ATCO NEWSLETTER

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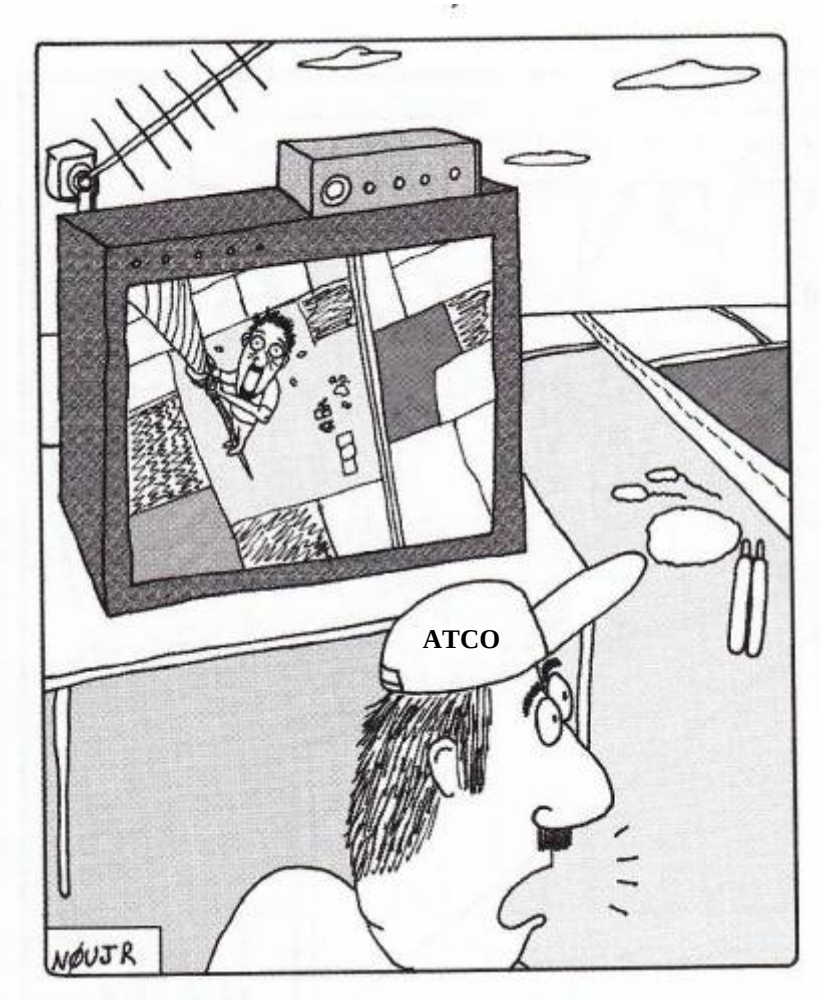
The ATCO newsletter is the official publication of a group of amateur television operators known as "AMATEUR TELEVISION IN CENTRAL OHIO Group Inc" and is published quarterly (January, April, July, and October)

ATCO SPOTLIGHT TOPIC

Thanks to Greg Trook N0UJR for allowing us to share his cartoons.



Charles, where are you?!!! I've got the first images coming through from the big ATV balloon you just launched!

ACTIVITIES ... from my “workbench”

Well, it’s time again for the ATCO Newsletter. Since it’s HOT outside (92 degrees with 90% humidity) I decided that it’s a good time to start (in the air conditioning). So far, the air at my feet is REAL cool. OK, now to the ATV stuff.

Things have been going rather smoothly so far this summer. Yes, there have been issues at the repeater but they’re minor so far and only need tweaking from time to time. A case in point is when Dale and I installed a new timeout timer. The timer is supposed to issue a touchtone sequence to turn off the transmitters if left in the ON condition for more than an hour. The resulting insertion into the audio line caused a decrease in normal audio so a return trip was needed to boost the combined audio. It seems to work OK now but the last time the output was held on, the tone sequence could be heard but it didn’t reset. Perhaps the “shutdown audio” is too low to reliably deactivate the controller. A return trip is planned, but it’s not on the “priority list” so to speak.

Also, the digital ATV output mysteriously shut down. I should have checked this but didn’t for whatever reason and decided to fix it on the next trip downtown. On that trip, I first looked at the “transmit light” on the DATV module and noticed it OFF. It was at that time that the light came on in my brain and decided to check the enable/disable code for its status. Sure enough, the transmitter was disabled remotely. An A2* was all that it needed to turn it on. (I would have been angry if I had made a special trip to do that). I added the A2* / A2# enable and disable codes some time ago to be able to disable the digital separately if ODOT interference was reported.

The next item to fix was the 147/446MHz omni antenna. It was installed in 1994 and never touched till now. An inspection revealed it was loose in its mounting and I didn’t want it coming loose, falling 650 feet to the street below and possibly injuring someone. It lost the sleeve to frame connection bolt leaving the antenna base loose in the mounting sleeve so the aluminum sleeve was slightly elongated due to the repeated whipping in the wind. I replaced it with a spare Diamond F50A antenna I had but the gain is about 3dB less on both bands than the original. If anyone notices a performance decrease in either the received 147.48 input or the 446.35 output, please let me know. At this time I plan to repair the original antenna and use it as the link antenna at South Vienna for ATCO/DARA 144.34 communication. More on that later.

I have completed a new roof camera and rotor system. I rushed to get it done before Red-White-Boom so I could test it during that weekend. It performed perfectly except for the fact that my 445MHz receiver went dead after about one day. It seems I didn’t plug the AC adapter in all the way so it was running only on its internal batteries. Yes, a return trip to the roof top was needed to plug it in!!! After that, the camera and remote control worked through the roof heat until I retrieved it the next Tuesday. So, now it’s ready to install on the SOT roof as soon as I machine a proper mounting plate to match the pipe used for the old camera. (There is always SOMETHING else to do). When I re-mount the camera, I’ll move the 10GHz transmitter to the absolute top of the building next to the beacon light. The camera needs to be in the clear and the camera control line plugs into the 10GHz transmitter box so they must be located next to each other.

The “equipment camera” is again operational. The old B/W camera was removed during a clean up effort a while back and never put back into operation. Roger, WB8DZW donated a great color camera that had an existing mounting bracket that fit the I beam perfectly. Thanks Roger. Now you can again see us when we’re working on the equipment *down* there, (or *up* there, I guess). Joy, joy!!

Last but not least, the radar transmitter at Channel 4 quit the other day. Now that we’re into the main part of tornado season, it’s important to fix that one as soon as possible. I went there and found the receiver dead so I picked up the whole thing and brought it home. The 446.35 receiver WAS in fact dead in the front end. I had a spare receiver so a crystal swap and subsequent retuning job was all that was needed. In the process, the power supply died also. It is common for switching supplies that have been run continuously for a long time to have electrolytics loose value. When that happens in the start-up circuit, as long as no power interruption takes place, it works fine. But if power is removed, the start-up circuit doesn’t work and the supply remains shut down. Again, I had a new spare power supply so the old one said “HI” to the trash can on its way out! Since we had 2 failures in the receiver, I decided to add a cavity filter in the antenna line. The antenna is located on a short tower next to their 600 foot alternate tower and takes lightning hits from time to time. (The time before last it fried a number of TTL components in the character generator). Sometimes a cavity filter is as good as or better than a Polyphaser to isolate lightning surges. The filter was then well grounded to the adjacent copper water pipe. If the unit stays working for another 4 years, I’ll call it “success”.

Well, that’s all for now. Next, that pesky weather monitor sensor on my tower needs attention. Someone in the neighborhood must be using 900MHz also because the 650 inches of rain it reported last week apparently did not actually happen!

73, WA8RMC

ATCO SPRING EVENT

Ahhhh, it's Spring Event time! What a great opportunity to get together and swap stories. This time we had about 28 attendees…I didn't get an official count. We all had a great time but no earth shattering news, just a fun gathering discussing ATV topics and current events. The prize table, at first glance, looked like it was going to be a little sparse but as the day rolled on, more stuff showed up, and GOOD things to boot! So, if you missed it, shame, shame, shame! You passed on an opportunity to stock up your "junk box".

No one passed up the food tray.

Wynn, W6CDR says, "Hi ! "

It looks like Jessie, KB8OFF and Dick, W8RVH are having a "serious" discussion while Bob, N8NT looks on.

Ken, W8RUT and Tom, KA8ZNY discuss the trunk sales situation in between the rain drops.

DAYTON HAMVENTION

Dayton was GREAT this year! For a change, the weather cooperated with only a hint of a sprinkle early on Friday morning. Otherwise, it was sunny and cool all weekend. I have not received official attendance estimates but by my observation, it seemed much like last year. There were a few more empty flea market spaces perhaps, but all in all, not bad.

The ATV forum was well attended and well represented with presentation topics. I tried to focus on individual ATV club activities this year with a few ATV clubs illustrating their activities. I hope to do the same next year if all agree. The pictures below say much more than I can so read on! WA8RMC *(Sorry about picture quality guys. Flash didn't work for some).*

On the left Tom, KA8ZNY and Phil, N8LRG keep an eye on their flea market space.

Right, Gordon West, WB6NOA dazzles the ATV forum audience with his "smoke" demonstration at the ATV forum.

Left is Ron, K8DMR describing the Grand Rapids, Mich. ATV repeater system at the forum.

Right, Jessie, KB8OFF talks about the present and future DARA ATV repeater operation.

Left Mike, WA6SVT describes the complex California ATN repeater network.

Right, Ralph Taggart, WB8DQT talks about the early days of ATV and image communications.

SK: ATVQ EDITOR

4/30/10. Amateur Television Quarterly Editor Denise Camp was rushed to the ER late Monday night and suffered respiratory failure and cardiac arrest on the way to the hospital. I was with her at the time working on finishing up the winter 2010 ATVQ when she passed out. The fire department and the EMT's got to her within 5 minutes, but it was too late. She has been in the ICU since and never regained consciousness. She passed away peacefully early Thursday afternoon.

Denise was a great friend of mine for many years and an incredible writer. Some of you may have met her at one of the balloon launches. She has been doing a series on Early Television for the past couple of issues and her last installments will be published in the winter 2010 and spring 2010 issues of ATVQ.

Denise touched all our lives with her love, joy and creative spirit and she will be dearly missed.

… Bill WB8ELK

COSTA RICA ADOPTS JAPANESE FORMAT FOR DIGITAL TV

From the Costa Rica News in San Jose, Costa Rica Costa Rica's #1 Online English Newspaper Thu., May 27, 2010

Costa Rica has officially adopted the digital television format created by Japan, but adapted to be used by Brazil in Latin America. By an executive order published in La Gaceta, Costa Rica and joined countries such as Chile, Argentina, Venezuela and Peru, which have also chosen this standard, technically known as ISDB-Tb.

Digital TV is a modern system of wave transmission, including broadcast television and satellite. Digital technology will eventually replace the analog system used in the country today. Digital TV offers higher quality audio and video and interactive services and mobility. In addition, its introduction will allow the country's frequency spectrum, which is used for TV and telecommunications, to be used more efficiently.

There are several digital television formats, the European (DVB-t), the American (ATSC) and Japanese-Brazilian. They were assessed by a special joint committee formed last year. After meetings, presentations and technical tests, it was concluded that the Japanese-Brazilian format is "more robust" technically and has the "greatest qualities" to be developed in Costa Rica.

The tests were conducted in different parts of the country and led to the conclusion that the ISDB-Tb "presents a measurable performance far superior to the performance of the other two standards. From a social perspective, the technical merits of the Japanese-Brazilian standard, will allow better coverage and the inclusion of hitherto excluded communities on broadcast television," reads the recommendation report, submitted on April 29.

Although not obliged to follow the recommendation, then President Óscar Arias, the Minister for the Presidency, Rodrigo Arias, and his Minister of Environment, Energy and Telecommunications, Jorge Rodriguez, signed Decree No. 36 009 MP-MINAET, which sets the ISDB-Tb as digital TV standard for Costa and editing by TCRN staff.

K8AEH ATV GEAR AUCTION

Wilbur Wollerman's (K8AEH) widow (Joy) is selling his amateur radio gear.

She has contacted Craig Connelly, Auctioneer with an auction scheduled for August 18th, 5:00 PM to be held in the IBEW Union Hall, 610 Lancaster Avenue, Reynoldsburg, Ohio. (Auctions have been conducted there for many, many years.)

I'm of the opinion a list of the ham gear will become available once the auctioneer takes possession of the many items. Some of them are ATV related, of course. The list of equipment to be auctioned can be obtained via computer download from the auctioneer upon its collection. I do not know the auctioneer's email address at this time.

She definitely won't offer any of his equipment one piece at a time from her residence. His XYL, Joy Wollerman, wishes to include the auction notice in the next ATCO Newsletter prior to August 18th. At Wilbur's request, she has not offered any of his ATV gear to individual ATCO members prior to the auction.

… Bill, W8DMR

ATN-KY HAM TV REPEATER

From ATV Newsletter July 1, 2010. Here is a news item sent by Bil in AZ.

This is to announce that KY4TV is now in operation on Cherry Hall on WKU campus in Bowling Green KY. Thanks to KC4WFN Marshall, W4WSM Ben, KA4CFW Fred, and WB4SCV Tom, KJ4CMG Herb Hess (wku maintenance). The antennas got installed last week and the equipment was put in place today June 15th.

This constituted the 1st half of a dual cross band system. Today the 1280mhz receive and 421.25 mhz transmit (Cable chan 57) was made operational. For those of you that can receive but do not have 1280mhz fm transmitters, you can test your receive capability by tuning you down converter to the low end and your beam (Horz pol) toward Cherry Hall on WKU.

If you have an old analog cable tv set and an outside antenna , put it on Chan 57. You may need a pre amp too.

The following touch tone code will turn the repeater on and off showing its ID. Key your 2 meter transmitter on 144.34 mhz simplex and enter the code below On code A B C followed by 00* Off code ABC followed by 00#

BE SURE TO TURN IT OFF WHEN YOU ARE FINISHED.

Presently the 2 meter control receiver antenna is in the building and some will not be able to access it but that will be corrected soon.

There are other codes that will be released later.

I will have the repeater output on my BATC.TV stream most of the time. go to www.batc.tv and click on the Member Streams box and you will see a list of streaming stations and not streaming stations. Find my call (W4HTB) on the streaming and click on it then click on "view"

Any questions just contact me.

I hope this is a good start for local activity.

Thanks to Paul K4VXP our Sec/Treas for his input and support. Paul is in Campbellsville and is very active.

…Hank W4HTB President ATN - KY Chapter. We will have an outside antenna in the future.

OHIO QSO PARTY

Not ATV related, but interesting as well. Sounds like a fun time! Ed.

Dear Ohio club official: I would sure appreciate if you sent this announcement about the Ohio QSO Party to your club reflector! (Or maybe a mention in your Newsletter or at your next club meeting too?)

…Kenny K2KW Ohio QSO Party PR Coordinator.

The Ohio QSO Party (OhQP) is just 5 weeks away, and the excitement is already building. Stations from across Ohio are making their plans to be on the air for one of the premier state QSO parties. Small stations from Ohio can make hundreds of QSOs during the short 12 hour event. Get on and call "CQ Ohio QSO Party" and run the pileups! We hope you will join us to make this the best event yet - our goal is to get fixed operations on from every county this year. If you are planning on being on, please let everyone know by posting your county of operation on the "Planned Operations" website at http://ohqp.org/plannedOpsEntry.html

For those who don't know what the OhQP is all about, it's a fun time for Ohio stations to be on the air and be the hunted station, or "DX". People from around the world are seeking out Ohio stations in this event, which is a nice change from most operating events. The OhQP occurs on Saturday August 28, 2010 from local noon to local midnight. In the basic QSO exchange, Ohio stations send a consecutive serial number + county, and non-Ohioans (who can only work Ohio) send a consecutive serial number and state/province/DX. Suggested frequencies are: CW: 3545, 7045, 14,045, 21,045, 28,045 kHz; SSB 3825, 7200, 14,250, 21,300, and 28,450 kHz. Don't be shy - try calling CQ in addition to searching and pouncing. Remember, the world is tuning the bands looking for Ohio stations-your CQ's will be answered! Full details & OhQP operating guide on the official website at: www.ohqp.org/.

This is a great event for a club activity or a training ground for new(er) hams. QSO rates are as high or higher than Field Day, and there's virtually no QRM in this event. Round up the club and have some fun. If you are in the mood to enjoy great Ohio countryside, try operating portable or mobile from a rare county. Remember, the ultimate goal is to just get on the air and have some fun!

…Kenny K2KW
Ohio QSO Party PR Coordinator kenny.k2kw@gmail.com

DATV TESTING

Ken and Robbie are again working to improve the DATV signal quality. Below is the result of field testing which states that, in general, DATV is superior to analog ATV. (Did you have any doubt)? Read below and determine that for yourself. The report originates in the Orange County Amateur Radio Club "RF Newsletter" at www.W6ZE.org reproduced here with permission.

TechTalk 87

DATV Testing Report - Part 4 (Field Testing)

by Ken Konechy W6HHC
&
Robbie Robinson KB6CJZ

Orange County ARC

This is the fourth OCARC TechTalk article describing the testing of the Digital-ATV station that we had planned. TechTalk77 describes the initial exciter bench tests. TechTalk78 describes 1 mW field test in a RACES drill. TechTalk83 describes bench testing the entire station. This month we report on the results we obtained in field testing of a Digital-ATV portable unit in the City of Orange, here in Southern California.

Some Background

The authors are both members of the OCARC, but they are also members of the RACES emergency communications group for the City of Orange, called COAR (City of Orange Amateur Radio). For years, the COAR group had equipped itself with analog-ATV equipment intended to send field pictures to the city Emergency Operation Center (EOC) located inside the Orange Police Department building. But for years, COAR has been frustrated by the quality of the ATV pictures being received by the EOC. The 440 MHz analog-ATV quality was degraded because the signal path typically included elevated-freeways, 2-story residential homes, 1-to-3-story commercial buildings and a "forest" of backyard trees and tree-lined streets. The only good transmissions occurred if we parked the portable ATV transmitter on a hilltop with a clear signal path back to the Orange PD building.

Members of the COAR team had speculated that perhaps Digital-ATV might provide the solution to improving the quality of our field video transmissions.

The DATV Equipment

Fig 1 is a block diagram of the set-up used during the recently completed field tests of DATV. The transmitter, and power amplifiers and SetTopBox (STB) receiver have all been described in more detail in the early TechTalk testing reports.

Another ViewSat VS2000 DVB-S STB was purchased on eBay for installation inside the EOC Radio Room for the purpose of conducting these DATV field Tests. The eBay cost of this FTA STB unit was less than $60 including shipping. **Fig 2** shows the new STB (bottom unit) being tested side-by-side to Ken W6HHC personal STB receiver before the field tests began.

The frequency used for the field tests was 1.292 GHz. Ken W6HHC had planned to set up the test frequency on 1.2915 GHz, but discovered that the STB menu would NOT allow him to enter 0.5 MHz digits. The Symbol-Rate was set to 2.2 MS/sec...producing an DVB-S RF BWallocated of 3 MHz. The Forward Error Correction (FEC) was configured to 1/2.

Figure 2 – Bench testing the ViewSat STB for OPD

The receiving 1.2 GHz antenna (**Fig 3**) was a 24-element loop-Yagi antenna mounted 3-stories high on top of the Orange PD building. The loop-Yagi antenna is made by Directive Systems (in Maine US). A Down East Microwave LNA for 1.2 GHz was installed for the field tests to drive the received DATV signal down 250+ feet of coax to the EOC Radio Room receiver.

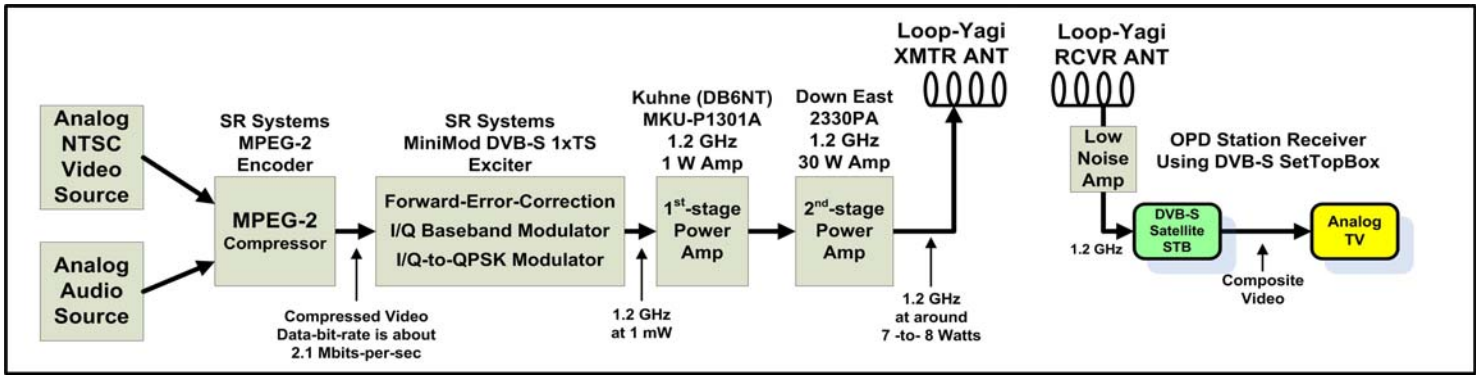


Figure 1 – Block Diagram of DVB-S Transmitter and Receiver for DATV Field Tests

Figure 3 – 1.2 GHz Loop-Yagi on roof of OPD

The field transmitting antenna is also a 24-ele loop-Yagi from Directive Systems that Robbie KB6CJZ keeps in his closet of spare antennas. **Fig 4** shows a typical set up of the portable antenna during the field tests. The loop-Yagi is mounted on 25-feet of stacking masts from Radio Shack.

Figure 4 – Bruce KC6DLA adjusts direction for the Field set-up of the 1.2 GHz Loop-Yagi

COAR member, Bruce KC6DLA, provided the field masts and a clever mast-support system that mounts to the roof-rack of a station wagon or mini-van....see the mast support details in **Fig 5** and **Fig 6**.

Figure 5 – Mast-brace attaches to roof-rack

Figure 6 – The car tire secures the support base and prevents mast from slipping.

First Field Test – El Modena High School

The first DATV test site we chose, the parking lot of the El Modena High School, was picked because COAR RACES had tried analog-ATV tests on 440 MHz from this location two years earlier with extremely poor video quality...P1 or P2 at best. But P1 or P2 was not the video quality that COAR RACES wanted to show to the Police or Fire Chiefs or to the Mayor of the city in the EOC room. The test distance is only 3.2 miles, but includes one elevated freeway, three-story apartment buildings, homes, 2-and-3-story commercial buildings, and plenty of trees.

While Robbie KB6CJZ and Steve KI6DDE manned the OPD receiving station, Ken W6HHC set up the DATV transmitting station in the back of his mini-van...see **Fig 7**. Just to be prepared, Ken also set up a STB receiver with a "sniffer" antenna and a notebook computer display to confirm that a video picture was actually being transmitted...if there was a lack of picture at the OPD. You can see the Notebook display in the center of the **Fig 7**.

Figure 7 – Field DATV transmitting station in back of MiniVan (sniffer receiver display in center)

Steve KI6DDE reported seeing a picture at the Police station from El Modena High School, even before Ken could finish setting up his "sniffer" receiver. The picture was perfect! Robbie KB6CJZ reported that the QUALITY monitor on the STB menu displayed 100%.

Fig 8 and **Fig 9** show the quality of the DATV signal that was received in the EOC Radio Room.

Figure 8 – First received DATV Video at OPD

Figure 9 – The SetTopBox QUALITY meter said 100%

The only testing problem we had was that we could not get any of three video cameras working correctly. Later we discovered one camera had the power unit set to CHARGE instead of VIDEO, a second camera that was producing out-of-focus pictures had been set to manual focus, and a third camera could deliver tape video, but not camera video. The field team was amazed at their diminished trouble-shooting skills under the pressures of field testing!

Luckily we had a previously-recorded ATV tape in the one camera...and played back the tape into the DATV transmitter. We felt we had accomplished "proof of concept" for DATV quality by evaluating the tape transmission.

Second Field Test – AMTRAK Train Station

The second DATV test site we chose, the parking lot of the AMTRAK train station, was picked for two reasons. First, COAR RACES had also tried analog-ATV tests on 440 MHz from this location two years earlier with extremely poor video quality...just P1. Second, COAR had been asked to test DATV at an upcoming RACES drill for the city. We knew that we would be asked once again to supply video from the AMTRAK station during the RACES drill. The test distance is only 1.8 miles, but includes, 2-story commercial buildings, 3-story University buildings, homes, and plenty of trees. We had to aim the 1.2 GHz antenna right into a pair of large leafy trees, about 75 feet away.

A picture was reported at the EOC Radio Room as soon as the transmitter switch was turned on. Again Robbie reported the DATV picture was perfect and the SetTopBox QUALITY meter read 100%.

Figure 11 – Robbie KB6CJZ views received DATV Video inside EOC Radio Room

Figure 12 – First live Camera video from AMTRAK Train Station is received as DATV at OPD.

Figure 13 – Ken W6HHC keeps an eye on the DATV transmitter at the AMTRAK Field Testing Site

Third Field Test – City "Mock EOC Drill"

The Police Department conducted the planned "mock EOC" drill for the City of Orange in order to test the abilities and training of Police Department volunteers, including COAR RACES communications volunteers to provide support for city EOC officials and staff and to provide communications from the field in a simulated train wreck incident. As expected, COAR was directed to provide DATV video from the simulated medical triage area in the parking lot of the Amtrak train station. A perfect DATV picture was being received at the EOC with only 10 minutes of travel time and 10 minutes to set-up the portable DATV equipment.

Figure 14 – Live video as received in EOC Radio Room during the RACES Drill (analog TV display)

Fig 15 – At DATV Field Site during Drill are (L-R): COAR Members Dave KG6RWU, Bruce KC6DLA, and OPD Volunteer Dan Claypool (Antenna is aimed straight into two trees on left)

The received DATV signal was first displayed in the EOC Radio Room. The video was then distributed to large-screen LCD many displays inside the EOC room itself, as shown in **Fig 16**.

Figure 16 – Live video as received in EOC RACES Drill is distributed to large-screen displays

Fig 14 shows the quality of the received video as seen on an analog CRT TV display. **Fig 17** shows the crisp clarity and quality of the DATV video distributed onto a large-screen digital display. Robbie KB6CJZ has commented that sweep-speeds and camera shutter speeds prevent these JPEG photos from really capturing the great quality he was actually seeing with his eyes on the CRT TV display.

Robbie did notice that some pixilation occurred on the

Figure 17 – This close-up of a large-screen display in EOC Room show the clarity of received DATV.

Robbie did notice that some pixilation occurred on the DATV video when a fast moving bus passed quickly down the street within our field of vision.

Conclusions and Plans

In overview, the authors and other COAR members were very pleased with the DATV video they had obtained from our initial set of field tests. It was very encouraging to see DATV overcome the analog-ATV problems of multi-path reflections and weak signals. From the same locations that had been previously tried with 440 MHz analog-ATV with extremely poor results, COAR was now receiving 1.2 GHz Digital-ATV with really great video quality.

Figure 18 – Members of COAR RACES and other OPD Volunteers gathered in the EOC room after the drill to begin a debrief session

Digital-ATV really does produce higher-quality video than analog-ATV under adverse conditions!!

The authors have plans to do more field testing to eliminate the slight pixilation situations seen in these first field tests. Perhaps a slightly higher Symbol-Rate...or an FEC setting with slightly less-redundancy might make a difference to reduce the observed pixilation. We used D1 video resolution in these tests. It will be interesting to compare the quality of HD1 video resolution with D1 in an attempt to reduce the NDBR (payload) we need to support for a chosen Symbol-Rate.

It has been a really fascinating journey for the authors to see DATV progress from a study...to planning a station...to testing the station. Our DATV field testing has really confirmed the robustness of the DVB-S Digital-ATV signals.

Interesting DATV Links

- ARRL-TAPR DCC 2009 paper on "Planning a DATV Station on DVB-S" – **www.TAPR.org/pub_dcc28.html**
- TAPR PSR Quarterly Journal Issue 111 on DVB-S Modulation Overview – see **www.TAPR.org/psr.html**
- Amateur Television of Central Ohio WR8ATV (First US DATV Repeater) – see **www.ATCO.TV**
- British ATV Club - Digital Forum – see **www.BATC.org.UK/forum/**
- British ATV Club - select from about 25 streaming repeaters – see **www.BATC.TV/**
- German portal for DATV streaming repeaters and downloads – see **www.D-ATV.net** (in German)
- AGAF D-ATV components (Boards) – see **www.datv-agaf.de** and **www.AGAF.de**
- Lechner DATV Boards - **http://lechner-cctv.de/d-atv-dvb.151.de.html?mwdSID=9agn7phuiu46fvm2ok3aueltf3**
- Complete ready-to-go DATV transmitters – see **www.d-atv.org/D-ATV-Modulator.pdf**
- SR-Systems D-ATV components (Boards) – see **www.SR-systems.de**
- DGØVE microwave amps, up-converters, down-converters – see **www.DG0VE.de**
- Kuhne Electronics (DB6NT) RF Amplifiers – see **www.Kuhne-Electronic.de**
- MiniKits (SMT kits for RF amplifiers) – see **www.MiniKits.com.au**
- Melbourne DATV Repeater VK3RTV – see **www.VK3RTV.com/latest.html**
- Orange County ARC newsletter entire series of DATV articles – see **www.W6ZE.org/DATV/**

KD6ILO ATV REPORT - WEEK OF JULY 12, 2010 (*from the ATV newsletter)*

Well, "I'm back". It's been about three weeks since my last input to the newsletter just after the June Field Day activities for 2010. For me it was kind of disappointing as there was no activity or participation on any of the simplex ATV frequencies here in the San Diego area north or south county, I made a call out on the 2m ATV coordination frequency with no answers returned. So not to have wasted my time setting up to operate, I set up a receiver unit with four receivers at my QTH (1) on 23cm on 1289.25 MHz AM, (2) on 70cm on 426.25 MHz AM and (3) on 13cm on 2398.0 MHz FM. With a DVR in-line to record my signals I set out around to the Del Mar Fair Grounds, La Jolla Golf Course parking lot and the Del Mar Heights Shopping Plaza. I had my wife on GMRS (*WPZT957)* so she could tell me how well my video was being received at home. From what I've seen on my DVR most of my video signals from Del Mar Fair grounds were between a P4-P5 on both 70cm and 13cm, on 23cm it was about a P3-P4. From the La Jolla Golf Course all signals were P4-P5 and from the Del Mar Heights Shopping Plaza, the only poor signal again was on 23cm about a P2-P3 with color; on 13cm and 70cm P5. So that's how I spent my 2010 Field Day doing ATV simplex test shots back to my own QTH thank goodness for DVR recorders. One of my future tasks is to test my portable EMCOMM ATV Repeater unit here in San Diego County. It's a great unit and it worked very well in Washington State where it was used with ARES/RACES and Medical Services in the Puget Sound. I had fun on my own during Field Day, but it would have been more fun if I had company at a distant location with other local ATVers. Oh well, that's Amateur Radio. Anyway I made my visits to most of my favorite BATC TV repeater stations for the week and I noticed that most of the streams were not active. It must be the summer heat or everyone is on vacation.

ATV NET BATC STREAMING SUMMARY

W7AMQ ATV Net for Saturday, July 10 2010 @ 11 AM PT. A++

Great group get together that morning with our host WB2QHS, Ed and the rest of the AMQ family. The group was small but we had a great net. Steve, K7SF as always had a great P5 picture in to the repeater. Ken, KA7OSM was finally at home using his ATV station and not using "Skype" to check in to the net as he travels to Spokane Washington a lot on business. He has a good looking station set-up at his QTH. Frank, K2NCC was watching from his QTH both via batc and via a satellite receiver unit on the AMQ output frequency. All he needs now is a transmitter to complete the station. NB7C, Carl in Idaho and I in San Diego checked in via Skype as Ed patched us in to the repeater so to say hello and pass our comments and well wishes to the group. Mike, KB7WUK, had a power supply issue and could not put a picture on the AMQ repeater, but at nearly the end of the net he came on with his P5 picture, guess he found the problem nice to see you Mike! O'ya Dennis was missing WA7DRO somewhere in the Pacific NW. Where are you Dennis? Here were the check ins: WB2QHS, K7SF, NB7C, KD6ILO, KA7OSM, K2NCC and KB7WUK.

GB3GW ATV Group Net for Sunday July 11 2010 @ 12PM PT. A +

As always a very friendly group of ATV operators, a video tour was given by Derek, GW3FDZ of an old English country home which my wife enjoyed viewing with me very much. P5 pictures with great audio from the GW repeater users. Here were the check ins: MW1WEJ, GW3FDZ, KD6ILO, GW3XDO, Keith (call not posted), and two guest (no calls or names).

GB3TB ATV for Sunday July 11 2010 @ 1230 PM PT. A+

Other Derek, G4WLA was testing his ATV station via the TB repeater his picture was about a P2-P3 with color but he had no audio. He explained he needed a better antenna and height added to improve his signal to TB site. He gets an A+ from me for working on improving his station and signal, that's what its' all about with ATV. Good job Derek. See you on soon, 73! G4WLA, KD6ILO

GB3BH ATV Group for Sunday July 11 2010 @ 2PM PT. A++

Great afternoon program via Russell, G7RZF of the "Flying Legends Air show" held on Saturday, July 10 2010. Perfect video presentation Russell. Joining us that afternoon was Dave, G8ADM and Carl, NB7C from Idaho and he is also a regular on the W7AMQ nets in Portland, OR. Check ins were; G7RZF, G8ADM, NB7C, KD6ILO

GB3KM ATV Group for Sunday July 11 2010 @ 2:30 PM PT. A+

I dropped in on Rob, M0DTS working on his DATV receiver. He was trying to flash new updated firmware on the board but was having problems, but he got it to update. Group was as follows; M0DTS, KD6ILO, G8BYI, G3YWG of the GB3SQ group, M1AHN, NB7C.

GB3IV ATV Group for Monday July 12 2010 @ 2:30 PM PT.

I dropped in late for the group get together with G4KLB and G3NZL. Subject matter was a technical issue concerning repeater RF output capacitors. See you all on the next group net on Monday. G3NZZL, G4KLB, KD6ILO and 3 guest (no call or name posted).

GB3KM ATV Group for Monday July 12 2010 @ 3PM PT. A++

Dropped in on Rob, M0DTS again building one of G4DDK's superb 23cm preamps. I always enjoy dropping in on Rob as he always has something on the work bench, a repair job, building a new project or working TV with the KM group. He does answer guest questions on technical issues...thanks Rob for being a great amateur and friend.M0DTS, G4FVP and KD6ILO.

W7AMQ ATV Net for Monday July 12 2010 @ 7PM PT. A+
Due to a router failure that evening the W7AMQ repeater video feed to the batc server was out for most of the net. But we did still have a pretty good group locally and on the batc stream "hardcore" ATVers hi hi! I had a show and tell presentation for that night but I will have it show it on our next net " Portable Manpack 70cm Unit". I gave the net a A+ for their participation even if we did not get to see everyone on video locally except Ed, WB2QHS. Here were the check ins for that evening; K2NCC, W6HUY, KD6ILO, KC9PNN, KA7WOF, WB2QHS, WA7DRO, NB7C, and N6QOG. Thanks fella's for being there.

***WR8ATV ATCO Repeater users group net for Tuesday July 13 2010 @ 6PM PT*. A+**
Other great net and participation by the ATCO local repeater users and guest on the BATC stream that evening. We had a special guest from Auckland, New Zealand Grant, ZL1WTT. He dropped in just to see and hear what US ATVers were up too. No program that evening just local user check ins, and the DATV part of the repeater was operational for the net. Here were the check ins; WA8RMC, W8URI, N8CXI, KC8YPD, W8RWR, KA8LWR, W8RVH, W8URI, K8ZNY, KB8GUE, KB8BZW, KC9PNN, N8NT, KD6ILO and special guest Grant, ZL1WTT.

Come on, guys! We've got to do better than a single smiley face and A+ rating! Let's get some creativity going and show some new stuff on our Nets.

W6ATN ATN-CA for Tuesday July 13 2010 @ 7:30 PM PT. *** Net activity night? ***, no streaming that evening and I have no line of sight to Santiago Peak to transmit or receive so I could not participate. No path to Point Loma repeater either. San Diego Amateur Radio TV has pretty much gone in-active.

GB3BH ATV Group for Wednesday July 14 2010 @ 2:30 PM PT. A++
We had other good group get together to watch more Air show video provided by Russell, G7RZF. We also got to see more flight video in a Cessna 172 from the cockpit which was fun with take off and landings. The group net participants were; G7RZF, G8ADM, M0SAT, G4BID, M1AHN, G8ACT, NB7C and KD6ILO.

GB3KM ATV Group Net for Wednesday July 14 2010 @ 3:30 PM PT. A++
The group get together was all tech talk and information between the local KM repeater users. Rob, M0DTS was working on his DTV receiver unit as the net carried on with other subject matter. It went pass mid-night in England before they turned in for the night. But I'm glad always to be there to hear and see what the group is up to with ATV, always interesting to learn from Rob, Clive and Terry. Group for that evening were; KD6ILO, M0DTS, G4LVP, and G1LPS.

W7ATV Group net for Wednesday July 14 2010 @ 7:30 PM PT. A+
It was a good net that evening not a large group but good participation by all who checked in thanks to our host Robert, KA6PSD. Most were checked in locally on the 2m voice repeater and only three on the W7ATV/r and three on the BATC TV stream. Ron, AE6QU had an awesome P5 picture in to W7ATV'r, great work Ron don't touch a thing its' working great. Here were the Check ins for that evenings net were; KA6PSD, KD6ILO, K1ATV, N7LQK, N7NTN, AE6JG, KE7OIW and AE6QU.

W6CX ATV net for Wednesday July 14 2010 @ 8PM PT
Its was a technical net with something on the work bench I asked what it was but no one answered me back on the batc chat room, I guess no one was looking at the window during the net. W6HUY, KD6ILO, W6DKE, KA6IVF, K6SOE, WB6ASU and KB6T.

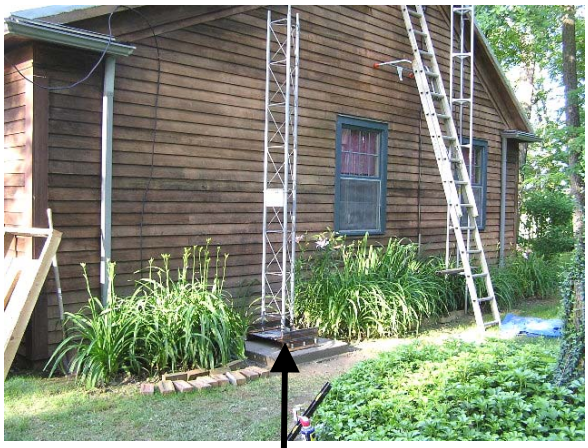
Amateur Radio TV Talk

Most of us ask ourselves where is Amateur Radio going and taking us when new technology is introduced to us. No matter what the new use of that new technology is, it is sometimes hard for us to keep up or even have a chance to use that new technology and even to afford that new radio, data or ATV video equipment. I have never tried to *"Keep up with the Jones'"* as they say, I can't afford it. I just read, research and experiment with that new mode of communicating, give it a try and see how it would help me to became a better communicator and pass it on to other Ham's if they are willing to learn that new technology or mode. Some... and I mean some Hams' don't feel that the use of the internet should be part of Amateur Radio, why? IRLP, Echolink, Winlink, D-Star and ATV video streaming will always be part of Amateur radio. It's not going away anytime soon and I have used each and one of these internet tools for my ARES/RACES/SAR operations with great success in drills, exercises and real emergencies saving lives and property. You don't have to like it, *just be open* to the use of these new modes and promote "Amateur Radio" for what it is, a friendly and fun way to communicate with people locally or around the world and lets be friends. I've been a Ham for 18 years, Amateur television operator for that long and always enjoyed that mode. My other favorites are satellite, digital communications and building my own equipment and antennas. I did not have great success during field day with trying to get someone or club to join me on the air for simplex work on the ATV frequencies' but I did something anyway because I love playing with my Amateur TV equipment. Because, "Its' FUN!
…73, Mario, KD6ILO Del Mer Torrey Hills ATV San Diego, CA DM12jw

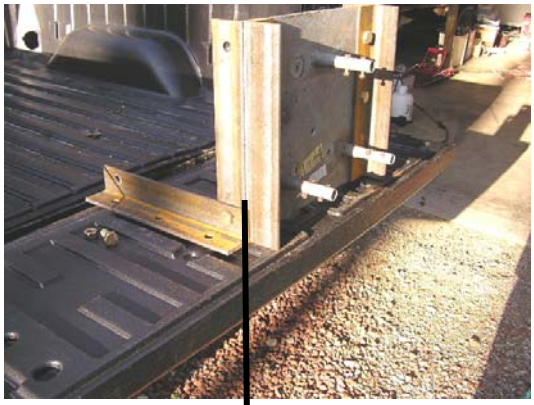
W8URI TOWER CONSTRUCTION

Bill has been VERY busy constructing a new tower system for his ATV equipment. It looks like he is going about it the right way because, as far as I can see, it seems the house may blow away way before the tower ever does. I'm anxious to see what the rest of it looks like. I've not seen that type of "tilt over mechanism" before but it should do the job nicely. (By the way, NICE HOUSE!) Ed.

Here are some photos of the tower base installation. I will be taking more, so there will be some to follow. If this works, it should include some of the tower being raised and lowered. On the other hand it could show a crumpled tower lying in a scrap heap. You never know. I have made substantial progress this week and if all goes well I may be adding sections 4 and 5 tomorrow. After a test lift, I will determine whether I will add the final 12 feet, rotor and mast pipe. After another test, if all goes well, antennas and hardline will be added. Basically the angle iron is 3/8" thick. The bolts are 1/2" grade 8. The threaded rod is buried 2' deep. The concrete slab is 3'x3'x42". The guy wire posts are 4" well casing 36" deep with a 12" hole. 6' stick up above ground. Guy bolts are 5/8" with 1/4" guy wires. Pull tower is back guyed with 1/4" cable. That guy post is also back guyed to a deadman 3' in the ground. The pull cable is 7/32" 7/19 aircraft cable. The pulley is rated at over 2000 lbs load. It is attached with a 1/2" thick U bolt to 1/4" thick angle iron that is connected to three points of contact on the pull tower. The winch assembly is also 1/4" plate that is welded to a piece of 1/4" angle iron that also provides three points of contact. …de W8URI



OK Bill, good job. It looks like you really did the math before starting. Great tower! Now… where are the antennas? ED



RED-WHITE-BOOM – Our 15TH Year

Here's Bob W8RWR (left) and Tom KA8ZNY (right) viewing the multiple video displays on the Police HQ top floor.

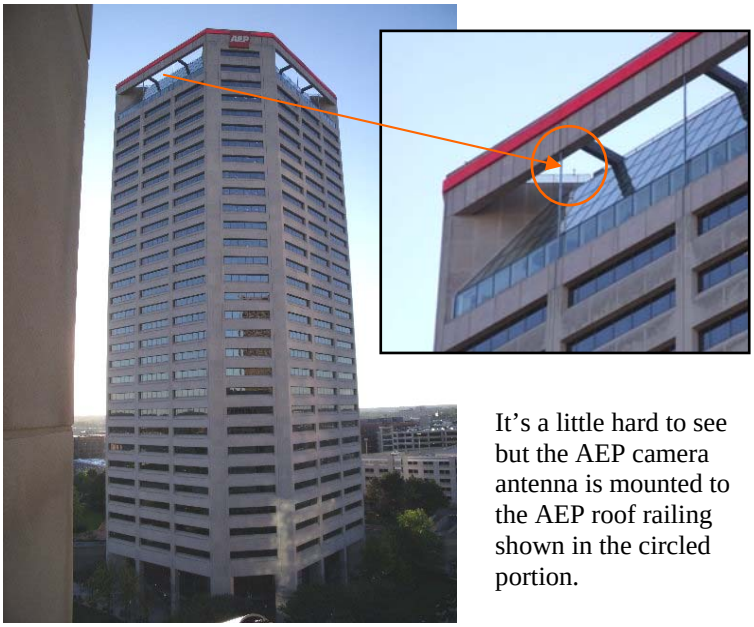
WOW!!! It's been 15 years since we first started providing crowd security video for the Columbus, Ohio Police during the annual fireworks display. Since there's between 400,000 and 500,000 people converging on downtown Columbus to view the annual fireworks display, it's expected some confrontations could take place. Therefore it's ATCO's job to help provide crowd observation video for viewing at the Police Emergency Command Center for officer deployment if needed. Our video cameras located on the roof of selected building roof tops are microwaved to the EOC via 1270 and 2398 MHz. This year we had (2) remotely controlled pan/tilt cameras and (4) manually controlled ones to zoom in on suspected potential trouble spots. I think due in part to the unusually pleasant low humidity weather, no problems erupted. Only one safety issue was noted: a group of spectators tried to park themselves on a train bridge crossing the river. The Police promptly escorted them away.

The above left photo reveals the equipment complexity which took over one day to set up. Thanks to Tom, KA8ZNY for the majority of the sophistication. His joystick controlled fast pan cameras really made the job pleasant.

Above, Bob N8OCQ aims his camera to get a shot of the crowd below. He's on the Police HQ top floor balcony partially exposed to the outside. The helix receive antenna for the 2.4GHz video coming from the Gas Co. is in the center. The Gas Co. building is in the background.

The above picture is "around the corner" from N8OCQ's location. Bob, W8RWR is in the background. The 1270MHz can antenna is receiving video from the AEP building roof.

Below is the Gas Co. building. Our camera is next to the microwave antenna on the roof.

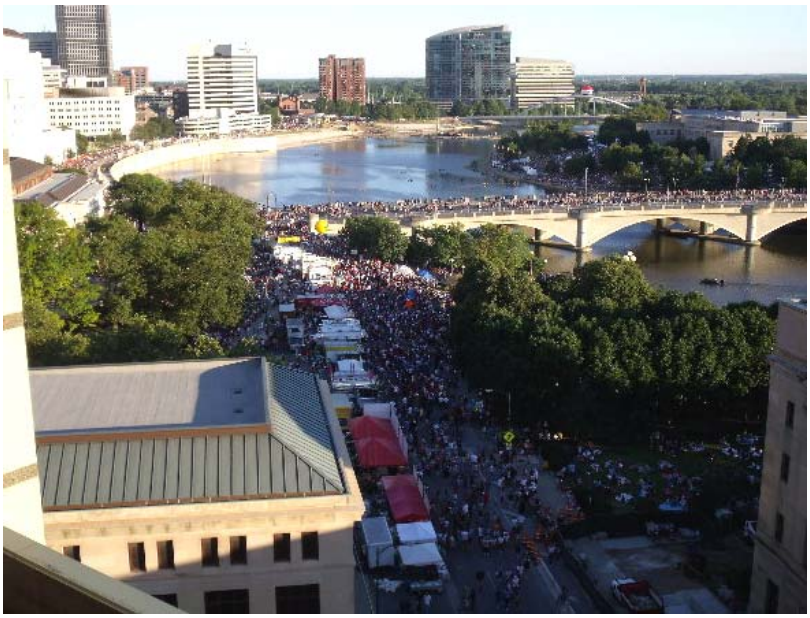


It's a little hard to see but the AEP camera antenna is mounted to the AEP roof railing shown in the circled portion.

This view is looking South and across the Olentangy river and the Broad street bridge in Columbus, Ohio. It's about 6PM so the main crowd hasn't arrived yet. The fireworks start at 10 so many more people are yet to come.

OK, now this is more like it! It's the same basic view but is about 1 hour later. Since the main food court is in the foreground, you can see where the people are.

Oh, I can smell those funnel cakes and brats even up here!



And finally, below is what everyone came to see! The fireworks display lasted for about ½ hour and was reported to be the best display in the Midwest USA. For us, we got home about 2AM!

CRT REBUILDING…A LOST ART?

WOW, this brings back memories! I recall in my "earlier days" of Ham Radio, one of my fellow ATVers owned a picture tube rebuilding business in Toledo, Ohio. Since I repaired TV's to help with my College education at the time, I frequented him often to buy rebuilt CRT's. I never got into that business but had a great interest in his operation. That was many years ago. Now I see that the equipment from the business below will be donated to the Early Television Museum in Hilliard. Old things sometimes never go away! The article originated in TV Technology Magazine and is reproduced below with permission. Ed.

Last Lone Wolf CRT Rebuilder Closing

Flat screens and consumer attitudes spell end to 62-year-old business

by James E. O'Neal

DES MOINES, IOWA

Scott Avitt swims several miles a week, frequently runs several miles before dawn, and is an ironman tri-athlete. And he's also one of the last players still standing in another field—cathode ray tube rebuilding.

Avitt, 57, has been rebuilding picture tubes since he was 17, following in the footsteps of his father, Frank, who founded the Hawk-Eye Picture Tube Manufacturing business here in 1958. Avitt took over the corporate reins in 1976, and to this day continues to make new CRTs out of old, but not for much longer. The migration to flat screen video displays that accompanied this country's shift to digital broadcasting, coupled with the public's "don't fix it; dump it" attitude has spelled the death knell for this 52 year-old business.

The Hawk-Eye Picture Tube Manufacturing company has operated from this building in downtown Des Moines since 1991. Its owner plans to end operations this summer.

Avitt has seen them all—round tubes, ultra-rectangular, glass/metal envelopes, delta guns, in-line guns and bonded yokes. Virtually every type of CRT that has been produced in America or the Far East has found its way into this tidy shop here in Iowa's capital, and Scott, his father, or late brother Alan, found a way to take them apart, replace the worn parts and put them back together as good as, or better, than new.

Hawk-eye has been known to the broadcast crowd for several decades, providing a budget-friendly alternative to factory replacement tubes for Sony, Tektronix, Barco, Conrac, Ikegami and other broadcast lines. (In many cases, the company has been the only source of replacement CRTs for monitors that were orphaned by their manufacturers; literally bringing the dead back to life.)

MAJOR SHIFT

In addition to being a skilled technician who enjoys his work, Avitt is also a businessman and has seen the handwriting on the wall.

"Business really began to slump in 2009 due to all of the flat screen sales," Avitt said. "Before that, we used to average three tubes a day, five days a week. Now it's down to just a trickle."

With home viewers and broadcasters both turning their backs on cathode ray displays, Avitt has decided that it's time to turn the bakeout ovens off for good and retire the vacuum pumps that have characterized his rather unique trade.

At one time, the United States boasted hundreds of CRT rebuilding operations. They existed both in the big cities and in small towns, filling an important niche in making it easier for John and Jane Public to "stay tuned" when the most expensive component in their television sets failed. Typically, a CRT could be rebuilt and sold for one-half to two-thirds of the cost of an all-new tube. Avitt and many others in his trade did their jobs so well, that there was no distinguishable difference between the new and rebuilt CRTs. They even carried the same warranties.

Scott Avitt applies the output coil from a large RF heater to a freshly rebuilt CRT. The heat produced will "fire" the tube's getter, depositing a silvery chemical compound on the neck that traps any gases or water vapor remaining after the tube has been sealed off from the vacuum pumps.

"At out peak—between 1965 and 1971—we kept five employees busy," Avitt said. "We did it all then—even constructing the

replacement electron guns and re-phosphoring and aluminizing screens. Our revenue was around $390,000 a year. Collectively, rebuilding was a multi-million dollar business."

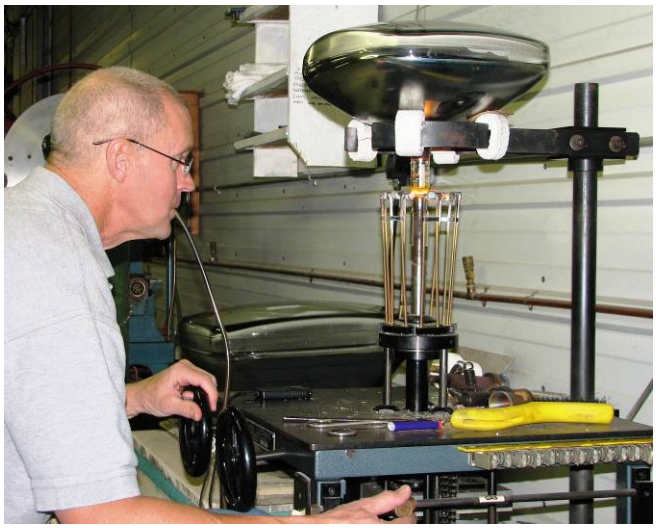
Avitt reflected that this all began to change beginning in the 1980s when the "throwaway society" mindset began to kick in.

"The smaller rebuilders started going under in the 70s and 80s," Avitt said. "My brother made a pitch to get broadcasters' business by sending out a brochure listing the broadcast gear that we could rebuild tubes for. That brought us a lot of new business."

DIVERSIFYING THE BUSINESS

Hawk-Eye also went after other markets that were opening up then—bowling alley score displays, coin-operated amusement machines, and even keeping Toys "R" Us supplied with specialty CRTs. Avitt recalls working double shifts and dozing on a lounge chair in between operations to be able to handle the volume. The company expanded into its present 5,500 square foot building in 1991.

However, other rebuilding operations ceased to exist as television got closer to the 21st century—with even the big operations such as Channel Master, Sylvania, Philco and RCA winking out of existence.



A new electron gun is sealed onto a small cathode ray tube. Avitt uses his breath to provide the small amount of air pressure necessary to keep the soft glass from collapsing.

Now it's Hawk-Eye's turn. Even after 40 years of putting in 12-hour days that begin at 4:00 am,, Avitt still enjoys his work, but is reconciled to moving on.

He's currently working part-time as an athletic trainer and coach, and will move into this field on a fulltime basis later this summer when he's finished up the last of the standing rebuild orders (now mostly from TV collectors who want to keep their vintage sets alive). After the last CRT is regunned and processed, Avitt plans to donate his tube rebuilding equipment to the Early Television Museum in Ohio, and has volunteered to instruct others in its operation if there's sufficient interest.

"I'm really going to miss rebuilding tubes, though," he said.

CRTs: Demand is declining, but king kinescope's reign isn't over yet

While Avitt's Hawk-Eye operation is the last of the small independent CRT rebuilding businesses, there are at least two other U.S. companies that can rework cathode ray tubes—Video Display Corp. and Quest International. Both are fairly large companies in comparison to Hawk-Eye, neither rebuilds "garden variety" CRTs any longer, and both are sufficiently diversified so that they will continue to operate when the demand for CRTs disappears completely. Video Display has several operating divisions, and one of these is Southwest Vacuum Devices, which makes the replacement electron guns that Hawk-Eye has depended upon for some time. Bob Wolfkiel, general manager of the Southwest Vacuum operation says that constructing electron guns for home entertainment purposes is a declining part of their business.

"We don't see much business in the consumer-type replacement guns in our product line," Wolfkiel said. "And no one else is building electron guns for consumer CRTs in the U.S. anymore. However, we're still doing a lot of business in specialty tube types—tubes for military applications." Wolfkiel's words are echoed by Shawn Arshadi, president and co-founder of Irvine, Calif.-based Quest International.

"We do remanufacture CRTs, but not for consumer products," said Arshadi. "That business has been gone for quite a while. We started out in 1998 by rebuilding CRTs for consumer television sets, but branched out to special purpose technologies—medical and industrial monitors, and special displays for flight simulators.

Arshadi said that a large part now of his company's business is in the area of replacing CRT displays in high-end and expensive devices, especially those used in the medical field, with newer display technologies.

"We still get calls from TV stations—mostly those outside the U.S.—about tubes for Conrac, Panasonic, Ikegami, and Asaca-Shibasoku monitors," Arshadi said. "However, most of our business is elsewhere; CRT rebuilding accounts for only about 20 percent. We've branched out in areas such as teleradiology, retrofitting high-end medical monitors from companies like GE, Philips, and Siemens with LCDs."

… James O'Neal

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 also listed in order in the ATCO homepage under "Newsletters". Once you locate the Newsletter section, the displayed list can then be re-sorted as needed by clicking on the "date" in the header.
…Bob N8OCQ

Issue	Page(s)	Article
Vol 1 II	5	439 Beam
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 1.26 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 Ant
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 Ele Loop Yagi for 439.25 MHz
Vol 10		No Articles
Vol 11 II	4,5,6	439 48 Ele Collinear 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 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 18		No Articles
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
Vol 21 III	5	S-Video To Composite Adaptor
Vol 21 IIII	3,4	Video Noise Rejection Amp
Vol 21 IIII	14,15,16 ,17	"S" Meter For Comtech Boards
Vol 22 I		No Articles
Vol 22 II	10	1260 MHZ Cavity Filter
Vol 22 III		No Articles
Vol 22 IIII		No Articles
Vol 23 I		No Articles
Vol 23 II	5,6	Linear 60 Watt For 70CM
Vol 23 II	8,9	Video Modulator Update
Vol 23 III		No Articles
Vol 23 IIII		No Articles
Vol 24 I	13	RF Sniffer For 2.4 GIG
Vol 24 II		No Articles
Vol 24 III	3	Quantum 1500 Rec Tuner Mod
Vol 24 IIII	9	Battery Recharge Ckt
Vol 25 I		No Articles
Vol 25 II	6,7	Comtech TX Module Improvement
Vol 25 III	11	Comtech TX Module Improvement Correction
Vol 26 I	6	Isolator (Circulator) Modification 850 To 1260 MHz
Vol 26 II	5,6	Comtech 1200 MHz receive module improvements
Vol 26 III		No Articles
Vol 26 IIII	9	Remote Touch Tone Decoder For Your Shack
Vol 27 I	10	ATV Low Pass Filter (427 Mhz)
Vol 27 II	15	PictureTel Camera Data Cable Wiring
Vol 27 II	10	ATV Low Pass Filter (427 Mhz)
Vol 27 II	15	PictureTel Camera Data Cable Wiring

This is the complete list for construction articles shown in past ATCO newsletters. The page numbers listed may not match the actual page in the newsletter. They are the number shown in the PDF file. Some issues are missing. Art did not have a copy of every year. This list is complete through Vol 27 II.
…Bob N8OCQ

INTERNET ATV HOME PAGES (list verified 10/08/09)

Domestic homepages

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

Foreign homepages

http://atv.hamradio.si	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.tv.	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.atvquarterly.com	Amateur Television Quarterly Magazine
http://gb3lo.camstreams.com	"GB3LO" Repeater Camstream westoft, UK
http://www.ham-radio.com/sbms	"SBMS" San Bernardino Microwave Society
http://www.qsl.net/kc6ccc/	“METS" Microwave Experimenters Television System

TUESDAY NITE NET ON 147.48 MHz SIMPLEX

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

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (04/20/10)…….$1859.05
RECEIPTS(dues)……. $ 160.00
Spring event food……...$(169.70)
Bank service fee……$ (12.00)
Funeral flowers……...$ (53.38)
CLOSING BALANCE (07/20/10)……..$ 1783.97

ATCO REPEATER TECHNICAL DATA SUMMARY

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

Input control:

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

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

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

ATCO MEMBERS AS OF July 20, 2010

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
KC3AM	Dave Stepnowski	735 W Birchtree Ln	Claymont	DE	19703		kc3am@verizon.net
W8ARE	Larry Meredith III	6070 Langton Circle	Westerville	OH	43082-8964		lcmeredith@prodigy.net
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	kc8asf@sbcglobal.net
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	cmarkcring@gmail.com
N8CXI	Garry Cotter	2367 Northglen Drive	Columbus	OH	43224		gjcotter@aol.com
N9CX	Bill Erwin	231 Gateside Ct.	Gahanna	OH	43230		werwin@columbus.rr.com
WA2CZD	Jim Gilbert	1204 Aspen Pines Drive	Wilder	KY	41071-0404		jgilbert@fox19.com
N3DC	William Thompson	6327 Kilmer St	Cheverly	MD	20785		
N3DGE	Mike Trachtenberg	3777 Lankenau Avenue	Philadelphia,	PA	19131-2816		mikect@verizon.net
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198	jabusic@yahoo.com
K8DMR	Ron Fredricks	8900 Stonepoint Ct	Jennison	MI	49428-8641		ron_fredricks@comcast.net
W8DMR	Bill Parker	2738 Florbunda Dr	Columbus	OH	43209		w8dmratv@copper.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-876-6033	MHZ52525@aol.com
KC8EVR	Lester Broadie	108 N Burgess	Columbus	OH	43204		kc8evr@beol.net
N8FRT	Tom Flanagan	1751 N Eastfield Dr.	Columbus	OH	43223		chuck78@wowway.com
WA8FLY	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
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	614-203-6000	wg8i.ham@gmail.com
WB2IIR	Michael Anthony	370 Georgia Drive	Brick	NJ	08723		
N8IJ	Dick Knowles	1799 Homeward Ave	Lima	OH	45805		rgrant2001@yahoo.com
KD8JLO	David Nulter	510 Millag Drive	Sunbury	OH	43074	614-579-6425	davnul@wideopennetworks.com
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207	614-771-7259	k8kdr@arrl.net
N9KNV	Edmund Janowski	1721 Minnesota Ave	South Milwaukee	WI	53172		ejanowski@wi.rr.com
W8KHW	Kevin Walsh		Columbus	OH	43220	614-442-7748	kwalsh@datrix.com
WA8KQQ	Dale Waymire		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		w8ma@arrl.net
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660		ka8mid@qsl.net
W0MNE	Mike Doty	4300 Winchester Southern Rd	Circleville	OH	43113	740-420-9060	mcubed2@hughes.net
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127	n8nt@atco.tv
N0OBG	Jim Conley	33 Meadowbrook C C Est	Ballwin	MO	63011		jim@commo.com
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
KG4OPZ,KG4OQA	Dave & Mary Holtschneider	7 Akal Court	Durham	NC	27713		rotorheads@verizon.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	george@biundo.org
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
W8PU	Gary Poland	3347 S.R. 28	Midland	OH	45148		gpoland1@cinci.rr.com
KC8QJR	Adam Burley	1796 Queensbridge Drive	Columbus	OH	43235	614-886-2326	adam@digitalcave.org
W3RCJ	Thomas Farrell	1912 Burnwood Road	Baltimore	MD	21239		w3rcj@operamail.com
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	jhull@wcmi.org
W8RUT,N8KCB	Ken & Chris Morris	2895 Sunbury Rd	Galina	OH	43021		gkenmorris@gmail.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@ctcn.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	jper@insight.rr.com
W8SJQ	Rocky Eramo	795 Riverbend Ave	Powell	OH	43065	614-207-2740	rockyeramo@aol.com
W8SJV, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015	740-369-5856	w8sjv@nexgenaccess.com
KB8SSH	Mike Cotts	3424 Homecroft Dr	Columbus	OH	43224	614-371-7380	mcotts@wideopenwest.com
W3SST	John Shaffer	6706 Gilette Dr	Reynoldsburg	OH	43068	614-751-0029	w3sst@juno.com
WA6SVT	Mike Collis	PO Box 1594	Crestline	CA	92325		wa6svt@aol.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

Call	Name	Address	City	St	Zip	Phone	URL
KB8UGH	Steve Caruso	6463 Blacks Rd. SW	Pataskala	OH	43062-7756		dael4@columbus.rr.com
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
N8WAC	Tony Everhardt	6512 Emch Road	Walbridge	OH	43465	419-666-5178	natewac@aol.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		sdiggs1@insight.rr.com
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	n8yz@amsat.org
N8ZM	Tom Holmes	1055 Wilderness Bluff	Tipp City	OH	45371		tholmes@woh.rr.com
K3ZKO	Ron Cohen	915 Rowland Ave	Cheltenham	PA	19012	215-828-1263	k3zko@verizon.net
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.

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

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
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 and fill out the “pay dues” section. Alternately, you can use the ATCO web site www.atco.tv/PayDues.aspx directly. 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.