ATCO NEWSLETTER

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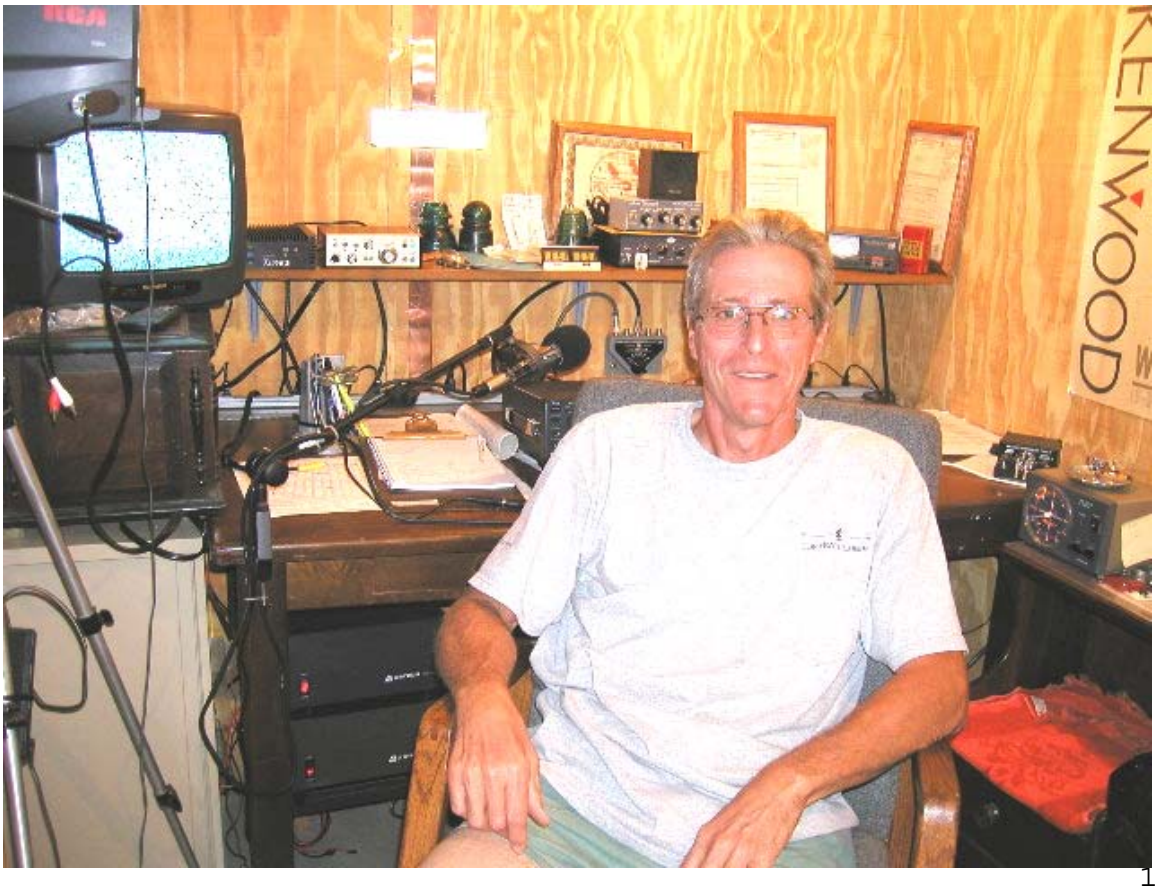
The ATCO newsletter is the official publication of a group of amateur television operators known as AMATEUR TELEVISION IN CENTRAL OHIO Group Inc." and is published quarterly (January, April, July, and October)

ATCO HAM IN THE SPOTLIGHT

This time we visit with Mike, KB8GHW. Mike is going to become the king of DX soon as he has a location that the rest of us only dream of. He lives in the rural part of Pataskala off State route 161 in Licking county where the elevation tops out and goes downhill both east and west of there. Mike can see the buildings in downtown Columbus half way up on his 40 foot tower. Awesome! Apparently commercial guys think it’s a good location too as he has to share company with a couple of 350 foot towers just to the south of him.

Second to Ham radio is his love of horses. He has four very good looking ones with a training barn to match. Good luck on both, Mike. But seriously, the horses are great, but stick with the ATV, that way you can listen and see the horse #$*# instead of shoveling it.
…WA8RMC



ACTIVITIES ... from my "workbench"

It's that time again. Lots of stuff to do, but sadly, not all Ham related. Yes, the house and yard need attention too. I still have rolls of wallpaper waiting to be installed since last spring. But back to the ATV stuff where we share a common interest.

First, I need to say this as it is the reason I have not been active in the DX contacts this year. My antennas are in sad need of repair. I intended to get to them last year but didn't have the time. Now, this year I must move the priority up to "active" status and pull all antennas off the tower for some major repair. The 439 Mhz 48 element colinear is not working at all so I was hoping to convert it to a 96 element colinear and re-install it. The 147 Mhz beam works but has a high SWR so it too needs to be looked at. Finally the tower must be painted this year…a real fun job. If anyone likes to paint, be sure to let me know, as I can quickly priortize that job up to "next-to-do" status!

Repeater work has been sparse except for the 915 Mhz radar link. We have been having reception problems for some time now so I decided to work on it till it was fixed (hopefully before any severe weather approaches). First, I checked to see if the Channel 4 radar signal worked, it does. Next I tried to locate the sources of interference on 915 Mhz. It was so bad in Channel 4's parking lot that a 915 Mhz Wi-Fi signal completely blocked the radar signal even though it is a 10 watt signal and I was only 400 feet from the antenna. Farther down the street the interfering signal changed to something else but still made it almost impossible to receive. I decided that maybe at the repeater site it would be minimal and with a yagi antenna, I could play with directivity and polarization to minimize interference. WRONG! Bill Parker joined me there to conduct the tests armed with a spectrum analyzer. To our surprise we found the strongest interference coming from some other commercial equipment in the same room. A -30 dbM signal was recorded almost right on 915 Mhz. We then gave it up as a lost cause and decided to abandon 915 Mhz reception altogether. Maybe someday when everyone else moves up the band to gain more bandwidth, we can return. Until then, we shall operate the radar link on 1280 Mhz. Too bad, it was a good band.

I retrieved the Channel 4 transmitter, re-worked it for 1280 Mhz output and re-installed it. With the 1280 Mhz output at about 8 watts and about 4 watts at the antenna, P5 pictures are received WITH NO INTERFERENCE! Job complete, on to the next task.

I hate to bring up the ATCO to DARA link again as we've talked about it many times and STILL do not have a working reliable system. However, we are making some progress. As you probably know, it has been deactivated since late last year due to a number of problems too many to describe here. We decided to dismantle it and start fresh. The Dayton guys needed to re-test their portion and establish a good signal with good audio and video. They said they have done that. We would like to re-install some equipment before August for "on the air" testing. I already re-installed my 1250 receiver/1280 transmitter/439 receiver intending to operate it in manual mode as a remote 439 receive only site. Problem – when I did an SWR check of the 1280 Mhz output I found a 30 watt forward reading with 10 watts reflected. The SWR is too high to operate so I left it installed but non-operational for now. It will require a trip up the tower to check out the antenna on a day when I have help. I was alone at the site that day and won't climb a tower without at least one other person present.

The next thing I'd like to discuss doesn't involve hardware. It involves this Newsletter. Costs have been going up and our pizza party, Spring/Fall events and Dayton Hamvention expenses are bringing the treasury down faster than the dues are taking it up. Also, I will not be able to continue free copier and paper use at work indefinately. I am not that far away from retirement so alternative Newsletter plans need to be established before I loose use of the work copier. Therefore, if no one objects, I would like to start Newsletter delivery by Email starting in January 2007. The Newsletter is now and has been available on the web for viewing for some time so I hope it will not be a burden reading it that way instead of hard copy. Some have indicated that they would prefer it that way anyway so let me know what you think. I will discuss it on the Tuesday net and also at our upcoming Fall event. I can still plan to deliver hard copies to those of us without internet capabilities. Let me know who you are and Email me at any time if you have pro or con comments. Note: those with "dialup only" internet capabilities will experience a significant wait for the file to download. The average Newsletter file size is usually between 1 and 2 megs so a 56K dialup system will take about 15 to 20 minutes to download. Is that OK? Comments please!

Well, I've said enough for now but one last thing. We haven't had our antenna party yet this year due to other priorities and I'd like to have one. We always had our party at Ted's place and Flo has indicated that she would be honored if we still had it over there again this year so how about Sunday, August 13? I'll check to see if that date sounds good. If there are no objections, see you there.

There, that's all. See you then if not before,
…WA8RMC

SELF-CONTAINED TV RECEIVER USES 24 TRANSISTORS

the article reproduced below appeared in the September 1958 issue of EDN. For present-day analysis, see "Milestones That Mattered: Reference designs matter, as this TV design illustrates."(www.edn.com/article/CA6335296) It's interesting to look at circuits from the past and compare them to today .I'm sure very few of you were interested in TV circuit design back then but I'm sure you will be impressed with the innovation the T.I. engineers created during the height of the vacuum tube era. I remember building one transistor radios at that time. The transistor cost me over $5.00 and in 1958 that was a lot of lawn mowings. Ed.

Twenty-four transistors and one high-voltage rectifier tube perform all of the functions required to develop a high-definition picture and accompanying sound in a completely self-contained portable television receiver. Power is furnished by a ten-cell nickel-cadmium battery providing 12 volts at 700 ma, average current. The picture tube employed in this receiver is a 9QP4 whose filament has been modified to operate at 12 volts with 150 ma.

Two tuners were developed for this receiver. The more sensitive one uses tetrode transistors in the RF amplifier, mixer and oscillator. Its disadvantages lie in a much higher cost and a 12 to 14 db noise figure. The second tuner uses two 2N623 diffused-base transistors in the mixer and oscillator stages, with no RF amplifier. Noise figure is 9 to 11 db, but overall tuner gain is only 10 to 12 db on channel 13. This compares with an overall tuner gain of 20 to 22 db (channel 13) for the tetrode tuner. Cost is considerably lower for this unit and is said to compare favorably with current vacuum-tube tuners.

There are five grounded-base amplifier stages in the video IF system. All of the tuned circuits, with the exception of the one between the third and fourth stages, are synchronous tuned to 44.5 mc. The remaining circuit is double tuned and overcoupled in order to provide a flat top for the IF response curve. AGC is applied to the first two stages from an AGC system that employs a peak detector and a d-c amplifier. Two IN295 diodes in the emitter circuits of the first two stages serve to maintain input circuit loading constant as AGC voltage drives transistors to cutoff under strong signal conditions. Effectiveness of this control system is seen by the fact that 70 db power range at input results in only a 10 db variation at output of video detector. Overall video IF gain is 75 db. The remaining portion of the video system is straightforward, containing a diode detector and two high-frequency video transistor stages.

Beyond the video system, the sound and sync signals follow their normal paths. Of particular interest are the vertical and horizontal output circuits. In the vertical system, a low-resistance 470-mh choke is shunted across the vertical deflection windings of the yoke in order to minimize the off-centering effect produced by the d-c current in this circuit. In the horizontal system, voltages are developed to drive the picture tube and the video amplifiers during beam retrace. With a 9QP4 picture tube, 6,500 volts proved sufficient to develop a satisfactory level of screen brightness.

This receiver was developed by Roger Webster and Harry Cooke of the Circuit Development branch of Texas Instruments Incorporated, Dallas, Tex. The purpose of this work was to determine the feasibility of designing a transistorized television receiver using Texas Instrument units. There is no intent by this firm to manufacture such receivers.

Circuit diagram of complete receiver

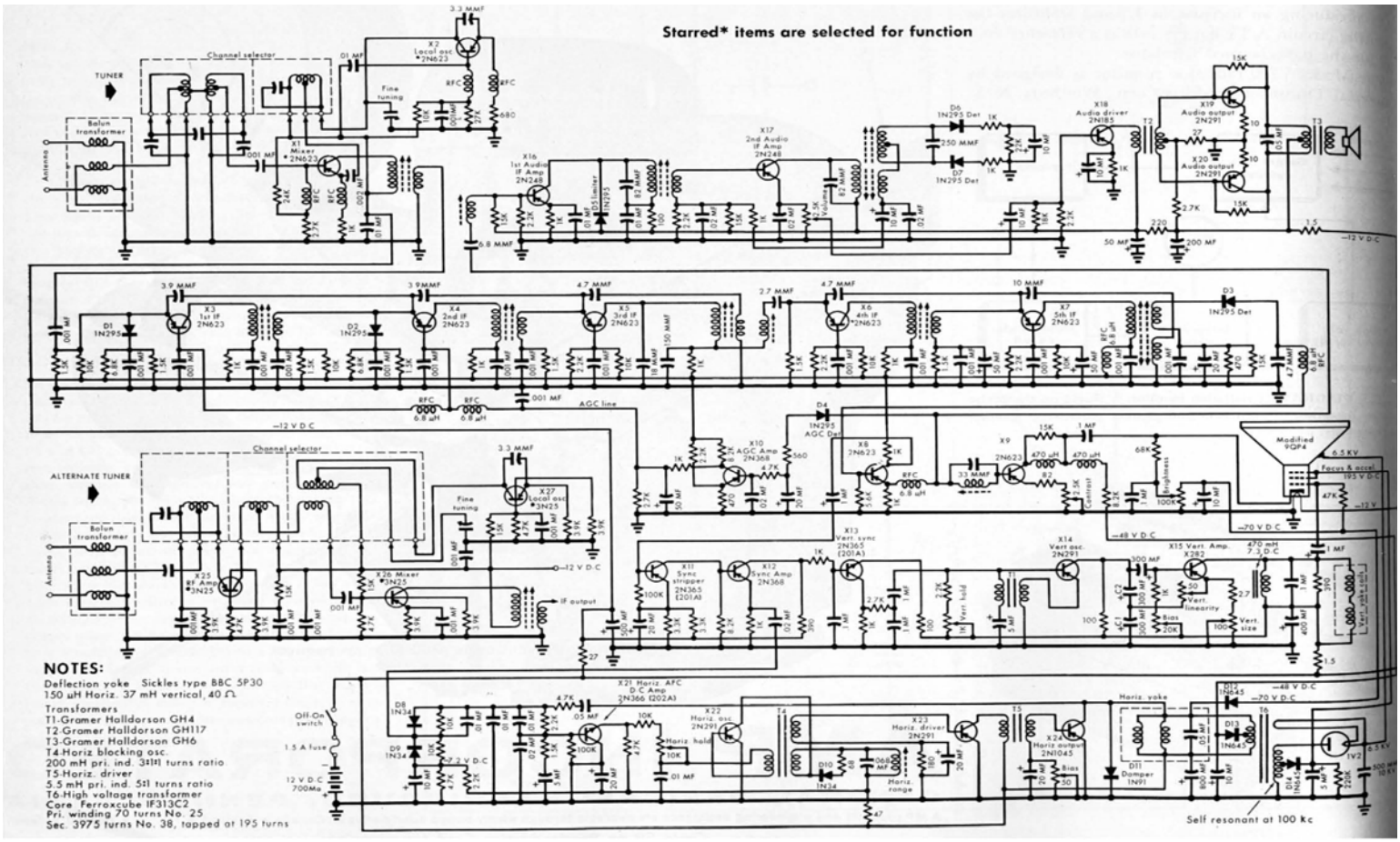
Triode transistor tuner must be operated with low side injection of oscillator frequency on high channels because of cutoff frequency of 2N623 diffused-base transistors. In alternate tetrode tuner, high side injection can be employed on all channels. Oscillator in triode tuner must provide 300 µwatts to mixer; in tetrode tuner, only 40 to 60 µwatts needed. Due to use of triode tuner, video IF response curve made symmetrical. 45.25 mc point is 5 db down from top while 41.25 mc is 20-22 db down. Without traps, adjacent channel sound and video rejection down about same extent as 41.25 mc. Capacitive neutralization is employed on all video IF stages. In first two stages, the 3.9 MMF capacitors are selected for minimum forward transmission of signal at maximum AGC. Remaining neutralizing capacitors are chosen for maximum neutralization. In the last video IF stage, two 50 MF capacitors serve to maintain the operating point of stage at modulation peaks because this stage does not operate strictly class A. Most of the circuit is not critical with respect to transistor replacement.

However, it is probable that replacement of 4th IF transistor would require readjustment of double tuned coupling circuit.

In the video detector, a small d-c bias voltage is applied to the cathode of the IN295 to maintain rectifying linearity at low signal levels. Maximum video signal made available to first video amplifier from detector is 3v P-P. However, maximum voltage fed to 9QP4 cathode if 40v P-P, limited by 48 volt d-c potential of output video amplifier. Maximum voltage gain of video amplifier section is 40 with a 3-mc passband. Contrast is controlled by 2,500-ohm potentiometer in emitter circuit of 2nd video amplifier in accordance with conventional practice.

The sound system is straightforward, with two 4.5-mc IF amplifiers, one of which serves as a reflex audio amplifier, a ratio detector, a 2N185 driver and a push-pull, class-B audio output stage. A series resonant 4.5-mc circuit links the emitter of the first video amplifier with the first sound IF stage. Input impedance of the sound amplifier is 300 ohms and the series resonant circuit enables

this to match the emitter circuit impedance of the video amplifier. D5 serves as an AM limiter by clipping negative segment of signal at collector of 1st sound IF. Tuned circuit then acts to smooth out the positive half of signal to same level.



Editor's note (2006): This schematic originally appeared in the September 1958 issue of *EDN*. The only issues *EDN* possesses from that era reside in large hardbound books. We have done our best to scan the page, and the component values are readable if you zoom in on this PDF. However, you will note some distortion at high magnification, and we ask you to forgive the bending of the image on the right side. If you wish to print this PDF, we suggest using 11x17 paper.

Sync pulse positive signal is applied to X11 from the first video amplifier. 0.7 volt P-P will drive this transistor from cutoff to saturation. X12 then serves as a sync amplifier for vertical pulses and an emitter follower for the horizontal deflection system. For the vertical pulses, the 1,000-ohm resistor and 0.1 MF capacitor between X12 and X13 provide the major portion of integration with additional integration occurring in the emitter of X13.

The vertical deflection system requires only two stages, a blocking oscillator and an alloy junction vertical output amplifier. The sawtooth deflection wave is developed across C1 and C2 in series, and then passed on to X15. C2 is also part of a feedback network from the emitter of X15 to improve the linearity of the deflection waveform. Separate vertical linearity and vertical size controls are available, but being part of the same network, tend to be interdependent in adjustment, together with the bias control. The latter potentiometer sets the operating current for the vertical output amplifier.

In the horizontal system, negative-going sync pulses from X12 are compared with a sawtooth wave developed from voltage pulses obtained from the output circuit of X24. The resulting d-c potential is then passed through a long time-constant filter, (.01 and .02 MF capacitors and 2.2K resistor) and anti-hunt network (1.5K resistor and 5 MF capacitor) to a blocking oscillator through a d-c amplifier. The driving signal fed to X23 is a square wave pulse. However, due to the inductive coupling, the a-c axis of this pulse provides enough forward bias to drive the transistor to saturation during conduction, while the positive-going pulse sharply cuts X23 off during retrace. A similar situation exists in the input circuit of X24, with a variable 50-ohm potentiometer in the base circuit to limit the d-c power consumption of the transistor.

The peak voltage developed across T6 during beam retrace is kept at about 80v by adjusting the self-resonant frequency of the secondary of this high-voltage transformer to approximately 100 kc. Without this adjustment, the voltage peak would rise to 110v and place an extra burden on transistor selection. Peak emitter current in X24 just prior to start of retrace is two amps.

…EDN Magazine May 2006.

CENTRAL PENNSYLVANIA ATV REPORT FOR JUNE, 2006

The Central Pennsylvania ATV Conference was held May 11, 2006 at the Sunnyside Restaurant, Carlisle, Pa. The current status and plans for the future were reviewed in depth. We have obtained 58 Scientific Atlanta 9660 satellite receivers that will offer superior performance when a video inverter is built and tested. W3HMS has parts en route and will build one.

The 3480 MHZ ATV repeater at White Rock has had the 1280 MHZ input reworked. The preamp was replaced with a DB6NT design that has 35 dB of gain, high pass filter at the input, a helical filter after the first stage, 0.7 dB of noise, and is tuned for 1280 MHZ. Ahead of the preamp is a custom designed, built, and tested and donated by Jerry Buckwalter, AA3HB, President of Alpha Components in Mechanicsburg. It is tuned to 1280 MHZ with a steep skirt that has 30 dB of rejection below 1265 MHZ and 50 dB of rejection above 1295 MHZ. We tried to operate without the filter but interference was noted in the picture. We assumed it was coming from Nextel 75 feet away. We tried multiple receivers and the best picture seemed to come from the Holland HR-120 satellite receiver. So that receiver replaced the previous satellite receiver.

We still have a low level of radar interference in the picture. Unfortunately this amateur band is shared with radar users. We plan a transmitter hunt in the future to find the location of the interfering transmitter. Then we could shield the input from that source or design a special filter. Some people say I am too critical and that the need to rid the interference is really a low level priority. John, W3HMS, has often said that placing emphasis on high quality performance does really pay-off in total system performance.

We understand that the York ATV repeater is not transmitting. They are waiting for equipment to improve their system. We tried adding a second receiver tuned to 1255 Mhz on the 1.2 antenna, filter, and preamp. But it didn't work. The filter and preamp tuning just simply precludes it from passing 1255 MHZ. So we have recommended that York transmit on 1280 MHZ and not 1255 MHZ. The plan was to have York on a second input to the controller and leave the 1280 MHZ input with the highest priority on the controller. The 426.25 MHZ input will remain at Dover. This signal will be transmitted on 1280 MHZ using an omni antenna (12.7 dB of gain) to the W3HZU club house and White Rock. At the W3HZU club house the 1280 MHZ signal will be received and then transmitted on 439.25 Mhz.

The second input will remain tuned to 439.25 MHZ with a yagi aimed at the W3HZU club house. That frequency is also shared with packet users and voice repeaters. We are hopeful that a better Yagi will reduce this interference. The third input is tuned to 421.25 MHZ with a Yagi aimed at Cornwall 35 miles away. The wind has rotated that antenna 90 degrees making it unusable. A trip is planned to relocate that antenna with a new mount. The signal quality from Cornwall was very good. No packet or voice repeater interference. When the band is open the Philadelphia ATV repeater can be seen. The only down side is that some antennas must be special tuned to operate at 421.25 MHZ and that a vestigial filter must be used on the transmitter to prevent signals below 420 MHZ (below the ham band) from being transmitted.

The fourth input is connected to a NASA receiver. A new Traxis DBS 2800 rack mount commercial M-Peg 2 receiver has replaced the previous desk top consumer receiver. This receiver does not periodically freeze the picture. The quality is excellent. The Dish Network continues to provide an unscrambled signal. The next shuttle launch is scheduled for July.

The 3420 HZz ATV repeater at WITF is now transmitting NASA. A two ft dish and receiver were installed the last week of May. We are still hopeful that we will be re-transmitting White Rock in the near future. The plan is to add an IF filter centered around 1670 MHZ or lower the receive antenna or raise the 3420 MHZ transmit antenna. An invitation has been extended to Ron and Dave to come to Reading when we are testing the signals from WITF at a distance of 51 miles. We have two offers to locate equipment at Mt Penn in Reading. Mt Penn is line-of-sight to the Philadelphia ATV repeater (42 miles).

The line-of-sight path analysis program http://gbppr.dyndns.org:8080/linesite.main.cgi was used to find a better path south from WB3EAF to the BRATS and CATS ATV repeaters. It turns out that Towson is the only location that Laurel, Md and WB3EAF both have a line-of-sight path. Does anyone know a ham in Towson with a ground elevation of 480 feet or higher? Another thought is to try 1.2 Ghz using FM. Currently Bob has a P3 signal into BRATS. Going to 1.2 Ghz with nominal power and antennas ends up with about the same signal levels but FM has at least a 12 dB S/N advantage. The current signal on 426.25 MHZ has about a 30 dB S/N ratio at best. With FM it should be about 50 dB S/N ratio. It's worth a try.

The new WA3CPO Downeast 30 watt 1.2 Ghz linear runs very hot. Ten amps at 13.8 volts equals 138 watts in. The rf output was measured at 36 watts. That means we have 102 watts of heat. Downeast tells me that the heat sink is rated at 70 watts without a fan. They added a fan but it still runs very hot. The older unit was rated at 20 watts rf output. It had about the same size heat sink. It used 5 amps at 13.8 volts for a total of 69 watts input. The output was measured at 26 watts. That leaves 43 watts of heat. No fan is needed. It runs cool. I think the old linear is a better deal. I am going to reduce my drive to reduce the input amperes. Perhaps I can still get 26 watts out and have the heat sink run cool. I have a special situation where the tower is 160' from my house. The coax loss is 14 dB. I need a linear that requires 50 milliwatts not 500 milliwatts.

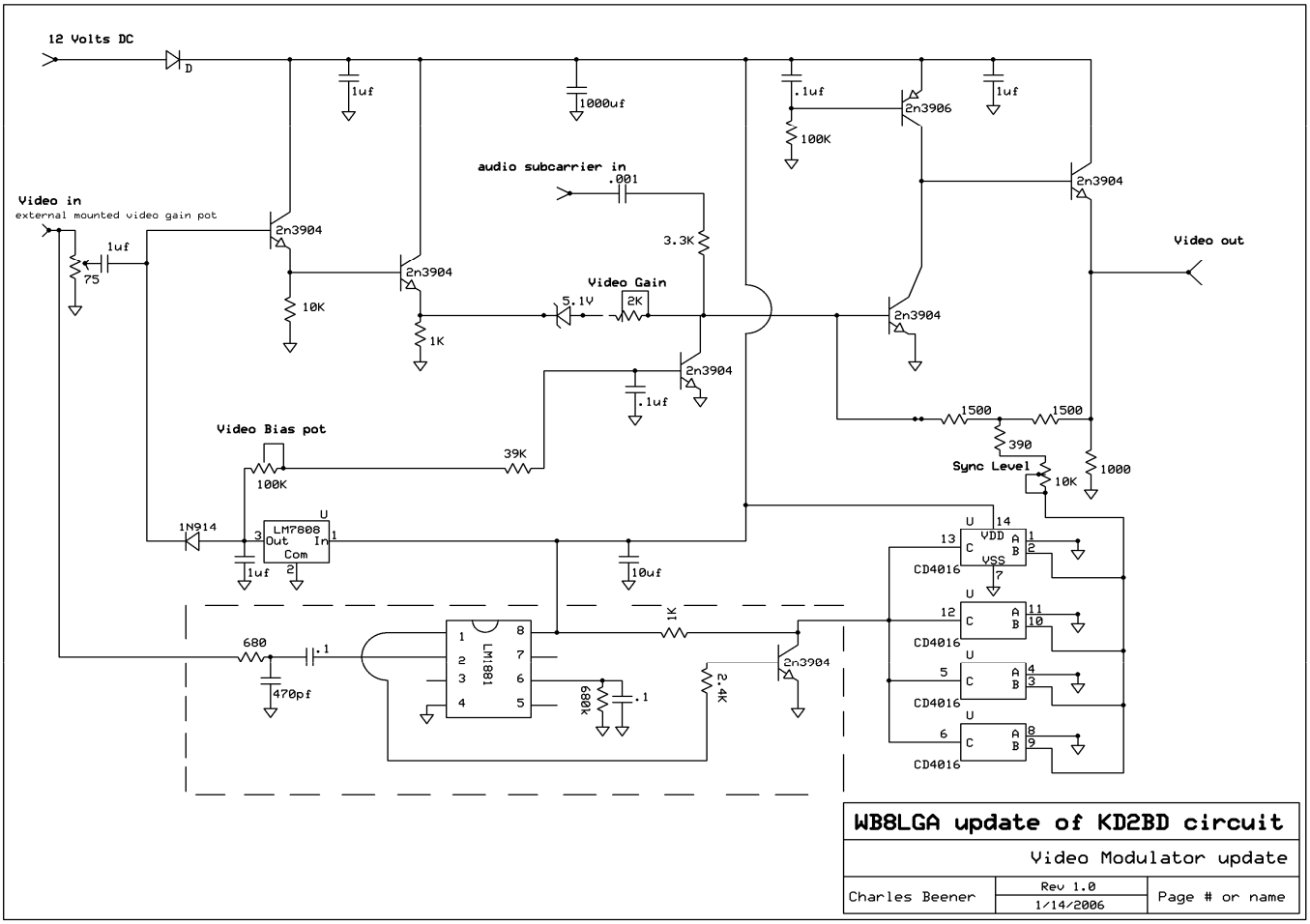
VIDEO MODULATOR UPDATE CORRECTION

Re: page 9 in the April 2006 ATCO Newsletter. Tom O'Hara W6ORG makes the following comment:
Charles, in the title block of your schematic you have, "PC Electronics Video Modulator Update." Please remove our company name from this schematic and in any other text you might have in regard to the circuit shown. My company has no connection to this design and do not want any confusion as to any connection by readers.

As a side note, we do disagree as to the cause of intermod. It is not the modulator that generates the intermod, but the RF stage that is being modulated plus following amplifiers. Our video modulator is quite simple and very linear consisting of a single class A amplifier and emitter follower. The non linearities come in with the gain curve of the RF transistors primarily with what could be called the varicap effect of the dynamic base to collector capacity. As RF devices have gotten better and higher frequency, the base/collector capacity has lowered so the capacity change with drive and bias voltage is correspondingly less.

As to frequency response, in our current designs we have even added a 5 pole 4.5 MHz low pass filter on the video input to cut down the harmonics of digitally generated video ID's and digital cameras which fall above 4.5 MHz. It is not our modulator design that affects the frequency response so much as it is the value of RF bypass and coupling caps used on the modulated RF stage which affects the load impedance the video sees.

Charles, I note that you changed the video input cap from .1 to 1 mF. I think you found that the low frequency rolled off with the .1 and gave some vertical sync droop. Also strange that the curve seems to start flat at zero frequency and obviously there is a coupling cap that would not allow that. At 60 Hz the .1 would be 26.5K reactance looking into a load of about 900K if the beta of the 2N2904's are 100. But the rule of thumb for a square wave (like sync) is to have the lower frequency response 10 times below or 6 MHz. So 265K looking into 900K is going to have an effect. I think the gain curve shown in the original article was run on a simulator rather than the actual circuit, and did not take into account the junction capacity of the 2N3904 transistors which will also give some roll off before 20 MHz. The input resistance of the Darlington configured emitter follower is not going to be as high as one would think. Some years ago when this design came out I did breadboard the first stage out of curiosity and found that the response did not match the graph shown.
…73, Tom O'Hara W6ORG P. C. Electronics www.hamtv.com 626-447-4565 m-th 8am-5:30pm Pacific time



YEAR THREE OF "REBORN HAMVENTION"

The rumors have been silenced for now. The Dayton Hamvention has a future.

It has been a little over three years since we heard all the loose gossip about a Dayton Hamvention which would (1) Move to Columbus; or (2) be involved in a nasty court battle; or (3) move to a summer/fall date away from Hara Arena. None of this happened, of course. But after May 2003, the future looked very depressing.

Gary Des Combes, N8EMO, and Jim Nies, WX8F, took charge and put a halt to the rumor mill beginning with the 2004 show. By cutting back the number of needed paid staff and reenergizing the volunteer staff, Gary (as general chairman with Jim as his assistant) were able to reverse the two financial nightmares which had plagued Hamvention since mid-90's. And with the help of Great Lakes Division Director, Jim Weaver, K8JE, the Dayton staff was also able to thaw out years of cold relations between, the ARRL and the Dayton folks.

Remember The Buses?

Nothing symbolizes Hamvention's fade from its glory days more than the once-famous bus service. Remember when Dayton city buses took riders from Hara Arena to major hotels or major parking areas? For free? Financial reasons forced bus service to go from free to a single bus ticket charge. Then it was a two-tier ticket system. Finally further financial declines forced the buses to disappear altogether.

Bottom line money problems at that time were more numerous than Kim Griffey's days on the DL. But it was all so simple. Since the glory days, Hamvention annual expenses were going up – Hamvention annual revenues were falling. Costs up; revenues down. After years of that, by 2003, the loose gossip was in high gear.

But That's In The Past

Hamvention officials won't go so far as to say those problems are all completely solved. But the rumors are gone and with good reason. Remember after 2003, Hamvention had no contract with Hara Arena for any future show. Now the next three year dates are secure.

A symbol of the new "Reborn Hamvention" has been the ARRL presence. After 2004, Chairman Gary actively requested the ARRL hold its 2005 national convention at Dayton. It had happened before, in 2001, but this time in improved relationship between both organizations led to the creation of ARRL EXPO. After years of looking like a secondary inside exhibit vendor, the League had finally an exhibit, which rivaled the ICOM, YAESU, and KENWOOOD displays.

This One Had Its Snares

Now "Reborn Hamvention" in year three did not come off without major hitches. The most obvious – many pre-show complaints that confirmations of vendor exhibits and flea market spaces took too long. "We had a number of new chairmen this year learning new jobs or in effect 'on the job' training," 2006 General Chairman Jim said without hesitation, "We all have had to learn to immediately get back to any inquiry even if the answer is that we do not have the answer yet."

And now the 2007 goal is to return to the sold out show – defined as all inside exhibit space and flea market spaces completely sold out. If that is accomplished, attendance figures will shoot up as well. Jim said preliminary figures show this year's inside exhibits were up 10% over 2005 but there was a 9% drop in flea market space sales.

Selling out and getting those "new chairmen" problems under control are on Jim's to-do-list. But an even bigger task is to reach out to the new potential audience. E-Bay and ham radio's aging population means simply rethinking why people should go to Hamvention. Jim said his staff is getting over the assumption that, just because it's mid-May, everyone will come to "The Show".

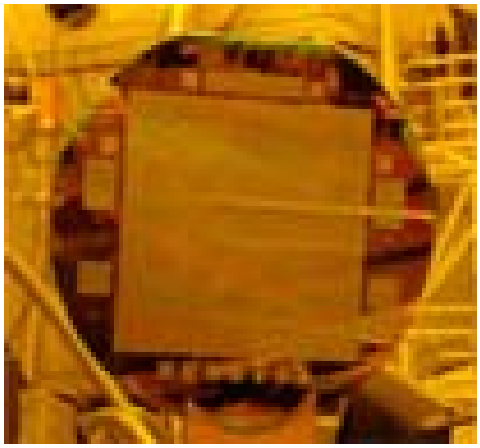
This is where you can help. The Hamvention staff needs creative ideas on reasons the ham community should continue to support Dayton. Send your idea to Jim Nies, WX8F, General Chairman, Box 964, Dayton, Ohio 45401. Or E-mail: chair@hamvention.org.

Dayton By the Numbers

2006 Attendance 20,324
2005 Attendance 20,411
2004 Attendance 19,869
Volunteers 388
Forum speakers. 173

…Joe Phillips, K8QOE OHIO SECTION JOURNAL Vol 21 #2.

RECORD CCD IMAGE SENSOR HAS 111 MILLION PIXELS



How about this, guys. I'll bet that if you could get a hold of one of these babies, you'd be able to create a super resolution ATV camera. Seriously, it's a far cry from the 1/3" square CCD sensors in our ATV cameras. See what our taxpayer dollars are going for?

Dalsa Semiconductor has fabricated an image sensor with more than 111 million pixels. The company claims the 4 x 4-inch charge-coupled device, configured as 10,560 x 10,560 pixels, is the world's highest-resolution image sensor and the first to break the 100 million-pixel barrier.

Dalsa, a division of Dalsa Corp. (Waterloo, Ontario), said it has delivered the chip to Semiconductor Technology Associates (STA; San Juan Capistrano, Calif.). STA developed the chip for the Astrometry Department of the U.S. Naval Observatory with funding from the Navy's Small Business Innovation Research program. Dalsa manufactured the device for STA at its wafer fabrication facility in Bromont, Quebec.

ARRL ASKS FCC TO PROTECT 902-928 MHZ OPERATIONS

The ARRL has asked the FCC to avoid making any changes within the 902-928 MHz allocation -— including further deployment of unlicensed Part 15 devices —- that might increase the noise floor or otherwise adversely affect Amateur Radio operations there. The League filed comments recently in a Notice of Proposed Rule Making (NPRM) in WT Docket 06-49, which seeks input on encouraging the little-used Multilateration Location Monitoring Service (M-LMS) -- a terrestrial service for location of objects and tracking -- while continuing to accommodate licensed and unlicensed uses of the 902-928 MHz band. Amateur Radio is secondary in the band to federal radiolocation systems, industrial, scientific and medical devices, federal fixed and mobile systems and the M-LMS.

"This 'kitchen sink' of allocations is acceptable from ARRL's perspective, provided that the noise floor is regulated, in terms of aggregate noise levels from unlicensed devices," the ARRL said in its comments, filed May 30. "The high power levels permitted in this band in particular bear careful watching, lest the allocated radio services, including federal systems, suffer decreased utility of the band."

Given that only two M-LMS licensees operate these systems that exist only in six major US cities and in parts of Florida, the League asked whether present FCC rules are the obstacle to M-LMS or whether it's been overtaken by time and GPS technology.

The League urged the FCC to examine the 902-928 MHz band in its entirety. "Specifically, the needs of the Amateur Service in this proceeding are increased protection of weak-signal operations in the 902-903 MHz segment," the ARRL noted, specifying the 902.0-902.2 MHz and 903.0-903.2 "weak-signal" segments.

"The Amateur Service also requires the continued use of the 903.2-928 MHz band for amateur voice, television and digital communications, coexisting with other licensed and unlicensed users of this spectrum," the League concluded.

In its comments, the ARRL pointed out that the NPRM does not propose to adopt, modify or delete any rules but only seeks information "looking toward modifications in the licensing and use" of the 902-928 MHz band. The League described the band as "a patchwork of overlays" and one that has "orphan allocation status" in ITU Region 2, precluding amateur use of the band for communication outside the region.
…The ARRL Letter Vol. 25, No. 25 June 23, 2006

STEALTH RADAR SEES THROUGH TREES, WALLS -- UNDETECTED

OK, it's not ATV related but it DOES originate form our city so I thought you would like to know that research DOES exist at OSU in addition to the normal education duties. ED.

COLUMBUS, Ohio -- Ohio State University engineers have invented a radar system that is virtually undetectable, because its signal resembles random noise. The radar could have applications in law enforcement, the military, and disaster rescue.

Eric K. Walton, senior research scientist in Ohio State's ElectroScience Laboratory, said that with further development the technology could even be used for medical imaging. He explained why using random noise makes the radar system invisible.

Eric Walton

"Almost all radio receivers in the world are designed to eliminate random noise, so that they can clearly receive the signal they're looking for," Walton said. "Radio receivers could search for this radar signal and they wouldn't find it. It also won't interfere with TV, radio, or other communication signals."

The radar scatters a very low-intensity signal across a wide range of frequencies, so a TV or radio tuned to any one frequency would interpret the radar signal as a very weak form of static.

"It doesn't interfere because it has a bandwidth that is thousands of times broader than the signals it might otherwise interfere with," Walton said.

Like traditional radar, the "noise" radar detects objects by bouncing a radio signal off them and detecting the rebound. The hardware isn't expensive, either; altogether, the components cost less than $100.

The radar can be tuned to penetrate solid walls -- just like the waves that transmit radio and TV signals -- so the military could spot enemy soldiers inside a building without the radar signal being detected, Walton said. Traffic police could measure vehicle speed without setting off drivers' radar detectors.

The difference is that the noise radar generates a signal that resembles random noise, and a computer calculates very small differences in the return signal. The calculations happen billions of times every second, and the pattern of the signal changes constantly. A receiver couldn't detect the signal unless it knew exactly what random pattern to look for.

The radar can be tuned to penetrate solid walls -- just like the waves that transmit radio and TV signals -- so the military could spot enemy soldiers inside a building without the radar signal being detected, Walton said. Traffic police could measure vehicle speed without setting off drivers' radar detectors. Autonomous vehicles could tell whether a bush conceals a more dangerous obstacle, like a tree stump or a gully.

The radar is inherently able to distinguish between many types of targets because of its ultra-wide-band characteristics. "Unfortunately, there are thousands of everyday objects that look like humans on radar -- even chairs and filing cabinets," he said. So the shape of a radar image alone can't be used to identify a human. "What tends to give a human away is that he moves. He breathes, his heart beats, his body makes unintended motions."

These tiny motions could be used to locate disaster survivors who were pinned under rubble. Other radar systems can't do that, because they are too far-sighted -- they can't see people who are buried only a few yards away. Walton said that the noise radar is inherently able to see objects that are nearby.

"It can see things that are only a couple of inches away with as much clarity as it can see things on the surface of Mars," he added.

That means that with further development, the radar might image tumors, blood clots, and foreign objects in the body. It could even measure bone density. As with all forms of medical imaging, studies would first have to determine the radar's effect on the body.

The university is expected to license the patented radar system.

…source unknown

BILL STUDIES RF PROBES

Bill, W8DMR, shares the following with us. He writes as follows…

Hi Art,
A little background, subject related:
Most RF probes used for detecting low level RF employ a diode to rectify the alternating RF voltage. Usually the level of the RF is so low that a germanium diode is chosen over a silicon diode (Ge vs Si).

A probe is essentially a 1/2 wave rectifier circuit. Some probes use a circuit named a voltage-doubler. The probe essentially stores the peak value of the RF voltage level. A small value & low inductance, ceramic capacitor is used to store (hold) the peak value. Hence the probes are often referred to as "peak detectors".

The more sensitive the probe, the lower the level of RF voltage that can be measured. The probe should also not significantly load the circuit being measured or adjusted. Else when the probe is removed, the circuit isn't actually optimized, or tuned, or properly peaked (or nulled).

The probe should be shielded so as not to permit nearby unwanted RF to cause a false measurement. The probe is actually a device to sample the RF voltage and hopefully not modify or alter it.

The rectified RF (usually a millivolt dc potential) can later be amplified and displayed as a level on the face of a d-c oscilloscope. The probe's output may also be connected to a microamp meter and the level of RF signal is nearly proportional to the amplitude of the reading on the microamp meter.

The average VOM multimeter, although capable of reading 60 hertz AC voltage levels, does not or can not properly respond to the much higher radio frequencies (RF). The average probe easily detects RF frequencies as high as hundreds of megahertz, and at levels as low as about 0.3 volts.

Hence the need or requirement to use a RF probe or a "detector" probe.

If the RF signal being measured contains amplitude modulation, the waveshape of the modulation (audio/video/etc) can be observed when the output of the probe is connected to the input of an oscilloscope.

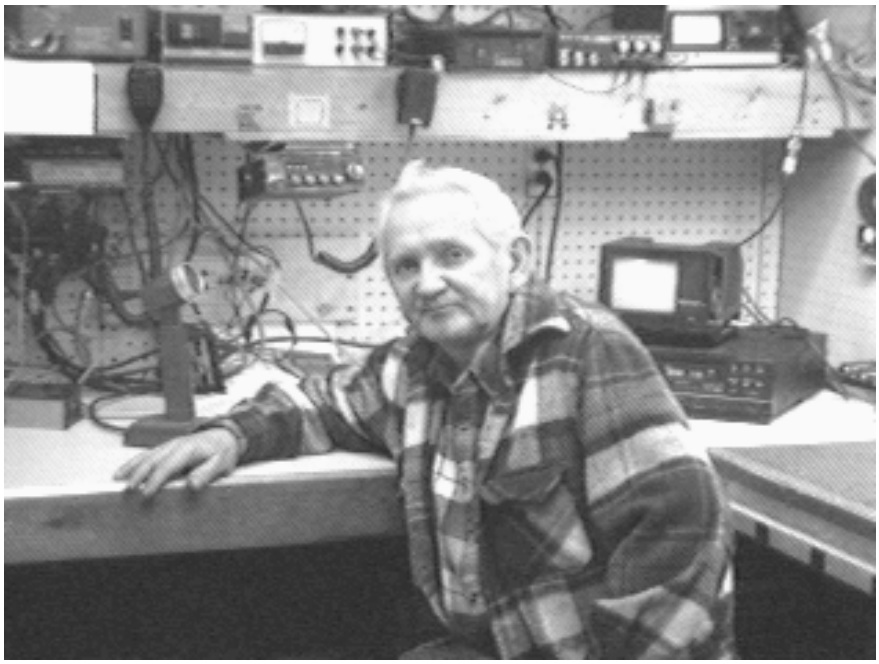
The RF probe is a handy, low cost tool which greatly extends the use of both multimeters and o'scopes. I use probes, both home brew and commercial to perform necessary tests & measurements.

In addition to RF probe, there are other types of probes. One is called a low-capacity probe, often referred to as a "high" impedance probe. But that's another story, hi.

Physically, a good probe is light of weight & small in diameter, and permits access to highly populated circuit board components. In addition, the probe should employ a flexible, well shielded, coaxial interconnecting cable. Color really doesn't matter much, hi. Each probe should contain a connector(s) to accommodate a multimeter and/or an oscilloscope to facilitate quick & easy device change.

When investigating a malfunctioning electronic circuit board, 'probe' to help locate the difficulty. Hi.
…Bill Parker, W8DMR

TED, N8KQN, A great guy… S.K.



Ted was born in Columbus, Ohio on September 4, 1935 and on February 21, 1953 at the age of 17 he married Flo. They have two children, Ted Jr. and Tammy, 3 grand children and 4 great grand children. They also lived in California and for short time and in Florida but finally settled in Columbus, Ohio. I met Ted through CB radio in the early 60's when he lived on Welsh Ave in the south end. During that time I was riding around on a bicycle with a walkie-talkie talking to him. As the years passed I lost contact with him until the mid 70's. At that time he had a body shop in the south end and was living on Hinman Ave. He moved to the west side in the early 80"s. Prior to that he worked for the railroad and had a Marathon gas station on South High Street. He was also a locksmith. Ted liked animals; one of his pets was a Moscobi. duck he called "Ducker". Ted had many hobbies; CB, Amateur Radio, ATV, going to ham fests, racing, Drag (Bisquick) round track, Columbus Motor Speedway (car #15) Motorcycles, He used to go on poker runs. He once played Guitar with Chet Adkins in Nashville at a convention there. .He has restored several automobiles, a red 1947 Plymouth used in the movie "Mischief" and his latest, a 1983 EL Camino. He loved to mow grass and "tinker" in his Ham Shack. He built many antennas. Going to breakfast at various places with the ATCO group and The Breakfast Barn most every morning. He used to say "it don't rain here", at the ham shack. He also hosted several "Antenna" parties and was seen at all of the ATCO pizza parties. He passed away May 23 2006 and is buried at the cemetery in Obetz; close enough to hear the cars racing at the Columbus Motor Speedway where he went almost every Saturday night. He will be missed by the many friends and neighbors.
…N8OCQ

Ted Post 2000

AGAIN, RED-WHITE-BOOM HAS ATV HELP

Once again, we have been a great help to the RED-WHITE-BOOM fireworks festivities in downtown Columbus. As most of you know we observe the fireworks crowd for the Columbus police by providing rooftop observation posts on the Columbus Gas Co. roof and the Columbus Police headquarters eighth floor balcony to send live video to the police Emergency Operation Center video monitors. Bob, W8RWR, and I set up on the Columbia Gas Co building roof and sent video via 2.4 Ghz to the Columbus police balcony where Tom, KA8ZNY, and BOB, N8NT and his son Dave received it, added their own video and relayed it via coax to the EOC below. There were 8 cameras in all to provide the surveillance needed. Fortunately, there were no incidents to observe as the activities went off without a hitch.

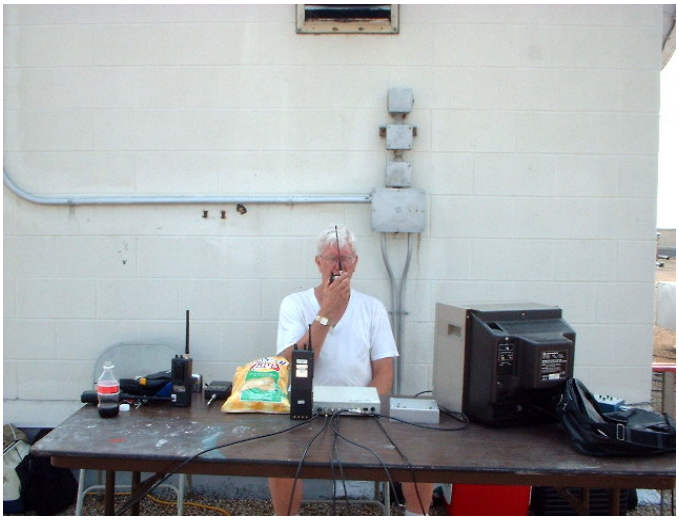
It always seems hard to recruit volunteers for this activity because so many of us have personal activities with the family on this special Memorial Day weekend. However, it is a great cause and it makes me feel good to know that we helped in a public service kind of way. I wish that those of you that were unable to participate this year would consider reserving time to help in the future. We can never have too many volunteers as the equipment transportation tasks are much easier with more hands. Besides, it's a SUPER place to watch the fireworks and stay out of the crowd.

The pictures below show a portion of the activities viewed from the Columbia Gas building roof.

Here's a view of the crowd below with the police building in the background. (It's the one with the green roof).

Here's a view of a parking garage roof just to our east. They were trying to launch a hot air balloon which never got off the ground because of excessive winds.

Here's a shot of Bob, W8RWR, at the controls. The two antennas receiving the police helicopter video are to the left.



OK, here I am shouting comments to KA8ZNY who is on the police building. It's not my best pose but …oh well. At least I had my bag of chips and supply of pop. **Now, if only those dancing girls would show up as promised.**

HP UNVEILS REVOLUTIONARY WIRELESS CHIP

Hey, here's something not ATV related but interesting never-the-less. See…engineering tasks are not dead! There's plenty of stuff out there to invent. Ed.

PALO ALTO, Calif., Jul 17, 2006

HP today announced that its researchers have developed a miniature wireless data chip that could provide broad access to digital content in the physical world.

With no equal in terms of its combination of size, memory capacity and data access speed, the tiny chip could be stuck on or embedded in almost any object and make available information and content now found mostly on electronic devices or Internet.

Some of the potential applications include storing medical records on a hospital patient's wristband; providing audio-visual supplements to postcards and photos; helping fight counterfeiting in the pharmaceutical industry; adding security to identity cards and passports; and supplying additional information for printed documents.

The experimental chip, developed by the "Memory Spot" research team at HP Labs, is a memory device based on CMOS (a widely used, low-power integrated circuit design) and about the size of a grain of rice or smaller (2 mm to 4 mm square), with a built-in antenna. The chips could be embedded in a sheet of paper or stuck to any surface, and could eventually be available in a booklet as self-adhesive dots.

"The Memory Spot chip frees digital content from the electronic world of the PC and the Internet and arranges it all around us in our physical world," said Ed McDonnell, Memory Spot project manager, HP Labs.

The chip has a 10 megabits-per-second data transfer rate – 10 times faster than Bluetooth™ wireless technology and comparable to Wi-Fi speeds – effectively giving users instant retrieval of information in audio, video, photo or document form. With a storage capacity ranging from 256 kilobits to 4 megabits in working prototypes, it could store a very short video clip, several images or dozens of pages of text. Future versions could have larger capacities.

Information can be accessed by a read-write device that could be incorporated into a cell phone, PDA, camera, printer or other implement. To access information, the read-write device is positioned closely over the chip, which is then powered so that the stored data is transferred instantly to the display of the phone, camera or PDA or printed out by the printer. Users could also add information to the chip using the various devices.

"We are actively exploring a range of exciting new applications for Memory Spot chips and believe the technology could have a significant impact on our consumer businesses, from printing to imaging, as well as providing solutions in a number of vertical markets," said Howard Taub, HP vice president and associate director, HP Labs.

The chip incorporates a built-in antenna and is completely self-contained, with no need for a battery or external electronics. It receives power through inductive coupling from a special read-write device, which can then extract content from the memory on the chip. Inductive coupling is the transfer of energy from one circuit component to another through a shared electromagnetic field. A change in current flow through one device induces current flow in the other device.

Memory Spot chips have numerous possible consumer and business-based applications.
Some examples are:

- Medical records: Embed a Memory Spot chip into a hospital patient's wrist band and full medical and drug records can be kept securely available.
- Audio photo: Attach a chip to the prints of photographs and add music, commentary or ambient sound to enhance the enjoyment of viewing photos.
- Digital postcards: Send a traditional holiday postcard to family and friends with a chip containing digital pictures of a vacation, plus sounds and even video clips.
- Document notes: A Memory Spot chip attached to a paper document can include a history of all the corrections and additions made to the text, as well as voice notes and graphical images.
- Perfect photocopies: A Memory Spot chip attached to a cover sheet eliminates the need to copy the original document. Just read the perfect digital version into the photocopier and the result will be sharp output every time, no matter how many copies are needed, and avoiding any possibility of the originals jamming in the feeder.
- Security passes: Add a chip to an identity card or security pass for the best of both worlds --- a handy card with secure, relevant digital information included.
- Anti-counterfeit tags: Counterfeit drugs are a significant problem globally. Memory Spot chips can contain secure information about the manufacture and quality of pharmaceuticals. When added to a drug container, this can prove their authenticity. A similar process could be used to verify high-value engineering and aviation components.

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.

WB8CXO Mike Young, Munroe Falls, Ohio
W8DMR Bill Parker, Columbus, Ohio
N8CXI Garry Cotter, Columbus, Ohio

…WA8RMC

COLUMBUS HAMFEST IS COMING!

Columbus Hamfest

Saturday August 5, 2006

8am to 1pm

Mark your calendars and plan to attend the
16th Annual Ham-OH-Rama at the air-conditioned

Aladdin Shrine Center
3850 Stelzer Rd.
Columbus, Ohio

Talk in on the 147.24 repeater

For more information contact W8FEZ @ yahoo.com or go to

www.aladdinshrine.org/hamfest.htm

LOCAL HAM CLUB LISTING

Club/Organization	Web Site	In Person Meetings See the Club's Web Site for Location	Nets	ARRL Affliated ?
ARC OF OHIO STATE UNIVERSITY	http://arc.org.ohio-state.edu/	2nd Mon of the month at 18:00		Y
ATCO-AMATEUR TELEVISION IN CENTRAL OHIO	http://www.atco.tv/homepage/index.htm		Tue's at 21:00 on 147.450	
BUCKEYE BELLES-OHIO LADIES AMATEUR RADIO CLUB	http://geocities.com/kc4iyd		Mon's at 09:00 on 3.945 Mon's at 21:00 on 147.060 Tue's at 20:00 on 3.972 Tue's at 20:30 on 7.236	
CCRA-CAPITAL CITY REPEATER ASSN	http://www.qsl.net/ccra/	2nd Sat of the month at 19:30	Mon's at 20:30, the Swap'n'shop Net on 147.24; followed by a Discussion Net	
CENTRAL OHIO SLOW SCAN TV	http://www.qsl.net/n8tut/sstv/		1st Sun at 19:00 on 145.490	
COARES-CENTRAL OHIO ARES	http://www.coares.org/	3rd Wed of the month at 20:00	Wed's at 20:00 on 147.060 except the 3rd Wed of the month.	Y
COLUMBUS FOX HUNTERS	http://www.qsl.net/cfh/			
COOKEN-CENTRAL OHIO OPERATORS KLUB EXTRA TO NOVICE	http://www.cooken.org/	2nd Sat of the month at 12:00	Wed's at 20:30. See web site for details on fregs.	Y
CORC-CENTRAL OHIO RADIO CLUB	http://www.corc.us/	Check web site		
COSHOCTON COUNTY AMATEUR RADIO ASSOC.	http://www.w8cca.org/	1st Tue of the month at 19:00	Sun's at 21:00 on 147.045	
COSWN-CENTRAL OH SEVERE WEATHER NET	http://www.severe-weather.org/		Tue's at 19:30 on 146.76 PL of 123.0hz Spring & Summer; 3rd Tue's Fall & Winter	Y
COTN-CENTRAL OHIO TRAFFIC NET	http://www.technology-corner.com/cotn/		Daily at 19:15 on 147.240	
CQRP-COLUMBUS QRP CLUB	http://www.qsl.net/cqrp/	1st Sat of the month at 10:30		
CRES-ARC	http://www.qsl.net/w8zpf	Check web site	Sun's at 21:00 on 146.070	Y
DELARA-DELAWARE AMATEUR RADIO ASSOCIATION	http://www.k8es.org/Home.html	3rd Wed of the month at 19:30	Mon's at 20:00 on 145.17	Y
LANCASTER & FAIRFIELD CTY ARC	http://www.k8qik.org/	1st Thu of the month at 19:30	Mon's at 21:00 on 147.030 Thu's at 18:30 on 147.030 is Radio Night.	Y
LICKING COUNTY ARES	http://www.licking-ares.org/		1st & 3rd Wed of the month at 21:00 on 146.88	
MOUNT VERNON ARC	http://mvarc.net/	2nd Mon of the month at 19:00		Y
NARA-NEWARK AMATEUR RADIO ASSOCIATION	http://nara.eqth.org/	2nd Sat of the month at 19:00	Tue's at 21:00 on 146.88	Y
OHIO NAVY-MARINE CORPS MARS	http://www.ohionavymars.org/			N/A
QCWA MID-OHIO CHAPTER	http://www.qcwa.org/qcwa212/	Check web site	Thu's at 20:30 on 146.76	
RUSTY ZIPPER HF & DX CONTEST CLUB	http://www.qsl.net/na8kd/			
SOUTH WEST COLUMBUS HAM RADIO CLUB	http://swchrc.com/		Fri's at 21:00 on 145.230 or 53.550	Y
VOICE OF ALADDIN ARC	http://www.qsl.net/w8fez/			Y
ZARC-ZANESVILLE AMATEUR RADIO CLUB	http://zarc.eqth.org/	1st Tue of the month at 19:00	Wed's at 21:00 on 146.610	Y

INTERNET ATV HOME PAGES (list verified 04/15/06)

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. Most addresses listed below are case sensitive, so type exactly as shown.

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://www.qsl.net/atn	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
http://www.kcatv.org	Kansas, Kansas City Amateur TV Group (KCATVG)
www.bratsatv.org.	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=10991	Michigan, Detroit Amateur Television System (DATS)
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
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm	Oregon, Southern Oregon ATV
http://www.nettekservices.com/ATV/	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat	Pennsylvania, Phila. Area ATV
http://www.hats.stevens.com	Texas, Houston ATV (HATS)
http://www.hotarc.org/atv.html	Texas, WACO Amateur TV Society (WATS)
http://www.ussc.com/~uarc/utah_atv/utah_atv.html	Utah ATV
http://www.qsl.net/w7twu	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://lea.hamradio.si/~s51kq/	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.org.uk/index.htm	British ATV club (BATC)
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
http://oh3tr.ele.tut.fi/english/atvindex.html	Finland ATV, OH3TR repeater.
http://www.darc.de/distrikte/g/T_ATV/atv.htm	German ATV

TUESDAY NITE NET ON 147.45 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 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)
Transmitters: 427.25 MHz AM modulation, 1250 MHz FM modulation, 1260 MHz QPSK digital, 2433 MHz FM modulation and 10.350 GHz FM modulation

Interdigital filters in output line of 427.25, 1250 & 2433 transmitters
Output Power - 427.25 MHz :40 watts average 80 watts sync tip
1250 MHz: 50 watts continuous (Analog ATV)
1260 MHz 2 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, 1250, 1260, 2433, 10.35 GHz xmitters video identify every 30 min. with ATCO & WR8ATV on 4 different screens
1260 MHz - 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
1250 MHz - Diamond vertically polarized 12 dBd gain omni (Analog ATV)
1260 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: 147.45 MHz - F1 audio input control of touch tones
439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
1280 MHz - F5 video input or DTV-S digital (digital input fed direct to 1260 MHz digital output channel 2)
2398 MHz - F5 video input
10.350 GHz - F5 video input (future – not installed yet)

Receive antennas: 147.45 MHz - Vert. polar. Hi Gain 12 dBd dual band (also used for 446.350 MHz output)
439.25 MHz - Horiz. polar. dual slot 7 dBd gain major lobe west
915 MHz - Diamond vertically polarized 12 dBd gain omni (spare ant – not in use at this time)
1280 MHz - Diamond vertically polarized 13 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:

Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
00*	turn transmitters **on** (enter manual mode-keeps xmitters on till 00# sequence is pressed)
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 Ch. 1	Select 439.25 receiver - manual mode (hit 00* then 1 to view 439.25 signal only)
00* then 2 Ch. 2	Unused at this time
00* then 3 Ch. 3	Select 1280 receiver - manual mode
00* then 4 Ch. 4	Select 2411 receiver - manual mode
00* then 5 Ch. 5	Select video ID - manual mode (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 2 915 MHz scan enable
03* or 03#	Channel 3 1280 MHz scan enable
04* or 04#	Channel 4 2398 MHz & camera video 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#	1280 analog/ digital select. Hit C1* for digital. Hit C1# for analog.
C2* or C2#	2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)

Auto scan mode functions:

001	2398 receiver (normal mode - returns to auto scan)
002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
003	Equipment. room camera (select 001 when finished so repeater will shut down**)**

ATCO MEMBERS AS OF JULY 20, 2006

Call	Name	Address	City	St	Zip	Phone	URL
KD8ACU	Robert Vieth	3180 North Star Rd	Upper Arlington	OH	43221	614-457-9511	rfvieth@yahoo.com
K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	OH	43068	614-866-1399	wilburapilot@yahoo.com
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	OH	43026	614-876-6135	kc8asd2@netzero.com
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224	614-268-4873	
W6CDR	Wynn Rollert	1141 Pursell Ave	Dayton	OH	45420	937-256-1772	w6cdr@hotmail.com
WB8CJW	Dale & Sharon Elshoff	8904 Winoak Pl	Powell	OH	43065	614-210-0551	delshoff@columbus.rr.com
N8CXI	Garry Cotter	2367 Northglen Drive	Columbus	OH	43224		
WB8CXO	Mike Young	289 Gaylord Drive	Munroe Falls	OH	44682		
N3DC	William Thompson	6327 Kilmer St	Cheverly	MD	20785		
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198	jabusic@yahoo.com
W8DMR	Bill Parker	2738 Florbunda Dr	Columbus	OH	43209		
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WA3DTO	Rick White	2771Keystone Dr.	Painsville	Oh	44077-8830		wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-876-6033	wb8dzw@aol.com
KC8EVR	Lester Broadie	108 N Burgess	Columbus	OH	43204		
KB8FLY	Rod Shaner	124 West Walnut St.	Lancaster	OH	43130-4344	740-654-5694	rshaner@copper.net
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147		w8fz@arrl.net
KB8GHW	Mike Amirault	11354 Reussner Dr SW	Pataskala	OH	43062	740-927-5005	kb8ghw@ee.net
W8GUC	Reuben Meeks	1345 Helke Rd	Vandalia	OH	45377	937-454-0968	rcmeeks2@hughes.net
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026	614-777-4621	famore@wowway.com
WG8I	Chris Vojsak Sr,	3536 W Henderson Rd	Columbus	OH	43220-2232		
N8IJ	Dick Knowles	1915 Tamarack Circle S.	Columbus	OH	43229		rgk_w8jnp@hotmail.com
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207	614-771-7259	k8kdr@arrl.net
W8KHW	Kevin Walsh	2396 Anson St	Columbus	OH	43220		
K4KLT, KD4ODQ	Bob & JoAnnSchmauss	P.O. Box 1547	Land O' Lakes	FL	34639-1547	813-996-2744	schmauss@att.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	OH	43223	614-276-1820	n8kqn@copper.net
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	OH	45331	513-548-2492	walkingcross@mail.bright.net
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	PA	17603-9563		n3kyr@comcast.net
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	OH	43123	614-871-0751	phumphries@columbus.rr.com
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334		cbeener@columbus.rr.com
WB2LTS	Manny Diaz	74 Lincoln Rd	Medford	NY	11763		wb2lts@optonline.net
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		ka8mid@qsl.net
WB8MMR	Mike Knies	1715 Winding Hollow Dr.	Columbus	OH	43223	614-875-4236	
K4NQV	Dean Maggard	1612 Benson Ave	Bowling Green	KY	42104		k4nqv@insightbb.com
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127	n8nt@atco.tv
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068	740-964-6881	firefoxtom11@netzero.com
WU8O	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064	614-733-0722	twalter@emec.us
N8OCQ	Bob Hodge Sr.	3750 Dort Place	Columbus	OH	43227-2022		hodgerob@yahoo.com
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410		kb8off@sbcglobal.net
N8OPB	Chris Huhn	1667 Pickering Court	Reynoldsburg	OH	43068		cjhuhn@hotmail.com
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565	tom6ORG@hamtv.com
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	OH	43228	614-274-7261	kilowatt@biundo.org
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	OH	43154	740-474-3884	rgburggraf@juno.com
WB8PJZ	Dave Morris	12025 Wapak-Buckland Rd	Wapakoneta	OH	45895		
AE6QU	Ron Phillips	10858 W. Kaibab Dr.	Sun City	AZ	85373	602-369-4242	AE6QU@arrl.net
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	OH	43081	614-891-9273	towslee1@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	OH	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	OH	43081	614-882-6527	
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	OH	43224	614-261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@glasscity.net
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	OH	43617		zehrw@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	OH	43119	614-878-0575	kb8rvi@hotmail.com
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904	614-276-1689	w8rwr@sbcglobal.net
W8RXX,KA8IWB	John & Laura Perone	3477 Africa Road	Galena	OH	43021	740-548-7707	
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	OH	43119		
W8SJV, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015	740-369-5856	w8sjv@nexgenaccess.com
N8SNG	Terry Rankin	414 Walnut Street	Findlay	OH	45840		
KB8SSH	Mike Cotts	3424 Homecroft Dr	Columbus	OH	43224	614-268-8497	mcotts@wideopenwest.com
W3SST	John Shaffer	1635 Haft Dr.	Reynoldsburg	OH	43068	614-751-0029	w3sst@juno.com
K8TPY, K8FRB	Jeff & Dianna Patton	3886 Agler Road	Columbus	OH	43219		cqcqk8tpy@yahoo.com
NR8TV	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123	937-981-4007	s.crew@dragonbbs.com
KC8UQS	David Dominy	7017 Taway Road	Radnor	OH	43066		
KB8UGH	Steve Caruso	6463 Blacks Rd. SW	Pataskala	OH	43062-7756		
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	OH	43338	419-947-1121	
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	OH	43162	614-879-7482	
KB8UWI	Milton McFarland	115 N. Walnut St.	New Castle	PA	16101		kb8uwi@yahoo.com
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328	wa8uzp@qsl.net
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062	740-927-3883	hiramhunter@aol.com
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123		ohiomec@aol.com

Call	Name	Address	City	St	Zip	Phone	URL
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011		sdiggs4590@aol.com
N8XYJ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230		danohio@wowway.com
N5XZS	Tim Johnson	1629 Speakman Dr SE	Albuquerque	NM	87123		
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	OH	43223	614-272-8266	mmgriggs@aol.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064		
KC8YPD	Joe Ebright	3497 Ontario St	Columbus	OH	43224		
N8YHY	Chris Scott	1145Rural Ave SE#5	Salem	OH	97302		
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	OH	43229	614-882-0771	
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125	614-202-9042	ttaft@columbus.rr.net

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.

The membership period is from January 1ST to December 31ST. New Members 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. As an option for those joining after mid July, they can elect to receive a complementary October issue with the membership commencing the following year Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT
Secretary: Frank Amore WA8HFK
Corporate trustees: Same as officers

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: Frank Amore WA8HFK
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/paydues** and fill out the form. 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 TREASURER'S REPORT - de N8NT

OPENING BALANCE (04/15/06)..... $ 1769.72
RECEIPTS(dues)..... $ 131.00
Spring Event food..... $ (170.38)
January and April postage..... $ (100.80)
Dayton Hamvention flea market spaces..... $ (270.00)
Gas money for Dayton..... $ (50.00)
Paypal charges..... $ (1.80)
CLOSING BALANCE (07/20/06)..... $ 1307.74

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

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK THE RIGHT CORNER OF THE MAILING LABEL FOR THE EXPIRATION DATE.
SEND N8NT A CHECK IF EXPIRED.