# ATCO NEWSLETTER

**VOLUME 25 NUMBER 2** **April 2008**

*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 SPOTLIGHT TOPIC

Check out the number of ATV stations WB8LGA has collected in his USA map of ATV locations. I believe it has over 400 entries. You can zoom in and identify a specific person with coordinates if desired. If that isn't enough, the map allows distance checking from station to station. Neat! Check the article inside for more details.

# ACTIVITIES ... from my "workbench"


OK, it's time for me to step onto my proverbial "soap box" and let you know what's going on over here. It's warmer now so I'm motivated to get some of those "put off" projects back into the main stream.

We have been experiencing problems with the repeater 1280MHz receive input. Sometimes it was ok but more often than not, the signal sensitivity has been very poor. Dale, WB8CJW, has reported this because the bulletin board transmitted to the repeater from his QTH has been good sometimes but bad most of the time. I had previously dismissed it because he was in the shadow of one of the support beams at the repeater. I decided to try an experiment a few months ago where I swapped the receive and transmit antennas at the cabinet connection (it was too cold outside to actually switch antennas). If the problem was the antenna or feedline, the bad reception would switch to bad transmission. I did that and noted the transmitted SWR remained low. However, a few days later, the transmitted signal dropped drastically and the reception improved to a point not seen for a long time. Well, we definitely have a problem in the receive feedline or antenna. I switched it back because I didn't want a high SWR to damage the transmitter. Now that warmer weather is here, I plan a trip very soon to check it out. Stay tuned for details.

While I'm on the 1250 transmit subject, I'm sure you're aware by now of our FCC violation problem. I won't go into details here so check out the story later in this Newsletter. Let it be sufficient here to say that I will be changing the transmitter frequency from 1250MHz to 1260MHz soon. Most receivers should be able to accommodate the change but the unmodified Comtech boards cannot receive 1260MHz. Let me know if yours is one of them and I can retrofit it with a new PIC IC set for the new frequency. I will buy a few of these as soon as I find out how many boards need the change. Note: the people who bought the LCD controller board from Mike, KB8SSH, to combine with the Comtech board allow 1260MHz reception without further modification.

I've been busy improving the Comtech transmit boards so they will pass undistorted NTSC video. There is now a successful modification that will go into the 1260MHz repeater transmitter when I change frequencies. See my article later in this Newsletter. Anyone who would like to make the modification but feels hesitant making the surface mount component changes, let me know and I'll retrofit it for you. If I DO change it, please try to gather the parts because if a whole bunch of people descend upon me, there may not be enough to go around. Take stock of your junk box and, if you are short parts, Dayton is coming up. Put them on your "must have" list.

Dale, WB8CJW, has checked out the higher power digital amplifier at his QTH. He reports that power in excess of 20 watts is achievable without creating transmission errors. Remember that with digital transmission, high linearity is a must. As soon as he can get it packaged properly, he will install it at the repeater. That should improve the reception in the "fringe" areas. Charles, WB8LGA, you should then be able to copy it on a regular basis then.

I now have the parts to complete my broadcast TV transmitter for 427MHz. It has been sitting in a corner of the basement for a few years now waiting for time to complete it. I'm almost there folks! A couple of projects got in the way but now that I'm retired, I can allocate time to the effort. Don't be surprised if sometime soon you see a dramatic improvement in signal quality and strength. I'll have info on this later.

OK, enough about construction projects. Let me turn to our finances. The treasury had been low but now is above $1000. It's important for you to check membership status and send us $10 if the dues should be paid. It used to be easy to check because I put the expiration date on the mailing label and circled it in red if I saw dues were needed. That is much harder to do now with the Email Newsletter that most of you get. It's too hard to send out individual Emails saying dues are needed so I ask you to log onto the ATCO web site and into your personal home page section. There your dues status will be found. Please help us out and send money if due.

While on the Email subject, please note that I'm trying to convert all Newsletters to Email if possible. If you now get a mailed version but can receive it by Email, let me know so I can delete the snail mail version. If you still prefer to receive a snail mail copy, that's OK. Just help me minimize the mailed effort if you can. I'm retired now so I have no work copier to rely upon. Therefore mailed copies must be printed on my personal printer. That takes a while and I'm finding out it uses lots of toner too.

Don't forget the upcoming Spring Event. It will be on Saturday April 26 at 9:30AM this time because of scheduling conflicts at ABB where we meet. The second choice was April 27 but that is the Athens hamfest day and a number are going there. So, I suggested the Saturday before Athens and to have a change of pace, it will be a breakfast get together. I will bring coffee, doughnuts, fruit and juice. I have several volunteers that will bring a breakfast casserole of their choice so I don't think anyone will go home hungry. See you there!

That's all for now. I guess I'll now go out and cut the lawn!!!
…WA8RMC

# BROADCAST TELEVISION AFTER DTV TRANSITION

WASHINGTON—January 17, 2008—Almost half of over-the-air households reject post-transition pay TV, instead preferring to receive free, over-the-air digital television by either purchasing a converter box or digital TV set, according to a recent Association of Public Television Stations (APTS) study.

Roughly 43 percent of over-the-air households indicated they would buy a converter box or purchase a digital TV between now and when the transition takes effect February 17, 2009, compared to 12 percent who would sign up for a cable or satellite service, the survey found.

“This data indicates that free, over-the-air television may be set for a big comeback,” said APTS President and CEO John Lawson. “Many people see broadcasting as a dinosaur technology, but we broadcasters have the opportunity to reposition it as ‘wireless TV’ and reach new audiences.”

The subsidy program, which is administered by the National Telecommunications and Information Administration (NTIA), has received millions of requests for approximately 2.8 million converter boxes since registration for the program began on January 1, according to published reports.

Still, 25 percent of Americans said they “don’t know” what steps they would take, and 19 percent said they would “do nothing.” Of those who said they would “do nothing,” 17.6 percent of those households said they would postpone or wait before they take any action, if at all.

While more Americans are aware of the transition to digital television, most remain unaware as to why the federal government is mandating the change to their television viewing. Seventy-seven percent of those consumers who are aware of the transition did not know why the federal government has ordered the transition.

“It appears that the government’s positive message regarding the reasons for the transition has fallen on deaf ears,” Lawson said. As a result, the APTS survey found that only 18.7 percent of respondents thought the government was on the “right track” with the transition. The study results are based on Nov. 2007 survey of 1,153 households conducted by research firm CENTRIS in Fort Washington, Pa.
…Source unknown

# RFI KILLS CARS NEAR EMPIRE STATE BUILDING

Tuesday, January 29, 2008This article describes how there is a “Bermuda Triangle” near the Empire State building in New York City where cars won’t unlock or start. When the car is towed a few blocks away it is OK. I talked about interference problems back in my wireless machine to machine article. See figure 3 in the pdf file of the article for how bad radio interference can be in Manhattan. I explicitly discussed the problem in my RFI immunity article**.**

A spectrum analyzer may not see it...you need a non-linear circuit (or overload it's input). The alarm receivers are usually simple one-transistor tuned front ends - and a SAW filter if you are lucky - with little selectivity or adjacent channel rejection. Modulation is simply carrier on-off (ASK). No capture ratio, no DSS, no frequency hopping - just carrier on or off. If any 390-410MHz RF "signal" lands on that channel, it will be received as a "1", thereby "Jamming" the weak signal from the keyfob. All it takes is two powerful signals spaced 390-410MHz apart to create a "phantom" signal in a poor RF receiver (intermodulation). Where, Oh, Where could you find several high-power, white noise sources spaced hundreds of MHz apart? Hmmm...On top of the Empire State Building, of course! They call them "DTV transmitters" - insidious devices approved by the government for mind control and occasional entertainment. With the advent of DTV, there are now several 100KW, 6MHz wide, "wideband" noise sources scattered across the VHF-UHF spectrum. Unlike the older Analog broadcasts, where the "power" was concentrated towards the carrier frequency - the DTV transmissions power is spread evenly across the channel bandwidth ("white noise"). They only have to overlap a little to create a "wideband" interference source. Not to mention that FM stations are now transmitting digital streams "on the edges", too. If the user knows where the alarm receiver antenna is, holding the key as close as possible may allow it to function. This is all Radio 101.... Nothing "conspiratorial" or outer-worldly about it. Just the result of poor 400MHz receivers.

A colleague experienced a problem like this in the vicinity of his home. The remote central locking would not work when his car was parked in the drive and his immediate neighbors had the same problem, including one with a new car who made a warranty claim to the dealer. At the time my colleague's house was surrounded in metal scaffolding and the walls covered in wire mesh as a new render coat was being applied. There is a GSM cell phone mast close by. Once the work was completed and the scaffolding removed the problem vanished. Were the wire structures re-radiating the GSM signal and swamping the rf input of the car receivers?
…From EDN magazine and New York Daily News Newspaper.

# ATCO vs the FCC…"You ain't gonna believe this one!

It all started like this: The phone rang the other morning at about 8AM. Since I was in the bathroom, my wife answered it and then told me, "You better take this one, it's the FCC in Detroit and they say your Ham signal is causing interference". Now, even though I was "rather busy" at the time, I indeed agreed with her and took the call.

The person properly introduced himself as an FCC agent from the Detroit, Michigan field office and had traveled to Columbus, Ohio with all of his tracking equipment to identify a mysterious signal interfering with ODOT (Ohio Department of Transportation) communication with a Russian GPS satellite. Now, at this point, I thought it may be some sort of joke but decided to "play along" while wondering when they were going to identify themselves as practical jokesters. It didn't happen. It was the real thing.

He went on to say that Russia has a GPS (Global Positioning Satellite) operating on 1250 MHz. ODOT recently purchased new GPS receivers to take advantage of this Russian signal for their surveying operation accuracy improvement. It seems that every time our ATV repeater, operating on 1250 MHz (in the middle of the assigned Amateur Radio band) identified with a bulletin board transmission; the ODOT reception transaction would be destroyed. Since they invested over a million dollars with their new arrangement, they were upset that they were being interfered with. He told me that ODOT had been working for about 3 months to locate the signal so, unable to solve it on their own, they reported it to the FCC.

The FCC brought their tracking equipment to Columbus and after only about 15 minutes, located the source as our 1250 MHz transmitter. We chatted for a while, after which he told me that our signal was legal, operating within the FCC guidelines and had no FCC violation. Incidentally, he told me that while he was investigating our signal, he found another government operated microwave communication system in the same building (next to ours) that was excessively radiating microwave energy and shut them down. It is still off the air today. We finished our discussion with him saying that our signal is legal and that ODOT must solve their problem in some other way. I was very much relieved!!! He said he would finish his report and after some added paperwork, would close the case.

Done deal? No, not yet! He called me back 2 days later to say, "I've got some bad news for you". It seems that after checking all of the relevant rules, he found a clause in the part 15 regulations (section 97.301 and 97.303 clause i) which states that,

**"In the 23cm band no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the radionavigation-satellite service, the aeronautical radionavigation service, the Earth exploration-satellite service (active), or the space research service (active)".**

Therefore the FCC is asking us to move our signal away from 1250MHz. They went on to say that any agreement we make with ODOT is acceptable to them. In other words, if ODOT says we can stay, we're finished. If they say we must vacate then we must go. (Guess what they said).

Actually ODOT was very cooperative in light of the fact that we have been operating on this frequency for 12 years now. They said we must move but agreed to us suppressing our signal from 8AM to 5PM until we could permanently relocate and gave me 3 months to do so. I am now in the process of reconfiguring our transmitter to operate on 1260MHz. but this may pose other problems. Since our input frequency is 1280MHz, there may be receiver desense by operating the transmitter on 1260. I've completed the design and construction of a 7 pole interdigital transmit filter (1.9 dB loss...hurray!), so with our existing 7 pole receive filter and because we have separate antennas installed one below the other, I don't anticipate problems. We'll see soon!

It's really too bad that since we have been operating legally for 12 years now in the middle of our assigned band that we're the ones to move. It just shows that it's the Hams that get pushed around, probably because we're the ones to give the least resistance. If the interference was from a licensed commercial TV or radio broadcast station, I'm sure it may have been a quite different outcome. Continuing, it also seems strange to me that Russia decided to locate their GPS satellite signal in the middle of the Ham band in the first place. After all, it's a Ham band here, in Europe and most important, in Russia too. They could have, at least, located it at the EDGE of our band at 1240MHz with no repercussions from anyone. I guess it's too late to tell them to take down their satellite and reprogram it. That ain't likely to happen!!! Oh well, we live and learn. I'm told that this scenario has national repercussions because other government transportation organizations are now starting to use, you guessed it, the same Russian signal so problems are bound to come up elsewhere in the USA.
…WA8RMC

## DARA UPDATE

*And now some words from the DARA guys on their quest to get their ATV signal back on the air…*

# The Nine O'clock News

VOLUME 2 January, 25 2008 Number 1

## New thing to report

We have the room almost done. We will be painting it Sunday, Jan. 27th. And all That is left would be the floor. There is concrete down now but I think we are going to tile it.

Glenn Hochwalt has talked to the board and looks like they have approved adding Two more sections to the tower and installing our antennas. This would put us162' high.

Dick (W8RVH) & ART (WA8RMC) got the Lindsay done and checked out. It's Ready For installation.

Last, The address for the repeater is 6619 Bellefontaine Road, Huber Heights. I will try and get GPS co -ords later.

That's about all I have for now. Its going along slow but sure.
73, Jess
P.S. Don't forget the DARA auction on Friday Night. (FEB 1.)
Check www.W8BI.ORG for details.
REMEMBER NET NIGHT IS STILL 9:00 PM ON WEDNESDAY !!!
D.A.R.A. membership is still only $10.00 a year !
HAPPY NEW YEAR

# The Nine O'clock News

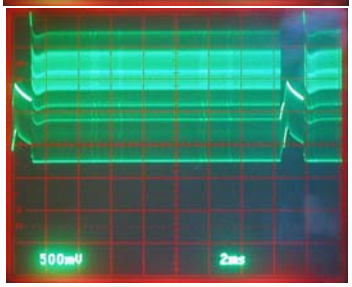
VOLUME 2 April 10, 2008 Number 2

## Our New Home Is Done !

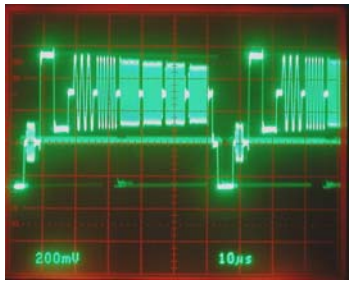
The Rooms are all Done and The keys turned in to D.A.R.A. We had a luncheon at Smokey Bones with Glen Hochwalt to discuss the antenna installation. Glen has Given a date of April 14 as a tentative date to start with the tower work. W8RVH,KD8GRV and myself have started removing equipment from the cabinets in order to go thru , test and clean up all the gear. Dick (W8RVH) Had a very unfortunate accident Saturday March 29 and broke a bone In his leg. Doctors say 4 to 6 weeks to recover. I have called on Art (WA8RMC) to help On trying to get the repeater up by Hamvention. As soon as the weather starts getting a little warmer we should start moving cabinets and equipment into the room. That's all for now. 73 Jess

# COMTECH 1200 MHz TRANSMIT MODULE IMPROVEMENTS

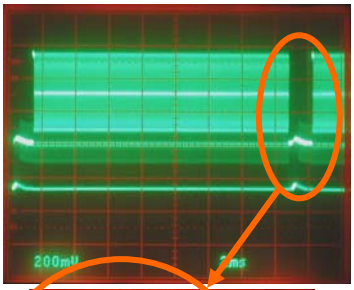
For quite some time now I, as well as others, have known that the video quality in the Comtech transmit and receive modules have problems. The G1MFG modules from Giles correct some of them in the "Gold and Platinum" boards but not all. Since the modules were intended to be used as a pair and not designed for use in the USA, problems arise when we try to use them with the NTSC TV format in repeater service. I became aware of the severity when I used an FM1394TSIM transmit board in our ATV repeater. I was able to clean up the video response problems but never able to boost the low frequency response. As a result, the vertical sync was distorted causing most receivers tuned to the 1250MHz channel to roll. I recently re-visited the issue and, I believe, resolved all of the deficiencies. The following steps will bring this module up to "near broadcast" standards. (The receiver module improvements will be described in a later ATCO Newsletter).


Horiz. waveform before (left) & after (right). Slight rolloff of high freq. in multiburst waveform is intentional to limit overall bandwidth.



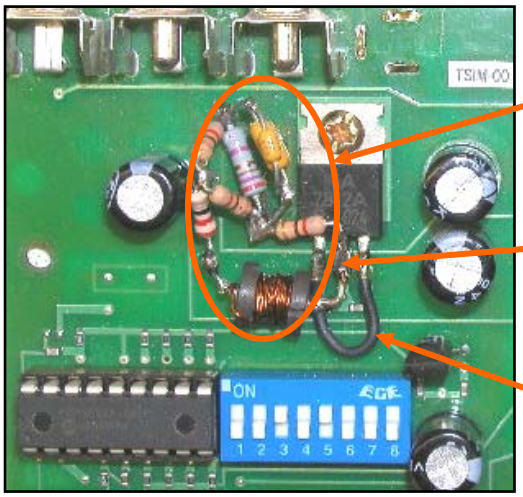

The "before" vert. waveform on left has severe tilt causing rolling in received picture. The corrected vert. waveform still shows some sync tilt but the receiver likes it now.




The expanded vertical sync interval is shown to illustrate it is not as bad as it first looks in the above photo.


**There are 4 basic areas to enhance.** First, a proper pre-emphasis filter must be added to the input. It can be installed in the area occupied by removing the video gain pot on the main board. Next, inside the module the 100 pf and 2.7k resistor parallel combination must be jumpered out. Third, a .01 mf capacitor must be added across the 39 pf loop compensation cap inside the module. Last, add a 0.5 mf capacitor across the 1.0 mf loop compensation cap at pin 1 of SP5055 IC in the module. Details are pictorially shown below and treated in detail by Barry, VE6ATV, on his web site, http://ve6sbs.sbszoo.com/ve6atv/platinum/mods.htm. The added 0.01mf and 0.5 mf caps in the module are the same as Barry describes but the pre-emphasis filter and bypassing of the 100pf cap and 2.7k resistor combination are new here.

- **Pre-emphasis filter addition** – First, remove the video gain pot on the board next to the regulator. It is not needed because there is another one inside the module can. In the space now available, add the filter components using the pot pc pads as the filter input and output. I used the regulator center pin as the ground point as shown in the picture but you can just as easily use the remaining pot pc ground pad. The 470mf video coupling cap is not needed and could also be removed for additional space but it doesn't change the video response either way so I left it in. The components are standard values and tolerances except for the inductor. The inductor is an 18 microhenry coil which can be purchased or hand wound as I did. Use 22 turns of #26 enameled wire on a ferrite core.

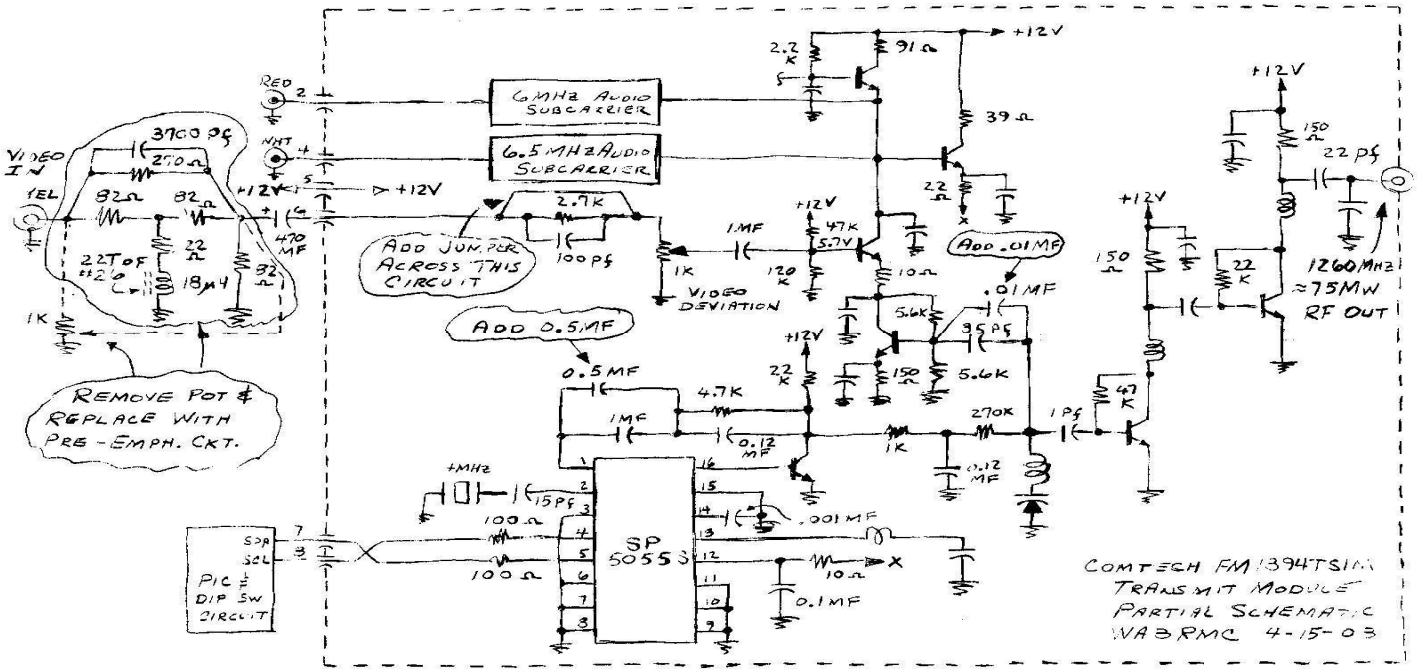



Pre-emphasis filter parts. Note 470mf cap to the left and regulator to the right.

Ground tie point. (reg. center pin)

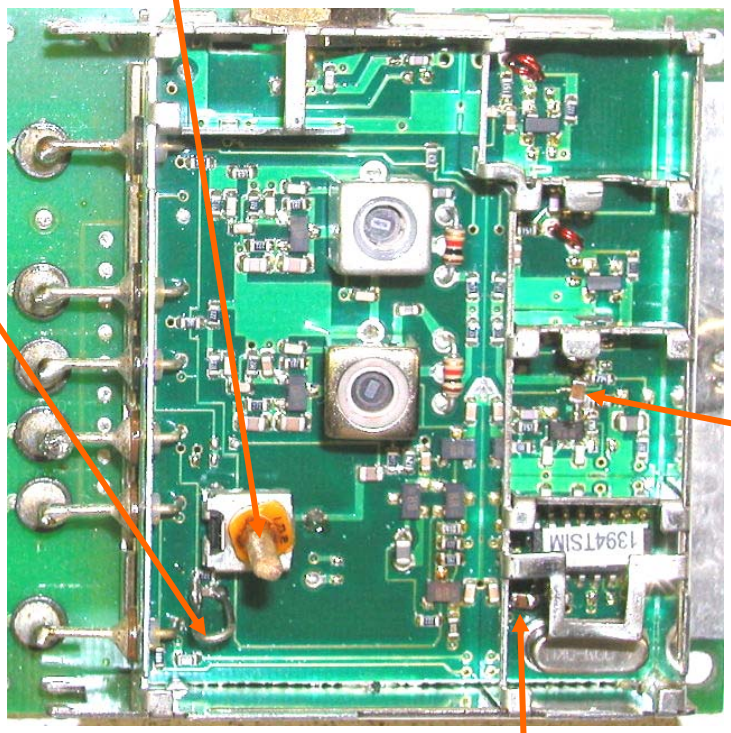
Regulator input-output bypass jumper.

Notice that I also jumpered the regulator input to output. This is required only if you feed the board with regulated +12vdc. If you use a 15vdc "wall wart" or equal, the regulator is still needed. Just remember to provide enough input voltage (+15vdc) for the regulator to work properly. The pre-emphasis filter schematic is shown below.




**COMTECH TRANSMIT MODULE PARTIAL SCHEMATIC**

**Note:** You may see an object on the module internal video deviation pot. I glued a small rod to the top of the pot so I could adjust the deviation without opening the module top can. That is your option.



- **Install jumper across R-C parallel combination** – There is a video peaking circuit inside the module adjacent to the internal video modulation potentiometer. It is not required or desired when the pre-emphasis filter is installed. In fact, the video gain lost by the pre-emphasis filter is more than compensated by removing this R-C combination. It is simplest to simply install a small jumper wire across these parts. Do not risk circuit board damage by removing them.

- **Change PLL charge pump capacitor** – This capacitor (and the cap below) affects the PLL charge pump response time. I measured a 1.0mf unit here but may be a different value in some boards. In any case, if the cap below is changed to 0.01mf, this cap must be at least 1.0mf to prevent jitter in the received picture. I recommend changing the 35pf cap below and observe the received picture. If it is stable for all lighting conditions, leave this cap alone. My G1MFG unit had a measured value of 1.3mf here with a stable picture so I left it alone. This cap is located in the compartment with the crystal. Access can be obtained by bending the U shaped frame piece out of the way but, caution, if you are not used to working with surface mount parts, leave it to someone else or…don't do it! Don't try to remove the existing cap. Just solder a 0.5mf cap across it.

- **Change phase lock loop compensation capacitor** – The PLL compartment contains a 35 pf capacitor which determines the PLL response time. For whatever reason, it is adequate for higher frequencies but over reacts to long duration changes. In any case, increasing this value to about 0.01mf corrects the low frequency vertical interval problem. Another cap must also be changed but we'll handle that one next. The cap in question is a small surface mount cap that is easily destroyed by someone not used to working with surface mount components so be careful! If you're unsure, have someone competent in this area do it for you. It's best to just solder a 0.01mf surface mount cap on top of the existing one without removing the existing cap. Note: if you are working with a G1MFG "Gold" or "Platinum" board, this change may already have been made. My Gold board had a 1000pf cap in this location so I removed it and replaced it with a 0.01mf cap. I don't know what is in the Platinum boards.

# SOLUTION FOR 1.2GHz ANTENNA POLARIZATION

This is my solution to the 1.2 GHz polarity problem. The ATVer's in Ohio and neighboring states are vertical for the repeaters and some horizontal for dxing. At the top of the mast I used the Yaesu elevation rotor. A short pipe attached to the cross boom using a plumbing pipe floor plate bolted to a 1.5" fiberglass cross boom. So far, the weight at the top of the mast has seen 70mph winds and the mast is still fine.

**VERTICALLY POLARIZED ARRAY**

**HORIZONTALLY POLARIZED ARRAY**

I wanted to play around with 1.2 GHz video and found a dilemma right off the bat. The repeaters and locals of the repeaters were vertically polarized. The dxer's were all horizontal. I wanted to have both worlds without twice the costs and tower space. I tried a cheap TV rotor with a short pipe attached to the cross boom of co-phased antennas. The weight of the antennas would change the position of the controller with each move from vert. to horz I stopped wagging my tail briefly. So I bought the Yaesu G-550 elevation rotor. A little more than I wanted to spend but it worked great. Normally these have the cross booms going through them with a 2 meter and 440 beam at either end. This would point your antennas up into the sky at satellites. I used a 12" pipe threaded to a floor flange. I drilled holes in the fiberglass cross boom and bolted it to the flange. This makes it look more like an airplane motor with the cross boom as the prop. I set the rotor up for the cross boom to be vertical at 0 degrees. This way if I have a brain cramp and I'm not watching, the cross boom stops and wont send one of the antennas into the mast pipe. I have to stop it at 90 degrees for the cross boom to be horizontal. If I forget, I still have about a minute or 90 more degrees before the other antenna would crash into the mast. I know when I work a rotor control and a ptt, at the same time, my wires get crossed sometimes. This system would only work with the rotor at the top of the mast pipe. Everything works great so far and has survived 70mph winds. The Yaesu rotor made the costs the same as two more antennas. I didn't plan on that. I thought the cheap TV rotor would work. I just couldn't admit defeat with my idea .I suppose two vertical and two horizontal antennas with a remote coax switch would have worked too. I did have a lot of fun. Take care, Dave ...NR8TV See the antenna rotation video at http://www.ki8hu.net/DavesAntennas.wmv

# HAMVENTION ATTENDEES NEED THIS WEB SITE

To all amateur radio operators attending Dayton Hamvention.

All hams, especially if you live in Ohio, are well aware of the Yellow Barrel Plague which infects Ohio's highways and byways this time of year. The Dayton Hamvention committee is warning everyone that the 2008 Show may become a traffic nightmare if you do not have the right traffic route information.

The Committee has on it's web site the alternate routes and possible tie up traffic problems to make your Hamvention experience as an enjoyable one as always.

Check often, between now and May 16th -Hamvention's first day, the following URL to avoid traffic tie ups:

http://www.hamvention.org/hv2008/media/trafficnews.html.

Enjoy the show.
…ARRL bulletin

# ASTRONAUTS WORK ON COLUMBUS LAB ON THE ISS

Astronauts aboard the International Space Station complex are focusing on getting the new Columbus lab up and running. Columbus, the laboratory built by the European Space Agency (ESA) and host of two Amateur Radio on the International Space Station (ARISS) antennas, was launched into space on February 7 aboard the space shuttle Atlantis, arriving three days later. According to NASA, Columbus' activation process has been running a little behind because of computer problems, but flight directors believe they've fixed the glitch.

In 2007, the ARISS antennas successfully passed electrical and SWR tests, with one of the two antennas, Antenna 42, going through a final test -- a thermal test under vacuum. Columbus will house an additional Amateur Radio station, including the first digital Amateur Radio TV (DATV) station in space, as well as a ham radio transponder. The yet-to-be-built Columbus amateur gear will facilitate operation on new frequencies that will make it possible for ARISS to establish wideband and video operations for the first time and allow continuous transponder operation.

According to ARRL ARISS Program Manager Rosalie White, K1STO, "The ARISS-Europe Team has been holding meetings to determine what the ARISS International Team should have for a station in the Columbus module. The Europeans will need to begin fundraising for the multiple sets of equipment, such as the on-orbit equipment, the required back-up on-orbit equipment and the test equipment. Some portions of the equipment system can be purchased, but much of it would need to be built. Once the team purchases or builds the equipment, it will need to undergo special testing for space and getting the equipment certified (probably by ESA) and finally manifesting the system for launch. All of that will take many months and help from ARISS volunteers from many countries."

The mission, STS-122, brought seven astronauts to the ISS: Commander Stephen N. Frick, KD5DZC; Pilot Alan G. Poindexter; Mission Specialist Rex J. Walheim; Mission Specialist Stanley G. Love; Mission Specialist Leland D. Melvin; Mission Specialist Hans Schlegel, DG1KIH, of Germany, and Mission Specialist/Expedition 16 Flight Engineer Leopold Eyharts, KE5FNO, of France. Flight Engineer Dan Tani, KD5DXE, already on board the ISS, will depart when Atlantis returns to Earth; Eyharts will stay behind on the ISS and take his place.

Atlantis will remain at the ISS until February 18; touchdown is set for February 20, making for a 13-day flight.
... The ARRL Letter Vol. 27, No. 6 February 15, 2008

# CALCULATOR WEB SITE

Charles, WB8LGA, found a web site that has a formula for just about anything you'd want to calculate. It is called "Calculatoredge" which has formulas for 18 main categories to solve what seems to be just about anything you need. I used a couple of the filter programs lately to design some bandpass filters. Check it out. http://www.calculatoredge.com/
…WA8RMC

# ATV CONTEST DETAILS

NR8TV reports that Gene at ATVQ will hold an ATV DX contest again this year. People wanting to know the details may visit Gene's web site. He is in the process of finalizing it and will be posted soon. Gene says, "Yes, the contest is scheduled again for 2008. Just putting the final touches on the spring issue with the announcement. Let's hope we get more entries and band openings than ever".
http://www.hampubs.com atvq@hampubs.com 815-398-2683 – voice 815-398-2688 - fax

NEWS

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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See MCI v. FCC, 515 F.2d 385 (D.C. Circ 1974).

**FOR IMMEDIATE RELEASE March 28, 2008**

**FCC Amateur Digital VHF and UHF Order**

*Washington, DC* – **The Nation's Amateur 2 meter and 70cm spectrum will transition from analog broadcast service to digital broadcast service on February 17, 2009. The Federal Communications Commission (the "Commission") today released the Amateur Digital Education Order requiring amateur repeater owners to promote awareness of the nation's transition to digital VHF and UHF broadcast. The educational efforts of these diverse groups are intended to provide clear and correct information about the VHF and UHF digital transition.**

**The VHF and UHF digital transition will provide amateurs with better quality voice and data as well as provide more repeater channel availability. It will also make valuable spectrum available to significantly improve public safety communications and will usher in a new era of advanced wireless services such as the widespread deployment of wireless broadband**

**The Commission has been committed to working with representatives from ARRL, amateur public interest groups, other governmental entities, and Congress to make the significant benefits of digital broadcasting available to the amateur community and minimize the potential burdens the transition could impose. Today's order takes numerous steps designed to facilitate a smooth transition, including:**

**Repeater trustees must provide on-air information to their users about the VHF and UHF digital transition, and have the flexibility to comply with one of three alternative sets of rules to best serve their widely divergent communities. Repeater trustees must report these efforts, on a quarterly basis, to the Commission and ARRL.**

- **Manufacturers of VHF and UHF transmitters, receivers and related devices must provide notice to consumers of the transition's impact on that equipment.**
- **FCC.gov partners and winners of the 147 MHz spectrum auction must provide the Commission with regular updates on their consumer education efforts.**
- **FCC will assist the National Telecommunications and Information Agency ("NTIA") in ensuring that retailers are fulfilling their commitment to the national**
- **VHF and UHF converter box program. This program will be similar to the program that is in place for the transition to DTV.**

**Action by the Commission February 19, 2008, by Report & Order (FCC 08-56). Chairman Martin issuing a statement; Commissioner Tate issuing a separate statement; Commissioner Copps concurring and issuing a separate statement; Commissioner McDowell approving in part, concurring in part and issuing a statement; and Commissioner Adelstein approving in part, dissenting in part and issuing a statement.**

**MB Docket No. 07-148**

**News about the Federal Communications Commission is on the Commission's web site www.fcc.gov.**

**EDITOR NOTE**

**A discussion of this FCC Report & Order will be held at the Spring Event. Please bring your thoughts on what to do with our analog 446.350 MHz repeated audio signal and when we should convert it to digital so we can be in compliance with this transition.**

# WB8LGA CREATES ATV MAP PROGRAM

I'm creating a Google map of all the fast scan ATV stations in the USA at http://home.columbus.rr.com/cbeener/GMapATVQ.html. If you are running IE you'll have to change your browser settings to allow Java Scripts. If you use FoxFire or Mozilla, this should work without changes.

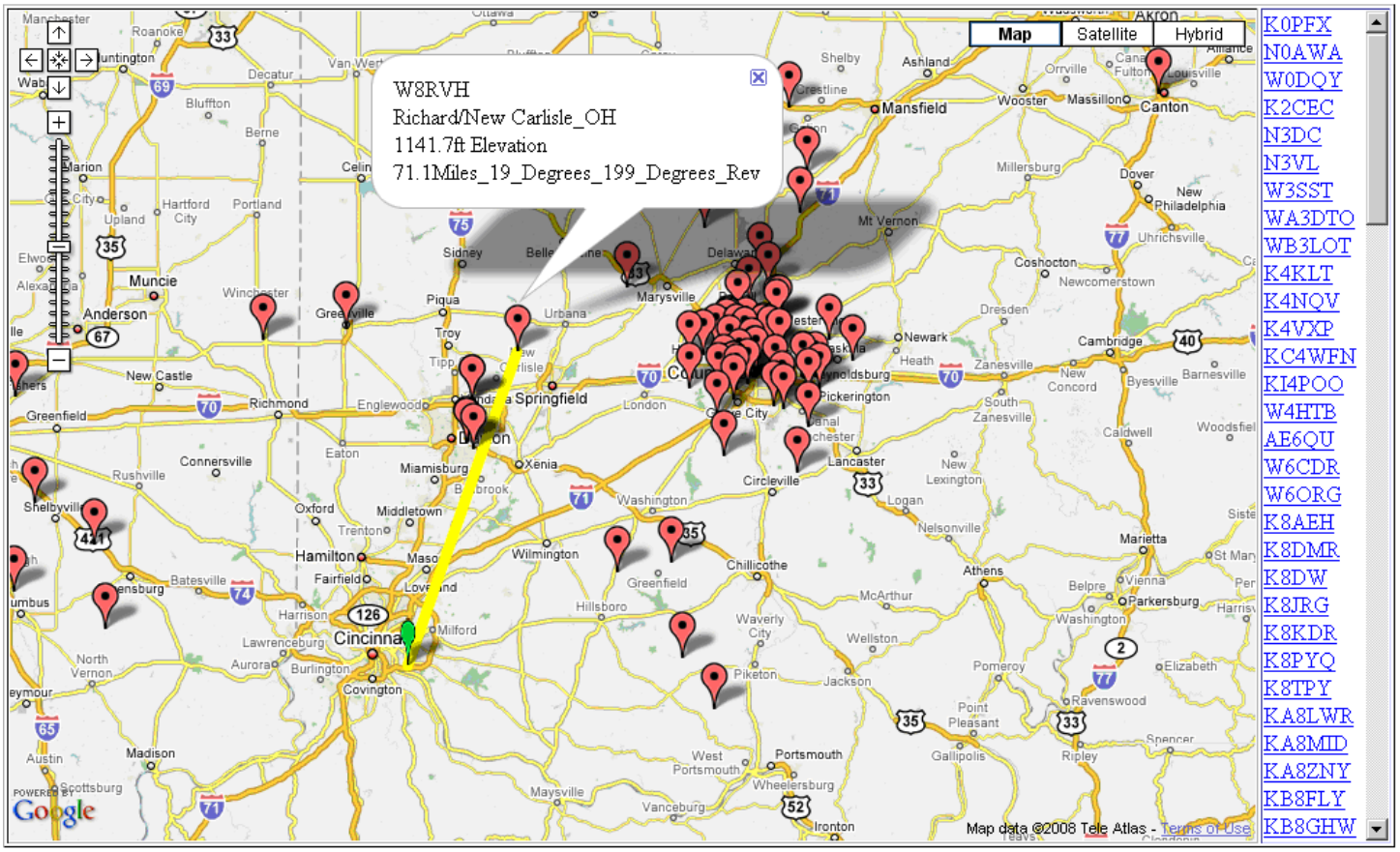
After the map comes up click on the "SHOW ATV STATIONS" button. That alone should give you 126 different ATV stations. If then you move the mouse over a marker it will show you the info on that station Ham Call., Hams Name, and Elevation.

After you show all the markers then click on the "ATV HOME LOCATION" Button (this is your location on the map.) After you click that button when you click on your station marker it will change from a red color to a Green marker. After you do that, click on the "ATV STATIONS TO" Button. (That's the station you want to find out the Degrees and distance to that station from the Green marker Icon.) If you pick another marker and left click on that marker it will then draw a yellow line from the Green marker to the marker you just left clicked. You can click on another marker any time and it will show you the Degrees and distance to that marker from the Green marker.

You don't have to click the "RULER ON NEW LOCATIONS" button to find out the Degrees and distance of any marker on the map. Only use the button for a NEW ATV station that's not on the map.

If you're using the Ruler button to get the second marker you need to drag the first marker to a new location and then the original and new marker will have the degrees and distance on both markers. (After you place a new Ruler marker you have to drag that marker to a new location that process makes a second marker on the map.)

…WB8LGA Charles




Click here then W8ZCF to W8RVH ON Your Marker

Click here then Show ATVQ Stations on marker to find Info

# COUNTDOWN TO END OF ANALOG TV BROADCAST ERA

Joseph Desposito
ED Online ID #18422
March 27, 2008

As you probably know, analog TV broadcasts will cease on February 17, 2009—less than a year away. For many viewers, it will be a nonevent, simply because they don't depend on over-the-air broadcasts for their viewing. But the number of American households that will be affected is staggering.

A study by the Association of Public Television Stations (APTS) put this number at 22 million back in June of 2007. What's even more astonishing is that in an earlier study by the association, 61% of these people weren't even aware of this FCC-mandated cutoff date. Thankfully, they're better informed today.

"We need a Y2K-level effort to ensure that people are aware that their older TV sets will go dark in 21 months if they don't acquire a digital converter, buy a new set, or incur the monthly cost of a cable or satellite bill," said former APTS president and CEO John Lawson at the time of the June study.

"They also need to know that digital over-the-air television will continue to be free, will offer them many more channels, and will give them a better picture even on an older set—if they get a converter box," Lawson added.

## AN OVER-THE-AIR COMEBACK

A study in November of 2007 found that 43% of over-the-air households will reject post-transition pay TV, instead preferring to receive free, over-the-air digital television by purchasing a converter box or digital TV set, compared to 12% who would sign up for a cable or satellite service.

"This data indicates that free, over-the-air television may be set for a big comeback," said Lawson. "Many people see broadcasting as a dinosaur technology, but we broadcasters have the opportunity to reposition it as 'wireless TV' and reach new audiences."

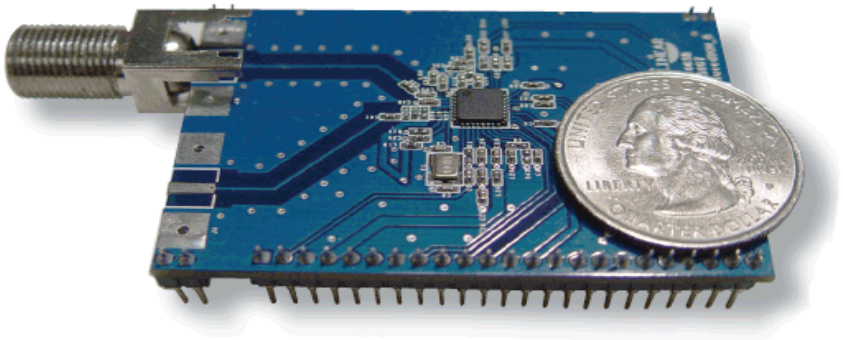
Still, 25% of Americans said they "don't know" what steps they would take, and 19% said they would "do nothing." Of those who said they would "do nothing," 17.6% said they would postpone or wait before they take any action, if at all. The study also found that while more Americans are aware of the transition to digital television than before, 77% remain unaware as to why the federal government is mandating the change to their television viewing.

To help with the transition to digital broadcasts, the Department of Commerce's National Telecommunications and Information Administration (NTIA) launched the Digital- to-Analog Converter Box Coupon Program on January 1. All U.S. households are eligible to request up to two coupons, worth $40 each, to be used toward the purchase of up to two digital-to-analog converter boxes.

## TUNING IN TO CONVERTER BOXES

So which IC companies have developed products intended for these converter boxes? There may be a slew of them, but I met with just one at the International Consumer Electronics Show back in January—MaxLinear (www.maxlinear.com).

This fabless communications IC company develops CMOSbased broadband RF ICs for consumer markets. At the show, it announced the MxL5007T, a TV tuner IC developed for these low-cost converter boxes as well as for set-top boxes and other TV systems (*see the figure*).



**Thanks to devices like MaxLinear's MxL5007T TV tuner IC, consumers with analog TVs can get a digital-to-analog converter box for their television instead of running out to get a new digital TV.**

The MxL5007T is based on the company's proprietary digital CMOS implementation. It measures just 5 by 5 mm in a 32-pin quad flat no-lead (QFN) package. A highly integrated device, it includes low-noise amplifiers (LNAs), baluns, tracking and loop filters, and surface acoustic wave (SAW) filter-like functionality.

According to the company, the device exceeds by a healthy margin the ATSC A/74 Receiver Performance Guidelines, especially the stringent distortion specification for rejection of unwanted signals proximate to the desired signal. This is a critical performance metric for converter boxes covered under the NTIA coupon program.

The company also touts the MxL5007T as the "greenest" tuner IC on the market, since it consumes only 300 mW. In comparison to 1-W or greater tuners, employing the MxL5007T in the more than 30 million units covered by the coupon program potentially will save more than 35 MW and $40 million in energy costs per year.

I also met with Xceive at the show, but this silicon tuner company focuses on the people who will decide to purchase a digital TV rather than settle for a converter box (see "*Retooling Electronic Design For 2008*" at www.electronicdesign.com, *ED Online 18104*). Xceive's SiliconNOW tuner module can receive both analog and digital over-the-air broadcasts. It's based on the company's silicon-germanium XC5000, which is a 7- by 7-mm hybrid TV receiver.

*A comment by one of Electronic Design's readers is very interesting. It is as follows:*

Thank you for getting the word out about the end of the long era of analog TV. As an owner of an old-fashioned analog TV, I finally received my allocation of 2 coupons/household worth $40 each to defer some cost in purchasing a digital to analog converter. I recently purchased one converter at my local Radio Shack where they feature a Zenith brand (made in China of course) converter for $59.95 less the $40 discount coupon. I live in an area somewhat blocked by tall buildings in the path from the TV transmitters (Mt. Wilson) and also in the landing pattern to local and busy Santa Monica Airport. My understanding is that DTV will clear up the annoying multi-path (ghosts) and flutter problems with my current analog TV. I connected up the box via the video and left/right TV ports and programmed it. The results are beautiful. The picture may not be HDTV on my 27 inch analog TV but definitely superior to analog off-the-air TV broadcasts. And no annoying power line noise streaks and no ghosts or flutter.

I agree with you BUT you did not tell the rest of the story in you limited space. First, I understand the lower VHF TV (2-6) channels will be largely vacated in the post DTV transition period next year and re-allocated up to UHF assignments using DTV (ATSC standard) by the FCC. The new DTV technology is so spectrum efficient that TV over-the-air stations can simultaneously transmit 4-6 sub-channels in the same frequency space as the current analog TV channel slots. Currently there are a few holdouts however, not wanting to move up for reasons of service area coverage problems, costs to rebuild antennas and update transmitters, etc. Some spectrum will be auctioned for TV translators, low power local TV (LPTV) stations and public safety stations. This will leave approximately 33 MHz of spectrum to be auctioned off by the FCC in the near future for land mobile use, etc., possibly opening up new radio/TV and antenna markets. Since 1994 the wireless spectrum has been up for sale in auctions by the FCC. Millions and millions of dollars were earned by the FCC recently with auctions of various blocks around 700 MHz. So after February 17, 2009 there will remain just the core of TV channels 2-51. Goodbye TV channels 52-83. Please get in touch with the FCC (WWW.FCC.GOV) for details.

Secondly, what shall we do with all the millions of small, portable, or battery operated B/W and color TVs that have no converter connection or port available (video/audio or CH 3/4 ports) for the converter boxes? Maybe hook up the rabbit ear(s) to the converter output? I tried this on my 3 inch battery operated color TV (one rabbit ear) and it worked great. And all those DVD recorders and VCRs with analog TV tuners? What? I need another remote control (for the converter)?!! I now have 4 "clickers". I fully expect next February 2009 that our curbsides and garbage containers will be loaded with unusable TVs/VCRs/clickers, etc. Maybe ship 'em back to China for recycling? Those large roof-top antennas will be mostly history also and sent off to fill up the landfill dumps with aluminum and plastic.

I recently checked at my local Radio Shack and they do sell a battery operated small DTV ready TV set for just under $200. I am sure the price will drop below $100 for these small sets as competition sets in. After all, I watch ballgames on my 3 inch color analog TV while at the beach, park or backyard on occasion. Where am I supposed to plug in my Zenith DTV converter that runs off 110VAC and draws some 7 watts?

My comments regarding current and future TV channel assignments are subject to change. I called the FCC on a number of occasions to find out just what is happening on these auctions and also on the TV channels 2-13. But I can't always get the information I'm looking for.

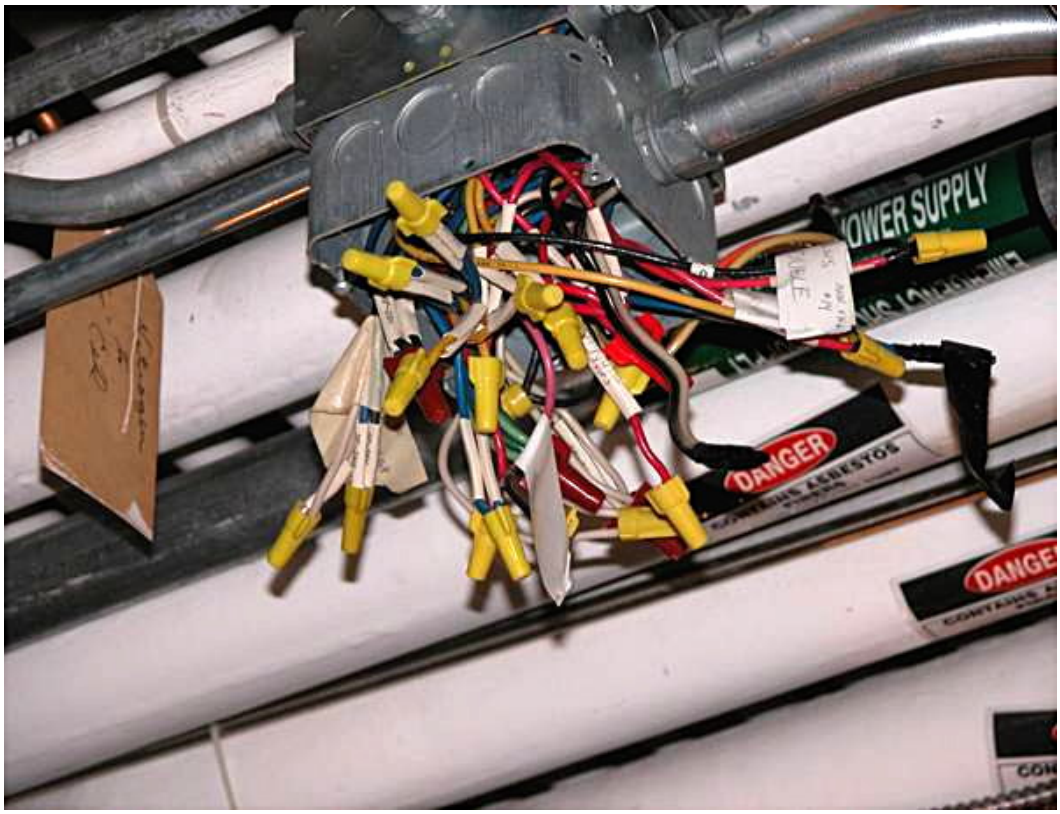
…Reprinted by permission from Electronic Design magazine 3/27/08

# OUTLET BOX FIRE HAZZARD

Ok, here is an example of the type of wiring most of us would like to avoid. I saw this in a magazine or on the web (I can't remember which) and thought I'd share it. I know we all try to put 10 pounds of *@# in a 5 pound box but this is ridiculous.

I'm sure it is the result of repeated changes with no desire to clean it up with another box along side of the original, but there becomes a time where we must spend a little more effort and clean up our act.

Are there any ham shack wiring jobs that look like this? If you can top it, send me a photo. You will remain anonymous.
…WA8RMC




# LATEST JOKES

OK, these are not "barn burners, but it's the best I could do and still keep this Newsletter for family reading. If any of you find others, send them to me. Maybe we can get a catalog of them going. The following ones come from the ATV Newsletter. Thanks Bryon.
…WA8RMC

**A jumper cable walks into a bar. The bartender says, "I'll serve you, but don't start anything."**

**Two antennas met on a roof, fell in love and got married. The ceremony wasn't much, but the reception was excellent.**

# MARCH 25, 1954: RCA TVS GET THE COLOR FOR MONEY

*OK guys, time for a bit of nostalgia. I remember sitting in front of one of these watching "Howdy Doody"…I forget the exact date! …WA8RMC*

RCA's CT-100 was the first color-TV set for consumers. It offered low quality at a high price. *Courtesy RCA*

**1954:** RCA begins production of its first color-TV set for consumers, the CT-100. It's destined to become a costly classic.

The RCA set had a 15-inch screen and sold for $1,000, which has the buying power of $7,850 today. That's more than enough to take your pick of 50-to-60-inch plasma screens with up to 16 times the screen area of the 1954 model.

Admiral and Westinghouse sets had beaten RCA to the market by months and weeks, respectively, and they were expensive, too. The Westinghouse went for $1,295 -- more than $10,000 in today's money.

It was the RCA standard -- with its backward compatibility to existing black-and-white broadcasts -- that came to define the market. Few families wanted to clutter their living rooms with one box for color and another for black-and-white.

But compatible color required packing two sets of circuits into one TV console. That complexity not only explained some of the cost, it also contributed to an image that was often blurry and ridden with ghosts.

*Consumer Reports* warned the model was fit just for what these days we'd call early adopters: "Only an inveterate [and well-heeled] experimenter should let the advertisements seduce him into being 'among the very first' to own a color-TV set."

A 1954 *New York Times* headline should sound familiar to modern ears: "Set Buying Lags -- Public Seen Awaiting Larger Screens, Lower Prices."

So RCA rolled out its 21-inch 21CT55 in November 1954 at 'just' $895 (over $7,000 today). Nonetheless, the company was apparently losing money on every set it sold. It would take years of price drops and technical improvement before color TV was no longer a plaything of the rich.

In a 64-gadget playoff bracket in 2007, the readers of *Wired* magazine named the RCA CT-100 as the Greatest Gadget of All Time.

*(Source: Various)*

# HAMVENTION ATV AGENDA

**1130-1330 ROOM 5 ATV (FAST SCAN AMATEUR TELEVISION).**

**Ron Cohen, K3ZKO will speak first about, "An Introduction to ATV".** The subject matter will include, equipment used in ATV and where to purchase it, how to assemble an ATV station and expected results. It will be helpful to those just starting as well as those yet planning to enter this hobby.

Ron, in the 60's was on the prime Apollo recovery ship transmitting live splashdown TV to the world. Later he was involved in the two-way radio service business and has been in TV-Guide magazine and on NBC National news speaking about Amateur Television. He was also the original publisher/editor of A5 Magazine which was the forerunner to the present day ATVQ Magazine**.**

**Dave Stepnowski, KC3AM will speak next about "Comtek module uses".** These Taiwan made transmit and receive modules have been very popular with ATVers as they provide easy and inexpensive ways to get on the air. Dave will point out some of the effective ways they can be utilized.

Dave was first licensed in 1976 as WB3GDB and worked in the CATV & Satellite TV fields since high school. He currently works at Verizon with fiber optics and high speed data for major business and inter office communications companies. He's been involved in ATV for 20 years and maintains three repeaters in DE, PA & MD using AM & FM from 440 MHz through 2.4 GHz.

**Henry Ruh, AA9XW will speak about "Reliability: Analog or Digital for linking".** This involves setting up requirements for linking multiple ATV repeaters as well as building techniques.

Henry is the former publisher editor of A5 and ATVQ magazines and author of nearly a dozen books on TV technology with over 40 years broadcast experience including an Emmy for technical achievement, and several ham radio awards from ARRL and other organizations. He first became a ham in 1969 and put his first ATV station on the air in 1971. He has taught university level TV production, business management. He's currently the chief engineer for Chicago TV station, and contract engineer for Qalcomm/MediaFLO.

**Bill Brown, WB8ELK will talk about "Simplex ATV repeaters and balloon ATV".** Bill's ballooning experiences will be outlined along with NASA involvement. ATV repeater experiences will also be discussed.

Bill has been involved with high altitude ballooning with and without ATV cameras for many years. Bill is also the designer of the now famous Elktronics TV identifier PCB used by almost all ATV repeaters for on screen identification purposes.

**Mike Collis, WA6SVT will talk about, "The Amateur TV Network in California".** This network is the largest and most complex in the USA The topics will include linking ATV repeaters and equipment needed including ATN's state of the art 16 input 8 output ATV controller that can be field configured using a laptop.

Mike has been licensed since 1972 and started building ATV equipment in 1976. By 1979 he built an ATV repeater to cover the greater Los Angeles area and by the early 1980s started working with other ATVers in Southern California to build more ATV repeaters and link them together.

He has a background in Broadcast TV and currently an engineer for CBS TV in Los Angeles. Mike also helped start the Amateur Television Network (ATN) in Southern California. ATN has spread across the county and chapters have formed in many other states.

**WA8RMC and KB8OFF will talk about the progress with the ATCO and DARA ATV groups.** Jessie and I will briefly discuss the progress of linking the ATCO and DARA ATV repeaters. The DARA ATV repeater is undergoing a site change which Jessie will address. The ATCO group is refining the digital ATV portion of its operation so I will touch on that subject.

I have been involved with ATV since 1965 and am recently retired from my engineering job of 43 years. In the years since 1965 I've been involved in almost all aspects of ATV in the UHF/microwave bands including digital ATV. I am presently involved in writing a new ATV chapter for a future release of the ARRL Handbook . I am currently the president of the ATCO ATV group in central Ohio and the editor/publisher of the ATCO Newsletter. Last year I was blessed to become the Hamvention ATV moderator.

**The ATV Friday night dinner and discussion** will be held on Hamvention Friday from 7 till 10PM at Roush's Restaurant 305 W Main St. in Fairborn, OH 45324 (at the north end of Wright Patterson airfield runway). The dinner menu is varied, moderately priced and ordered separately. We will enjoy a sit down dinner then have speakers talk about various ATV topics. We will also include door prizes for those present. Meeting terminates at about 10PM.

Directions: Take I-75 north then I-70 east. Exit SR 235/ SR4 south (Fairborn exit). South on 235 about 1 mile then left on Chambersburg road (east & still SR235 past airport runway). Right on N. Broad street for about 10 blocks. Turn left on W. Main street for 3 blocks to Miller Ave. Roush's is on corner of W. Main and Miller. Parking in rear.

# A T C O

***2 0 0 8  S P R I N G  E V E N T***

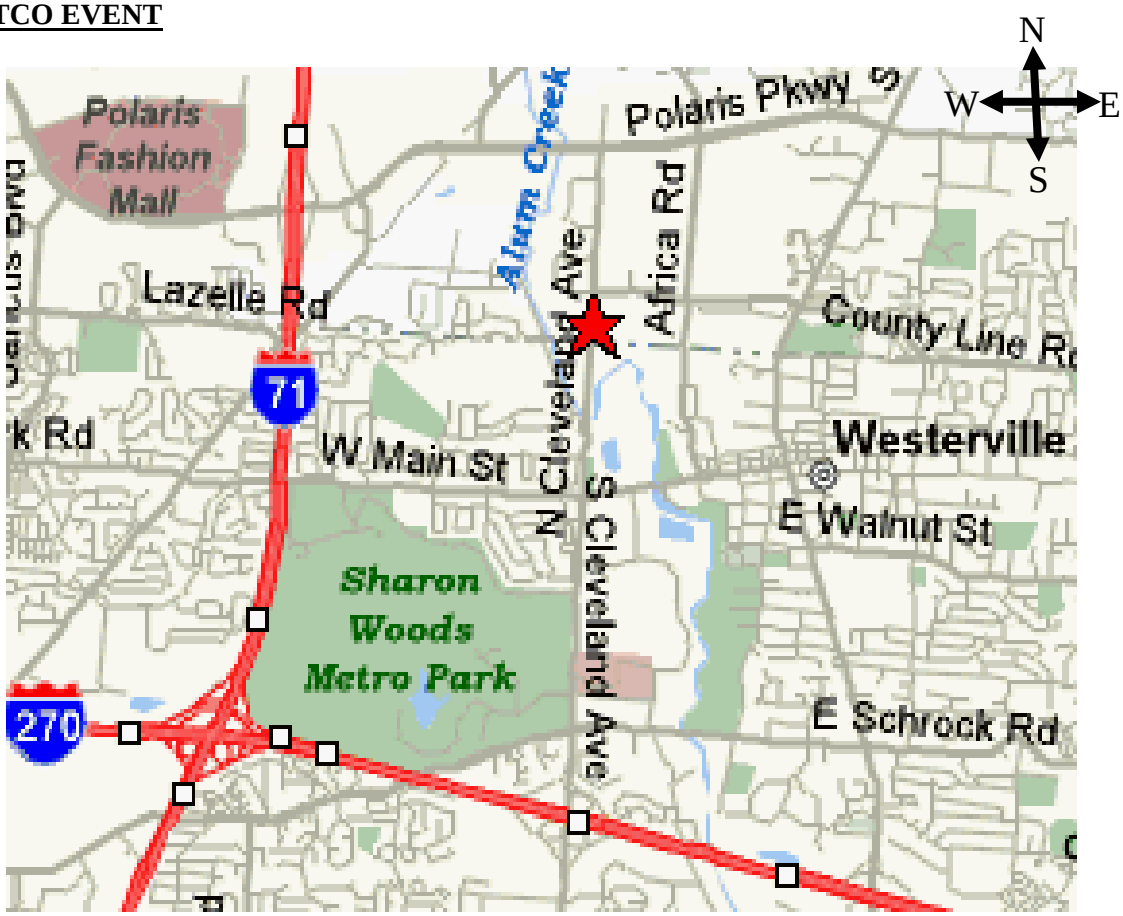
**9:30 AM - SATURDAY**
**APRIL 26, 2008**
**ABB PROCESS AUTOMATION**
**CAFETERIA**
**579 EXECUTIVE CAMPUS DRIVE**
**FOR MORE DETAILS, CONTACT**
**ART - WA8RMC 891-9273**

**BREAKFAST PROVIDED - DOOR PRIZES -**
**BRING A FRIEND AND SEE OLD BUDDIES**
**MINIHAMFEST - SHOW AND TELL**

## DIRECTIONS TO THE ATCO EVENT

<u>From I-70 WEST Bound:</u>
Take I-270 Northbound around and turning to the west to Cleveland Ave. Exit north onto Cleveland Ave and travel north about 2 miles to Executive Campus drive. (It's the next street past Westar Crossing Street). Turn left (west) to the ABB building at the end of the street.

<u>From I-70 EAST Bound:</u>
Take I-270 Northbound around and turning to the east past SR 315 and past I-71. Get off on the Cleveland Ave second exit and travel north (to Westerville). Continue north on Cleveland past Schrock road and then past Main Street. Continue north about ½ mile past Main Street to Executive Campus Drive. (It's the next street past Westar Crossing Street) Turn left (west) to the ABB building at the end of the street




<u>From I-71 NORTH bound toward Columbus</u>:
Drive through Columbus on I-71 to I-270 on the north side. Take I-270 east to the first exit, Cleveland Ave. Get off the Cleveland Ave second exit and travel north (to Westerville). Continue north past Schrock road and then past Main street. Continue north about ½ mile past Main Street to Executive Campus Drive. (It's the next street past Westar Crossing Street) Turn left (west) to the ABB building at the end of the street.

<u>From I-71 traveling SOUTH bound toward Columbus (North of I-270 ):</u>
Exit the Polaris Ave exit and travel East about 1 mile to Cleveland Ave. Turn right on Cleveland Ave to Executive Campus Drive. Turn right again on Executive Campus Drive. ABB is on the right side of the street about half way around the semi-circle.

# W8RWR IS BUILDING MORE “STUFF”

Bob, W8RWR, has been hard at work building emergency radio equipment for both car (truck) and home. Besides being the video camera “king” he is also becoming the “combo box guru”. The following pictures prove my point.
…WA8RMC



# CONSTRUCTION ARTICLE INDEX

The following list is an index of all construction related material that has appeared in the ATCO Newsletter since its inception in the early '80's. This is a handy reference for that particular construction article that you knew existed but didn't want to wade through each issue to find it. All Newsletters below are listed in order in the ATCO homepage under "Newsletters". Once you locate the Newsletter section, the displayed list can be re-sorted as needed by clicking on the "date" in the header.

| Newsletter Issue | Page(s) | Article |
|---|---|---|
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| Vol 2 I | 4 | 439 Beam |
| Vol 2 II | 8,9 | 439 Parabolic Ant |
| Vol 2 II | 9 | Video Modulator |
| Vol 2 III | 7 | 1296 Ant 45 Ele loop yagi |
| Vol 2 III | 10 | RF Power Indicator (in-line) for 1296 MHz |
| Vol 2 SE | 2,3 | Diode Multiplier for 23 CM |
| Vol 2 SE | 4,5 | 1296 MHZ 10 Watt Solid State Linear Amp |
| Vol 4 I | 3 | RF/Video Line Sampler |
| Vol 4 II | 3 | P-Unit Meter |
| Vol 4 II | 7,10,11 | UHF Gated Noise Source |
| Vol 4 II | 12 | 420 – 450 Broom Handle Rhombic Ant |
| Vol 4 III | 4,8 | 25 Element 1260 MHz Loop Yagi |
| Vol 4 IIII | 6 | Video Modulator (Tube Type) |
| Vol 5 I | 3 | Video Modulator One Transistor |
| Vol 5 II | 4,7 | 900 MHZ Yagi Antenna |
| Vol 5 II | 6 | Video Modulator for 2C39 Final |
| Vol 5 III | 3 | 440 MHZ Hidden Transmitter Finder |
| Vol 6 I | 3 | Video Line Amp |
| Vol 6 I | 8 | 25 Ele 910 MHz Loop Yagi |
| Vol 6 II | 4,6,7 | Microwave Oven ATV Xmiter |
| Vol 6 II | 5 | Matching a Quad Driven Ele |
| Vol 6 II | 8 | Power Divider for 33CM |
| Vol 9 IIII | 5,7 | 16 Element Loop Yagi for 439.25 MHz |
| Vol 11 II | 4,5,6 | 439 MHz 48 Ele Colinear Ant |
| Vol 11 IIII | 7 | 1280 MHZ Cavity Filter |
| Vol 12 I | 6,7,8 | 439 & 1200 Horz Polarized Mobile Ant |
| Vol 12 II | 5,6,7 | ATV Line Sampler |
| Vol 12 II | 10 | 439 & 1280 Interdigital Filter(s) |
| Vol 12 III | 6,7,8 | 439 Cheap Attic Ant |
| Vol 13 I | 9, 10 | High Level Modulator for ATV |
| Vol 13 II | 5 | VGA to NTSC video Converter for Computer |
| Vol 13 III | 9, 10 | AM Video Modulator |
| Vol 13 IIII | 4 | 1200 MHZ Transistor Linear Amp |
| Vol 13 IIII | 6 | 900 & 1200 MHz Loop Yagis |
| Vol 14 IIII | 8 | 439 31 EleYagi |
| Vol 14 IIII | 12, 13 | 1250 MHz FM ATV 3 Watt Xmiter |
| Vol 15 I | 16 | 427.25 Horz J-Pole Ant |
| Vol 15 II | 14 | 2400 MHZ Loop Yagi |
| Vol 15 III | 8 | Wavecom Modification |
| Vol 15 III | 12,13,14 | 2.4 Gig Antenna's |
| Vol 16 II | 20 | 2.4 Gig Helix Ant |
| Vol 16 IIII | 4 | 1280 MHz Loop Yagi |
| Vol 17 I | 14, 15 | Video Amp (Multi Output) |
| Vol 19 IIII | 4 | Pwr Supply for 28 Volt Ant Relay |
| Vol 20 III | 9, 10 | Video Sampler |
| Vol 21 II | 4 | RF Pwr Amp for 900/1200 MHZ |
| Vol 21 II | 14 | 10-14 Volt Doubler for 28 Volt Ant Relays |

…Bob N8OCQ

# 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. …WA8RMC.

**27 Apr 2008**+ Athens County Amateur Radio Association http://www.ac-ara.org Talk-In: 145.15 Contact: Drew McDaniel, W8MHV 61 Briarwood Drive Athens, OH 45701 Phone: 740-592-2106 Fax: 740-593-1837 Email: mcdanied@ohio.edu Athens, OH Athens Community Center 701 East State Street

**11 May 2008**x 1st Annual Bucyrus Hamfest & Computer Show Talk-In: 147.165 (PL 88.5) Contact: Kenneth Cook, W8DZN 5726 Timpson Road Caledonia, OH 43314 Phone: 419-834-0887 Email: w8dzn@arrl.net Bucyrus, OH Crawford County Fairgrounds Youth Building

**16-18 May 2008** Dayton Hamvention Dayton Amateur Radio Association http://www.hamvention.org Contact: PO Box 964 Dayton, OH 45401 Phone: 937-276-6930 Dayton, OH Hara Arena

**20 Jul 2008**+ Van Wert Amateur Radio Club http://www.w8fy.org/ Talk-In: 146.250 / 146.850 Contact: Louie Thomas, WD8LLO 208 North Chestnut Street Van Wert, OH 45891 Phone: 419-238-2812 Email: skouts@bright.net Van Wert, OH Van Wert County Fairgrounds US Route 127 South

**24 Aug 2008**+Hamfest and Computer Show Cambridge Amateur Radio Association http://w8vp.org Talk-In: 146.850 (PL 91.5) Contact: Russ Ellis, N8MWK 5855 Sherrard Road Cambridge, OH 43725 Phone: 740-439-6610 Email: n8mwk@arrl.net Cambridge, OH Pritchard Laughlin Civic Center 7033 Glenn Highway Road

**28 Sep 2008**+ Cleveland Hamfest and Computer Show Hamfest Association of Cleveland, Inc. http://www.hac.org Talk-In: 146.73 (PL 110.9) Contact: William Beckman, N8LXY c/o Hamfest Association of Cleveland, Inc. PO Box 81252 Cleveland, OH 44181-0252 Phone: 800-CLE-FEST Email: on Web site click email Berea, OH Cuyahoga County Fairgrounds 164 Eastland Road

# 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.

KC8BTX Dudley Field , Howard, OH

…WA8RMC

# 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 | Last Sun in October<br>First Sun in May | Tue's at 21:00 on 147.450 with Repeat Audio on 446.350 | |
| BUCKEYE BELLES-OHIO LADIES AMATEUR RADIO CLUB | http://geocities.com/kc4iyd | | Mon's at 09:00 on 3.945<br>Mon's at 21:00 on 147.060<br>Tue's at 20:00 on 3.972<br>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;<br>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<br>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 20:00 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 01/20/08)

**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 |
| 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.nettekservices.com/ATV/ | Pennsylvania, Pittsburg Amateur Television |
| **ht**tp://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) |
| http://mysite.verizon.net/vzev3ql6/id9.html | Chesapeake Amateur Television Society (CATS) |
| | |

**Foreign homepages**

| | |
|---|---|
| http://atv.hamradio.si | 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 |
| | |

**Misc other ATV related sites**

| | |
|---|---|
| http://www.atv-tv.org | The Amateur Television Directory |
| http://www.atn-tv.org | Amateur Television Network |
| http://www.hampubs.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 (10/25/07)..... $ 1205.35
RECEIPTS(dues)..... $ 280.00
Pizza Party expenses..... $ (137.78)
Fall Event food..... $ (127.68)
October Newsletter postage..... $ (12.76)
CLOSING BALANCE (4/19/08)..... $ 1207.13

# 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 with touch tone control
439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
449.975 MHz - F1 audio input aux touchtone control
1280 MHz - F5 video input or DVB-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. Hustler G6-270R 6dBd 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 (not in use at this time) |
| 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# | 449.350MHz link receiver enable / disable |
| 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 OFAPRIL 19, 2008

| 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 |
| N4AK | Glen Farr | 10 Autumn View Ridge | Travelers Rest | SC | 29690-8024 | | |
| 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 | |
| KC8BTX | Dudley Field | 357 N. Ridge Heights Dr | Howard | OH | 43028 | | kc8btx@37.com |
| 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 |
| N8COO | C Mark Cring | 3941 Three Rivers Lane | Groveport | OH | 43125 | 614-836-2521 | n8coo@yahoo.com |
| N8CXI | Garry Cotter | 2367 Northglen Drive | Columbus | OH | 43224 | | gjcotter@aol.com |
| WB8CXO | Mike Young | 289 Gaylord Drive | Munroe Falls | OH | 44682 | | |
| WA2CZD | Jim Gilbert | 1204 Aspen Pines Drive | Wilder | KY | 41071-0404 | | jgilbert@fox19.com |
| 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 | | w8dmratv@copper.net |
| 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 | MHZ52525@aol.com |
| KC8EVR | Lester Broadie | 108 N Burgess | Columbus | OH | 43204 | | |
| KB8FLY | Rod Shaner | 16012 London Rd. | Orient | OH | 43146 | 740-279-3614 | wa8fly@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 | rcmeeksjr@yahoo.com |
| WA8HFK,KC8HIP | Frank, Pat Amore | 3630 Dayspring Dr | Hilliard | OH | 43026 | 614-777-4621 | famore@wowway.com |
| W4HTB | Henry Cantrell | 905 Wrenwood Dr. | Bowling Green | KY | 42103 | 270-781-9624 | w4htb@insightbb.com |
| WG8I | Chris Vojsak Sr, | 3536 W Henderson Rd | Columbus | OH | 43220-2232 | | |
| WB2IIR | Michael Anthony | 370 Georgia Drive | Brick | NJ | 08723 | | |
| N8IJ | Dick Knowles | 1440 Northbrook Dr | Lima | OH | 45805 | | rgrant2001@yahoo.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 | 614-442-7748 | kwalsh@datrix.com |
| N8KQN (sk) | Flo Post | 1267 Richter Rd | Columbus | OH | 43223 | 614-276-1820 | n8kqn@copper.net |
| WA8KQQ | Dale Waymire | 225 Riffle Ave | Greenville | OH | 45331 | 937-548-2492 | walkingcross@bright.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 |
| KA8LWR | Mel Alberty | 1645 Olentangy Road | Bucyrus | OH | 44820 | 419-468-2971 | malberty@columbus.rr.com |
| W8MA | Phil Morrison | 154 Llewellyn Ave | Westerville | OH | 43081 | | |
| KA8MID | Bill Dean | 2630 Green Ridge Rd | Peebles | OH | 45660 | | ka8mid@qsl.net |
| W0MNE | Mike Doty | 4300 Winchester Southern R | Circleville | OH | 43113 | 740-420-9060 | mcubed2@hughes.net |
| 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 | mitchellb25@netzero.com |
| WU8O | Tom Walter | 15704 St Rt 161 West | Plain City | OH | 43064 | 614-733-0722 | wu8o@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 |
| W6ORG,WB6YSS | Tom & Maryann O'Hara | 2522 Paxson Lane | Arcadia | CA | 91007-8537 | 626-447-4565 | w6org@ arrl.net |
| KC8OZV | George Biundo | 3675 Inverary Drive | Columbus | OH | 43228 | 614-274-7261 | kc8ozv@columbus.rr.com |
| K2PMS | Paul Schmitter | 57 East Main Street | Springville | NY | 14141 | | pschmitter@roadrunner.com |
| KE8PN | James Easley | 1507 Michigan Ave | Columbus | OH | 43201 | 614-421-1492 | jeasley11@hotmail.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 | sunsettelcom@juno.com |
| WA8RMC | Art Towslee | 180 Fairdale Ave | Westerville | OH | 43081 | 614-891-9273 | towslee1@ee.net |
| W8RRF | Paul Zangmeister | 10365 Salem Church Rd | Canal Wincheste | OH | 43110 | | w8rrf@copper.net |
| W8RRJ | John Hull | 580 E. Walnut St. | Westerville | OH | 43081 | 614-882-6527 | jhull@wcmi.org |
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| W8RVH | Richard Goode | 9391 Ballentine Rd | New Carlisle | OH | 45334 | 937-964-1185 | w8rvh@ctcn.net |
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| 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 | jper@insight.rr.com |
| W8SJV, KA8LTG | John & Linda Beal | 5001 State Rt. 37 East | Delaware | OH | 43015 | 740-369-5856 | w8sjv@nexgenaccess.com |
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| 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 | 937-981-1392 | s.crew@in-touch.net |
| KB8UGH | Steve Caruso | 6463 Blacks Rd. SW | Pataskala | OH | 43062-7756 | | dael4@columbus.rr.com |
| WB8UGV | Bruce Jaquish | 22375 Montanna Drive | Lawrenceburg | IN | 47025-7447 | 812-637-3805 | brucewb8ugv@comcast.net |
| W8URI | William Heiden | 5898 Township Rd #103 | Mount Gilead | OH | 43338 | 419-947-1121 | wb8uri@earthlink.net |
| 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@yahoo.com |
| KB8WBK | David Hunter | 45 Sheppard Dr | Pataskala | OH | 43062 | 740-927-3883 | hiram@hiramhunter.com |
| KC8WRI | Tom Bloomer | PO Box 595 | Grove City | OH | 43123 | | ohiomec@aol.com |
| AA8XA | Stan Diggs | 2825 Southridge Dr | Columbus | OH | 43224-3011 | | sdiggs4590@aol.com |

| Call | Name | Address | City | St | Zip | Phone | URL |
|---|---|---|---|---|---|---|---|
| N8XYJ | Dan Baughman | 4269 Hanging Rock Ct. | Gahanna | OH | 43230 | | danohio@wowway.com |
| KB8YMQ | Jay Caldwell | 4740 Timmons Dr | Plain City | OH | 43064 | | kb8ymq@aol.com |
| KC8YPD | Joe Ebright | 3497 Ontario St | Columbus | OH | 43224 | | ---------- |
| N8YZ | DaveTkach | 2063 Torchwood Loop S | Columbus | OH | 43229 | 614-882-0771 | |
| AB5ZJ | Tom Phillips | 6712 Hickory Pl. Ct. | No. Richland Hills | TX | 76180 | | |
| KA8ZNY,N8OOY | Tom & Cheryl Taft | 386 Cherry Street | Groveport | OH | 43125 | 614-202-9042 | ttaft@columbus.rr.com |

# 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 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**
**OR**
**MEMBERS PAGE OF ATCO WEBSITE FOR THE EXPIRATION DATE.**
**SEND N8NT A CHECK OR USE PAYPAL IF EXPIRED.**