decided to buy another one to try for the 1268MHz digital transmitter. The main thought is that the transistor used is an LDMOS type with very good linearity characteristics so it might be better than the one we now use from Down East Microwave. Caution, if you decide to build one for yourself! It has small surface mount parts. I can help if you can't work with them easily.

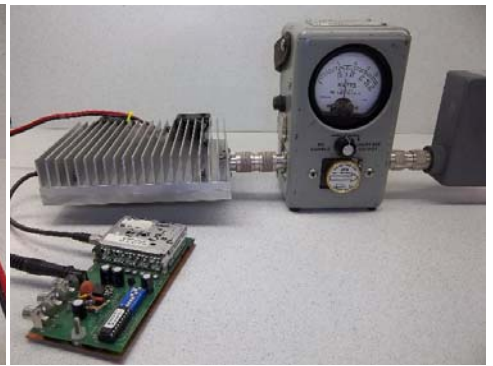
I've bench tested it and found it performs very well but I admit, at this time, I've not tried it with our digital transmitter. I need to bring the digital transmitter home and bench test it together to find out if it's better than we now have. I suspect it will be. I'll report the details next time but for what it's worth, my machining efforts are shown below. I don't expect this mechanical design to be duplicated but an overall arrangement IS possible that is easily duplicated. My tests with a Comtech board feeding it is impressive. The Comtech outputs about 80mw to get about 8 watts at the amp output. That's about 20dB gain! I know of no other amp that gives 20dB gain in one stage (this side of a traveling wave tube amp). So use it to get about 8 watts analog direct from a Comtech board or with an intermediate amp providing about 2-3 watts, 80 watts is easily possible. If you're thinking far enough ahead, this amp will also be ideal for use with a digital ATV transmit board. The DC supply is 24VDC at about 2 amps for 8 watts output and 80mw drive. It is more efficient at higher drive levels.
...WA8RMC



Here's a view of the input connector end with fans on the side.



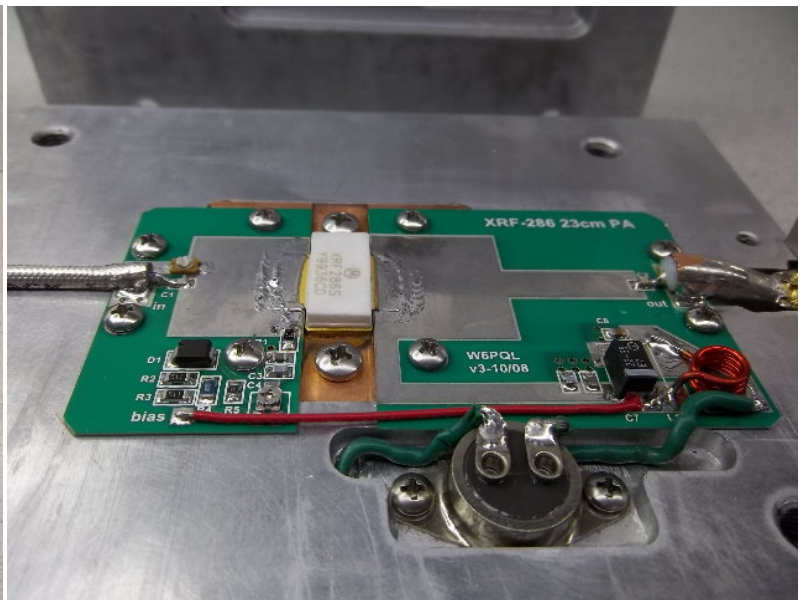
...And the other side showing the RF output "N" connector.



This is my test setup with the Comtech board on lower left. The Bird wattmeter on the output is reading about 8 watts.



Here is an internal view with the aluminum blocks separated. The cover was milled out to fit the amp parts when put together.



Here's a closeup of the circuit board. The milled out section below the board is a thermal switch in series with the +24VDC line. It's not REALLY needed but I had it available, I like to make pretty designs in aluminum and I have some excess time, sooooo ...

LOCAL HAMFEST SCHEDULE

This section is reserved for upcoming Hamfests. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here; notify me so it can be corrected. This list will be amended, as further information becomes available. To see additional details for each Hamfest, Control Click on the blue title and the magic of the Internet will give you the details complete with a map!

...WA8RMC.

01/16/2011 | [SCARF HAMFEST](#)

Location: Nelsonville Tri-County School 15676 State Route 691 Nelsonville, OH 45764 Sponsor: Sunday Creek Amateur Radio Federation
Type: ARRL Hamfest Talk-In: 147.150 Public Contact: Jeramy Duncan , KC8QDQ 10847 Walnut Street Glouster, OH 45732
Phone: 740-767-2554 Email: duncan10847@embarqmail.com

02/06/2011 [Winter Hamfest](#)

Location: Gargus Hall 1965 North Ridge Road Lorain, OH 44052 Website: <http://www.noars.net> Sponsor: Northern Ohio Amateur Radio Society Type: ARRL Hamfest Talk-In: 146.70- Public Contact: Thomas Porter , W8KYZ 161 Herrmann Drive Avon Lake, OH 44012 Phone: 440-930-9115 Email: tporter161@oh.rr.com

01/30/2011 | [Tusco ARC Hamfest](#)

Location: Wallick Auction House 965 North Wooster Avenue Strasburg , OH 44680 Website: <http://www.tuscoarc.org> Sponsor: Tusco Amateur Radio Club Type: ARRL Hamfest Talk-In: 146.730 - (PL 71.9) Public Contact: Kyle Quillen , KD8HDJ
518 Fair Avenue NW New Philadelphia, OH 44663 Phone: 330-204-0944 Email: hamfest@tuscoarc.org

02/13/2011 | [Mid-Winter Hamfest](#)

Location: Richland County Fairgrounds 750 Home Road North Mansfield, OH 44901 Website: <http://www.w8we.org>
Sponsor: Intercity Amateur Radio Club Type: ARRL Hamfest Talk-In: 146.94 (PL 71.9) Public Contact: Danny Bailey , KB8STK
70 Euclid Street Shiloh, OH 44878 Phone: 419-896-3603 Email: kb8stk1@hotmail.com

03/12/2011 | [MOVARC Hamfest](#)

Location: Gallipolis Christian Church 4486 State Route 588 Gallipolis, OH 45631 Sponsor: Mid-Ohio Valley Amateur Radio Club
Type: ARRL Hamfest Talk-In: 147.06+ (PL 74.4) Public Contact: Steven Little , WD8NUY 402 LeGrande Blvd. Gallipolis, OH 45631
Phone: 740-441-5007 Email: slittle@zoomnet.net

03/20/2011 | [TMRA Hamfest/Computer Fair](#)

Location: Owens Community College - Student Health and Activity Center 30335 Oregon Road Perrysburg, OH 43551
Website: <http://www.tmrahamradio.org> Sponsor: Toledo Mobile Radio Association (TMRA) Type: ARRL Hamfest
Talk-In: 147.27/87 (PL 103.5) Public Contact: Brian Harrington , WD8MXR 4463 Holly Hill Drive Toledo, OH 43614
Phone: 419-385-5624 Email: wd8mxr@gmail.com

04/09/2011 | [57th Annual Hamfest, Electronics, and Computer Show](#)

Location: Emidio & Sons Party Center 48 East Bath Road Cuyahoga Falls, OH 44221 Website: <http://www.cfarc.org/hamfest2011.html>
Sponsor: Cuyahoga Falls Amateur Radio Club Type: ARRL Hamfest Talk-In: 147.27 Public Contact: Ted Sarah , W8TTS
239 Bermont Avenue Munroe Falls, OH 44262 Phone: 330-688-2013

05/20/2011 | [Dayton Hamvention](#)

Location: Hara Arena 1001 Shiloh Springs Road Dayton, OH 45401 Website: <http://www.hamvention.org/>
Sponsor: Dayton Amateur Radio Association Talk-In: 146.94- or 146.64- Public Contact:
Phone: 937-276-6930 Email: info@hamvention.org

NEW MEMBER(S)

Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are our group's lifeblood. It's important that we actively recruit new faces aggressively.

We welcome:

Dave Pelaez AH2AR Vandalia, Ohio
Gene Hawkins W8TIP Toledo, Ohio

...WA8RMC

INTERNET ATV HOME PAGES (list verified 01/14/11)

Domestic homepages

http://www.atco.tv	Ohio, Columbus, homepage (ATCO)
http://www.w8bi.org/atv/atvresources.html	Ohio, Dayton ATV group (DARA)
http://www.citynight.com/atv	California, San Francisco ATV
http://atn-tv.org/ATN.htm	California, Amateur Television Network in Central / Southern
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
www.bratsatv.org	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
www.qsl.net/k7atv/	Salem, Oregon Amateur Television Associations-Salem
http://www.qsl.net/kd2bd/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
http://www.oregonatv.org	Oregon, Portland OATVA Oregon Amateur TV Association
?	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theoikat/	Pennsylvania, Phila. Area ATV
?	Texas, Houston ATV (HATS)
http://www.hotarc.org/atv.html	Texas, WACO Amateur TV Society (WATS)
?	Utah ATV
www.qsl.net/ww7ats	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://atv.hamradio.si	Slovenia ATV
http://www.batc.tv	British ATV club (BATC)
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
	Finland ATV, OH3TR repeater.
	German ATV

Misc other ATV related sites

http://www.atv-tv.org	The Amateur Television Directory
http://www.atn-tv.org	Amateur Television Network
http://www.atvquarterly.com	Amateur Television Quarterly Magazine
http://gb3lo.camstreams.com	"GB3LO" Repeater Camstream westoft, UK
http://www.ham-radio.com/sbms	"SBMS" San Bernardino Microwave Society
http://www.qsl.net/kc6ccc/	"METS" Microwave Experimenters Television System

TUESDAY NITE NET ON 147.48 MHz SIMPLEX

Every Tuesday night @ 9:00PM WA8RMC hosts a net for the purpose of ATV topic discussion. There is no need to belong to the club to participate, only a genuine interest in ATV. All are invited. For those who check in, the general rules are as follows: Out-of-town and video check-ins have priority. A list of available check-ins is taken first then a roundtable discussion is hosted by WA8RMC. After all participants have been heard, WA8RMC will give status and news if any. Then a second round follows with periodic checks for late check-ins. We rarely chat for more than an hour so please join us if you can.

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (11/16/10).....	\$1767.17
RECEIPTS(dues).....	\$ 300.00
Paypal fee.....	\$ (6.17)
Fall Event food.....	\$(144.48)
Internet domain name fee.....	\$ (29.99)
Bank service fee (incorrect & will be deducted later).....	\$ (12.00)
CLOSING BALANCE (01/16/11).....	\$1874.53

ATCO REPEATER TECHNICAL DATA SUMMARY

Location: Downtown Columbus, Ohio
Coordinates: 82 degrees 59 minutes 53 seconds (longitude) 39 degrees 57 minutes 45 seconds (latitude)
Elevation: 630 feet above average street level (1460 feet above sea level)
TV Transmitters: 427.25 MHz AM mod, 1258 MHz FM mod, 1268 MHz QPSK digital, 2433 MHz FM mod, and 10.350 GHz FM mod.
multipole filters in output line of all transmitters
Output Power - 427.25 MHz :50 watts average 100 watts sync tip
1258 MHz: 40 watts continuous (Analog ATV)
1268 MHz 10 watts continuous (DVB-S digital ATV - 2 channels)
2433 MHz: 15 watts continuous
10.350 GHz 1 watt continuous
Link transmitter - 446.350 MHz 5 watts NBFM 5 kHz audio
Identification: 427, 1258, 1268, 2433, 10.35 GHz transmitters video identify every 30 min. with ATCO & WR8ATV on 6 different screens.
1268 MHz & 10.35 GHz - Continuous transmission of ATCO & WR8ATV with no input signal present
Transmit antennas: 427.25 MHz - Dual slot horizontally polarized "omni" 7 dBd gain major lobe east/west, 5dBd gain north/south
1258 MHz - Diamond vertically polarized 12 dBd gain omni (Analog ATV)
1268 MHz - Diamond vertically polarized 12 dBd gain omni (Digital DVB-S ATV)
2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
10.350 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni
Receivers: 147.48 MHz - F1 audio input with touch tone control
439.25 MHz - A5 video input with FM subcarrier audio (lower sideband)
449.975 MHz - F1 audio input aux touch tone control. (An input here generates an output on 147.48 and 446.350).
1280 MHz - F5 video input or DVB-S digital (digital input fed direct to 1268 MHz digital output channel 2)
2398 MHz - F5 video input
10.450 GHz - F5 video input (not installed yet)
Receive antennas: 147.48 MHz - Vert. polar. Diamond 6dBd dual band (also used for 446.350 MHz link output)
439.25 MHz - Horizontally polarized dual slot 7 dBd gain major lobe west
1280 MHz - Diamond vertically polarized 12 dBd gain omni
2398 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
10.450 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni (not installed yet)

Input control:

<u>Touch Tone</u>	<u>Result (if third digit is * function turns ON, if it is # function turns OFF)</u>
00*	turn transmitters on (enter manual mode-keeps xmitters on till 00# sequence is pressed)
00#	turn transmitters off (exit manual mode and return to auto scan mode)
264	Select Channel 4 Doppler radar. (Stays up for 5 minutes) Select # to shut down before timeout.
697	Select Time Warner radar. (Stays up till turned off). Select # to shut down.

Manual mode functions: 00* then 1 for Ch. 1 Select 439.25 receiver
00* then 2 for Ch. 2 Unused at this time
00* then 3 for Ch. 3 Select 1280 receiver
00* then 4 for Ch. 4 Select 2411 receiver
00* then 5 for Ch. 5 Select video ID (the 4 identification screens)

01* or 01#	Channel 1 439.25 MHz scan enable (hit 01* to scan this channel & 01# to disable it)
02* or 02#	Channel 2 (not in use at this time)
03* or 03#	Channel 3 1280 MHz scan enable
04* or 04#	Channel 4 2398 MHz scan enable
A1* or A1#	Manual mode select of 439.25 receiver audio
A2* or A2#	Unused channel at this time
A3* or A3#	Manual mode select of 1280 receiver audio
A4* or A4#	Manual mode select of 2398 receiver audio
C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
C1* or C1#	unused at this time
C2* or C2#	C2* to disable digital transmitter, C2# to enable it.

ATCO MEMBERS AS OF January 2011

Call	Name	Address	City	St	Zip	Phone
KD8ACU	Robert Vieth	3180 North Star Rd	Upper Arlington	OH	43221	614-457-9511
KC3AM	Dave Stepnowski	735 W Birchtree Ln	Claymont	DE	19703	
AH2AR	Dave Pelaez	1348 Leaf Tree Lane	Vandalia	OH	45377	
W8ARE	Larry Meredith III	6070 Langton Circle	Westerville	OH	43082-8964	
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224	614-268-4873
KC8BTX	Dudley Field	357 N. Ridge Heights Dr	Howard	OH	43028	
W6CDR	Wynn Rollert	1141 Pursell Ave	Dayton	OH	45420	937-256-1772
WB8CJW	Dale & Sharon Elshoff	8904 Winoak Pl	Powell	OH	43065	614-210-0551
N8COO	C Mark Cring	3941 Three Rivers Lane	Groveport	OH	43125	614-836-2521
N8CXI	Garry Cotter	2367 Northglen Drive	Columbus	OH	43224	
N9CX	Bill Erwin	231 Gateside Ct.	Gahanna	OH	43230	
WA2CZD	Jim Gilbert	1204 Aspen Pines Drive	Wilder	KY	41071-0404	
N3DC	William Thompson	6327 Kilmer St	Cheverly	MD	20785	
N3DGE	Mike Trachtenberg	3777 Lankenau Avenue	Philadelphia,	PA	19131-2816	
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198
K8DMR	Ron Fredricks	8900 Stonepoint Ct	Jennison	MI	49428-8641	
W8DMR	Bill Parker	2738 Florbunda Dr	Columbus	OH	43209	
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-876-6033
KC8EVR	Lester Broadie	108 N Burgess	Columbus	OH	43204	
N8FRT	Tom Flanagan	1751 N Eastfield Dr.	Columbus	OH	43223	
WA8FLY	Rod Shaner	16012 London Rd.	Orient	OH	43146	740-279-3614
W8FTX	George Biundo	3675 Inverary Drive	Columbus	OH	43228	614-274-7261
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147	
KB8GHW	Mike Amirault	5560RefugeeRd.	Baltimore	OH	43105	614-859-7005
WA8HFK,KC8HIP	Frank & Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026	614-777-4621
W4HTB	Henry Cantrell	905 Wrenwood Dr.	Bowling Green	KY	42103	270-781-9624
WG8I	Chris Vojsak Sr,	3536 W Henderson Rd	Columbus	OH	43220-2232	614-203-6000
WB2IIR	Michael Anthony	370 Georgia Drive	Brick	NJ	08723	
N8IJ	Dick Knowles	1799 Homeward Ave	Lima	OH	45805	
KD8JLO	David Nulter	510 Millag Drive	Sunbury	OH	43074	614-579-6425
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207	614-771-7259
N9KNV	Edmund Janowski	1721 Minnesota Ave	South Milwaukee	WI	53172	
W8KHW	Kevin Walsh		Columbus	OH	43220	614-442-7748
WA8KQQ	Dale Waymire		Greenville	OH	45331	937-548-2492
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	OH	43123	614-871-0751
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334	
KA8LWR	Mel Alberty	1645 Olentangy Road	Bucyrus	OH	44820	419-468-2971
W8MA	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081	
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660	
W0MNE	Mike Doty	4300Winchester Southern	Circleville	OH	43113	740-420-9060
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127
N00BG	Jim Conley	33 Meadowbrook C C Est	Ballwin	MO	63011	
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068	740-964-6881
WU8O	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064	614-733-0722
N8OCQ	Bob Hodge Sr.	3750 Dort Place	Columbus	OH	43227-2022	
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410	
KG4OPZ,KG4OQA	Dave,Mary Holtschneider	7 Akal Court	Durham	NC	27713	
W6ORG,WB6YSS	Tom, Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492
W8PU	Gary Poland	3347 S.R. 28	Midland	OH	45148	
KC8QJR	Adam Burley	1796 Queensbridge Drive	Columbus	OH	43235	614-886-2326
W3RCJ	Thomas Farrell	1912 Burnwood Road	Baltimore	MD	21239	
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	OH	43081	614-891-9273
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	OH	43110	
W8RRJ	John Hull	580 E. Walnut St.	Westerville	OH	43081	614-882-6527
W8RUT,N8KCB	Ken & Chris Morris	2895 Sunbury Rd	Galena	OH	43021	
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	OH	43617	
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	OH	43119	614-878-0575
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904	614-276-1689
W8RXX,KA8IWB	John & Laura Perone	3477 Africa Road	Galena	OH	43021	740-548-7707
W8SJQ	Rocky Eramo	795 Riverbend Ave	Powell	OH	43065	614-207-2740
W8SJV, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015	740-369-5856
KB8SSH	Mike Cotts	3424 Homecroft Dr	Columbus	OH	43224	614-371-7380
W3SST	John Shaffer	6706 Gilette Dr	Reynoldsburg	OH	43068	614-751-0029
WA6SVT	Mike Collis	PO Box 1594	Crestline	CA	92325	
W8TIP	Gene Hawkins	1720 Liberty Street	Toledo	OH	43605	
K8TPY, K8FRB	Jeff & Dianna Patton	3886 Agler Road	Columbus	OH	43219	
NR8TV	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123	937-981-1392
KB8UGH	Steve Caruso	6463 Blacks Rd. SW	Pataskala	OH	43062-7756	
W8URI	William Heiden	5898 Township Rd #103	Mount Gilead	OH	43338	419-947-1121
KB8UWI	Milton McFarland	115 N. Walnut St.	New Castle	PA	16101	

Call	Name	Address	City	St	Zip	Phone
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328
N8WAC	Tony Everhardt	6512 Emch Road	Walbridge	OH	43465	419-666-5178
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062	740-927-3883
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123	
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011	
N8XYJ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230	
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064	
KC8YPD	Joe Ebright	3497 Ontario St	Columbus	OH	43224	
N8YZ	Dave Tkach	2063 Torchwood Loop S	Columbus	OH	43229	614-882-0771
N8ZM	Tom Holmes	1055 Wilderness Bluff	Tipp City	OH	45371	
K3ZKO	Ron Cohen	915 Rowland Ave	Cheltenham	PA	19012	215-828-1263
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125	614-202-9042
KD8ACU	Robert Vieth	3180 North Star Rd	Upper Arlington	OH	43221	614-457-9511
KC3AM	Dave Stepnowski	735 W Birchtree Ln	Claymont	DE	19703	
AH2AR	Dave Pelaez	1348 Leaf Tree Lane	Vandalia	OH	45377	

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are \$10.00 per person payable on January 1 of each year. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this Newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost. All Newsletters are sent via Email unless the member does not have an internet connection.

The membership period is from January 1ST to December 31ST. New members joining before August will receive all ATCO Newsletters published during the current year prior to the date they join ATCO. For example, a new member joining in June will receive the January and April issues in addition to the July and October issues. For those joining after August 1ST, they can elect to receive a complementary October issue with the membership commencing the following year or get the previous (3) Newsletters. Your support of ATCO is welcomed and encouraged.

Membership expiration notices will be sent out in January in lieu of Newsletters for those with an expired membership.

NOTE: Dues records on your individual portion of the ATCO website are listed as the date money is received and shows due one year from that date. The actual expiration is on January of the following year so we can keep the dues clock consistent with the beginning of each year.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC Repeater trustees: Art Towslee WA8RMC
V. President: Ken Morris W8RUT Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT Dale Elshoff WB8CJW
Secretary: Frank Amore WA8HFK Statutory agent: Frank Amore WA8HFK
Corporate trustees: Same as officers Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL NEW MEMBER DATE _____

CALL _____

OK TO PUBLISH PHONE # IN NEWSLETTER YES NO

HOME PHONE _____

NAME _____

INTERNET Email ADDRESS _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____ - _____

FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY _____

COMMENTS _____

ANNUAL DUES PAYMENT OF \$10.00 ENCLOSED CHECK MONEY ORDER

Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, pay dues via the Internet with your credit card. Go to www.atco.tv and fill out the "pay ATCO dues" section. Alternately, you can use the ATCO web site www.atco.tv/PayDues.aspx directly. Credit card payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no "PayPal" involvement.

ATCO Newsletter
c/o Art Towslee-WA8RMC
180 Fairdale Ave
Westerville, Ohio 43081

FIRST CLASS MAIL

PUZZLE ANSWER: The letter “m”.

My apology to those of you expecting a more mathematical answer. Hope you have an intellectually challenging 2011!

**REMEMBER...CLUB DUES ARE NEEDED.
CHECK THE RIGHT CORNER OF THE MAILING LABEL
OR
MEMBERS PAGE OF ATCO WEBSITE FOR THE EXPIRATION DATE.
SEND N8NT A CHECK OR USE PAYPAL IF EXPIRED.**
