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 WA8RUT REPEATER UPDATE

Some new and exciting things are planned for the repeater. More and more people are using this facility...some enhancements are underway at this time...the airport radar feed is enhanced...an in depth discussion on these and more topics is presented on the pages between this and the back cover. We believe you'll be impressed.

ATCO HAM IN THE SPOTLIGHT

This month the ATCO Newsletter honors Dave Hunter KA8WBK. Dave's presence isn't unusual even though he is one of our newest members (joined last fall) because he has probably logged more dx atv stations than the majority of the rest of us. When I went to his QTH to snap the photo below he remarked, "Did you see the good atv balloon pictures from New York on Saturday?" I wasn't even aware that there was a balloon launch that day. (You guys **must** keep me more informed). Thanks Dave for helping to keep the band active.

ATCO SPRING EVENT MINUTES

We had our second annual Spring Event on May 21, 1995 at the ABB shelter house. Looks like this is definitely a good idea and well worth repeating from here on out. Twice a year seems to be good timing but if anyone would like to see gatherings more often, please make your feelings known at the Tuesday night net or letter. We had prizes, food, a business meeting, antenna measurements and just a good all around social eyeball.

Rick WA3DTO provided most of the food which included chicken, deli meats, potato salad and the like and I was again talked into being the "Bratmeister". My wife pre cooked brats in beer and I finished the cooking process over the charcoal grill. I'm trying to be modest here...Boy! they were good! Everyone that missed this event will have a chance to taste these again next year. Please come!

After we filled our stomachs, we held a short meeting where we discussed the repeater status, up and coming enhancements and held an election of officers. All existing officers were re-elected to their same positions so I guess you're stuck with us for another year! A door prize drawing yielded many interesting goodies including a couple of ATVQ coffee mugs donated by ATVQ magazine and an ATV secrets book donated by Universal Radio of Columbus. Assorted other goodies including a number of "project wall transformer power supplies" were passed out so no one went home empty handed.

After that we attacked the task of measuring the gain of a number of antennas as well as plotting the patterns of each. Bob KF8QU has designed a quite cleaver software program for the IBM type PC that sends out a signal to start the antenna rotor and performs a vector plot of the returned dc signal by my RF voltmeter. The net result produced a good plot that can be stored on the hard disk for retrieval and printing. More on this subject later. We were able to test about six 439 MHz antennas and had intended to test some 900 MHz and 1280 MHz antennas but ran out of time. I feel bad that we couldn't put a 900 MHz reference antenna to use that Bill Parker W8DMR had specially built for us. Hold on to it Bill, we will need it again in the near future.

The event participants were as follows(in random order):

WA3DTO Rick White	N8OPB Chris Huhn	KB8TRP Tom Flanagan
W8PGP Dick Burggraf	WA8TTE Phil Morrison	N8CYV Blaire Standley
WA8RMC Art Towslee	N8KQN Ted Post	W8STB John Hey
KA8MID Bill Dean	W8AER Dave Sears	N8TBU Ed Lathham
N8OCQ Bob Hodge	W8EHW Foster Warren	W8WAU Jake Fuller
KF8QU Bob Tournoux	WA8RUT Ken Morris	K8AEH Wilbur Wollerman
WB8CJW Dale Elshoff	NZ8R Greg Radcliff	WB8URI Bill Heiden
WB8DZW Roger McEldowney	KA8ZNY Tom Taft	W8RVH Dick Goode

The following pictures were taken that day.

ACTIVITIES ..... from my workbench

OK where did I leave off last time? Let's see, there are a lot of non-ham activities going on now that the weather has warmed up. Speaking of the warm-up, I've noticed that my air conditioner isn't keeping the upstairs computer room cool enough. Better check it. Filter? Replace it...that doesn't help. Check the output air. Hmmm, only a 7 degree differential between input and output. Low on freon? No gages...guess I'll have to call for service (I hate to do that).In the meantime I guess I'll have to sweat. Here goes!

The repeater transmitter needs to be rebuilt into an RF tight box. As you may recall from previous discussions, we found a rather serious level of 1280 MHz receiver desense coming directly from the Mirage 427 final amp. That unit is a good RF performer but cannot claim any trophies for its RF tight characteristics! The solution was to enclose all transmitting components inside an RF tight enclosure which included all 427 transmitter components as well as the 446.350 MHz link transmitter (more on that in a moment). The enclosure is complete as well as mounting and wiring of most components. Some minor work remains.

We're adding a link transmitter to the scheme of things to eliminate pointing at the remote site to bring up the signal. Presently, the airport radar is accessed by pointing a 147.45 MHz signal at Port Columbus to send the access tones. When the link transmitter is in place, all signals will be received at the repeater site and relayed to the remote site via the 446.350 MHz link. In that way we can point the remote site antenna at the repeater instead of an omni directional one now in use. Reliability will improve!

The airport radar link has had its ups and downs. On the plus side, I installed a new color camera pointing at the radar screen to replace the b/w one. The color camera itself as it was obtained from Sharp. This unit, in my opinion, is amazing. It is comprised of just two circuit boards the first being only about one inch square and containing the image sensor. The second board is about 2.5 inches by 4 inches and is connected to the image board by a small ten wire harness. This board is powered by 5 volts at about 400 ma and outputs composite video directly. Neat huh? I packaged it in a small Pomona type box, fitted it with a "c" mount zoom lens and adjusted it to the radar monitor. The color is amazingly good and sensitivity is high but where it really shines is its ability to electronically correct for wide light level changes eliminating the need for a mechanical aperture. Lens openings from about F1.9-F16 are automatic. The quality of color is only *slightly* worse than my Sony 8mm camcorder where green shows up slightly off balance. This is definitely not noticeable pointing at the radar! On the down side the 147.45 receiver at the airport is down in sensitivity. This occurred after a thunderstorm so who knows what is wrong but it still works. I guess as long as it stays that way and doesn't get any worse, I'll leave it alone for soon it will be replaced with the 446.350 receiver. Side note: the radar is supposed to go away permanently sometime in September so we don't want to put in too much work there.

Ken WA8RUT, Bob KF8QU, Tom KA8ZNY, Phil N8LRG and myself provided video surveillance for the Columbus police during our "Red White & Boom" fireworks display on the 4th of July which took time to prepare for by all parties involved. I spent time checking out my 910 MHz transmitter to make sure it functioned properly. Good thing I did for after it heated up (about a half hour) it developed an open in the RF input to the brick amp. dropping the power from about 6 watts average to 3 watts. That in itself wouldn't have been too bad for I had power to spare but it really messed up the video clamping level. I fixed it which then produced flawless operation for the 5 hour duration of the event. See more details of the "Red-White-Boom" event elsewhere in this issue.

That's just about all for now...can't think of anything else that I've been working on but lots of stuff is waiting for the time to "get it done". Oh yes, there **IS** one more thing. I've got the zoom lens for the roof top camera we've been talking about installing at the repeater site. To be decided yet is exactly how to control it. The idea in my mind is to control the pan, tilt, zoom, and aperture control with touch tones. If we do this, how shall we pan for instance? Shall we initiate it with a given tone and stop it with another or just pan while a given tone is turned on? The later could cause interference for some people who would not like to hear continuous tones. The pros and cons go on so we need help with suggestions. Let Ken or myself know if you have had any experience with this.

OK...now I'm finished. More stuff next issue.

Art...WA8RMC

RED, WHITE & BOOM!

Amateur radio has a long tradition of providing a public service in times of a disaster and as routine public service. As an example, WA8RUT/8 went on the air just 6 hours from downtown Xenia after the 1974 tornado(s!) leveled the town and handled over 4,000 health and welfare messages. This effort was in direct support of the American Red Cross and organized by the Amateur Radio Emergency Service (ARES).

Today the Local ARES is very active and provides public service communications for a variety of agencies and non-profit organizations almost every weekend of the year! I believe we owe a great debt of gratitude to these dedicated hams in not only the public service they provide, but also being one of the strong reasons why we enjoy the Amateur Radio privileges we have today.

John Chapman, WB8INY, (area Director for the ARES) contacted me in mid-June to ask if ATCO would be interested in providing video surveillance of the Columbus Ohio 4th of July celebration called "Red, White & Boom" for the Columbus Police. Red, White & Boom attracts a crowed of over 700,000 people for the all afternoon event ending with one of the largest display of fireworks in the nation. After a discussion on the following Tuesday night net, I called Sgt. Art Baker, the **E**mergency **O**peration **C**enter (EOC) coordinator and arranged for Art, WA8RMC and myself to visit Police Headquarters to review the request and plan.

Basically, the need was to provide some "eyes" for the Police command center located in the EOC at Police HQ. Although there were over 200 Police officers dispersed in the crowd, it was still difficult for the event commander and Chief of Police to understand what was happening with street officer descriptions alone. We agreed with Sgt. Baker that two camera locations would cover the area the Police were most interested. The two locations were on top of the Gas Company parking garage and the top of the 9 story Police HQ building. Set-up of our equipment began the afternoon of July 3 and video coverage lasted until 11:30 pm.

THE ATV SYSTEM FOR THE EVENT Bob, KF8QU and Art, WA8RMC were set up on the Gas Company Parking Garage (along with TV Stations 4,6 and 10!). The station consisted of one camera, a 910.25 transmitter and a 2 meter rig. We up-linked the 910.25 signal to the ATCO repeater and watched the output of the repeater on 427.25MHz in the EOC. From this location, the crowd density on Civic Center Drive and the Town Street Bridge was easily monitored. The second location, atop Police HQ were hammed by Phil, N8LRG, Tom KA8ZNY and part time by Ken WA8RUT. The system on top of the HQ building was 5 cameras to a video auto-switcher transmitting on 439.25 MHz and received direct in the EOC nine floors below us. The five cameras were focused on different locations and sequenced at about a 15 sec rate. If something was of particular interest to the Chief or the EOC commander, WA8RUT or WB8INY would simply tell the roof crew (via 2 meters) to lock on a particular camera number. At the EOC, were two ATV monitors, a 19" set tuned to Cable Channel 58 for the repeater output and a 13" Craig with a P.C. Electronics down converter tuned to the 439.25 roof station. Originally we were going to watch the 910.25 transmitter direct but it was near impossible to put up any antennas in the police EOC. "Rabbit ears" and a mini-wheel were the best we could do. Fortunately, the ATCO repeater performed very well! Next year we will plan a little better for EOC antennas.

SYSTEM PERFORMANCE All of the signals were P5 with very good video coverage. We were a little concerned that the telephoto and night vision capability of our cameras would not be very useful but these concerns turned out to be unfounded and good to great quality video was provided after dark. Phil's Sony HI 8 camera wins the prize for the best color video after dark. The little HI 8 provided mid-day quality video of the Broad Street Bridge located a 1/2 to 3/4 mile away! Sgt. Baker, the Watch Commander and the Chief of Police all commented to me personally that the video was much better than they expected and in fact asked if we would consult with them to help the Police set up a similar capability. I don't know of a frequency that the police could license to duplicate our efforts . If any one knows of one, please let me know.

"THE BAD GUYS" The event itself was relativity un-eventful from a police action point of view. We covered two events, one of which were people trying to cross police barricades on the closed bridges. The police at the site could handle a few people trying to cross, but if hundreds were 'storming' the bridge, re-enforcement's would be necessary. Our video kept a close watch on the situation. The other event was some "gang-bangers" pick pocketing (about 10 of them) and working the crowd in full view of our cameras! This is an event that I could not see taking place (all I could see was a Sea of People!) , but the Police watching the monitors could see them! They were all rounded up in short order. The most tragic thing that occurred was a Police officer who was run down by a leaving motorist while directing traffic.

LESSONS LEARNED The cameras worked better after dark then we had anticipated with the available street lighting. The video switcher worked out very well. Intermod on two meters was awful at the beginning of the event, but was much reduced

after 6 PM. There is no time to troubleshoot while the event is taking place! Take back-ups for everything. We had one monitor fail in the EOC and one 439.25 Transmitter on the roof not provide the depth of modulation we would have liked. We had back-ups! We must be able to see our own signal from each transmit site--even in bright sun light that washes out the TV screen! Tom's camera tripod to antenna tripod converter worked out very well. It allowed us to adjust elevation as well as azimuth on the small yagi for either the repeater or the EOC. Take lots of food and drink! 6-8 hours is a long time to be on the roof top! Finally, watching the fireworks from atop police HQ is nothing short of spectacular! At times, it seemed as if we were inside some of the brilliantly colored fireworks!

Many thanks go out to WA8RMC, KF8QU, N8LRG, KA8ZNY and WB8INY for their on-the-site help as well as those ATV'ers who provided reports and tape some of the event from home. A very special thanks goes to Sgt. Baker of the Columbus Police EOC who was extremely accommodating to the ATV'ers before and throughout the event. Sgt. Baker's helpfulness made the event a lot of fun for all of us. We all look forward to next year and the improvements we can make covering the event

Ken...WA8RUT

KF8QU'S CHEAP 439 MHZ ATTIC ANTENNA

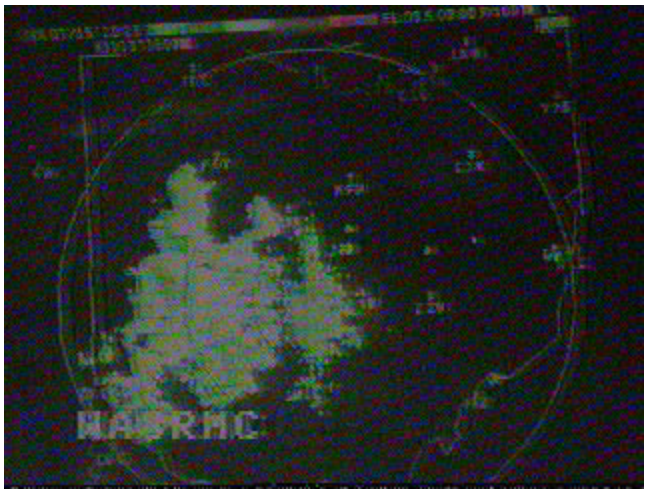


Figure 2 - ATCO weather radar

Summer is here! Can you tell? Look what the ATCO link to the Port Columbus weather looks like as I am typing this article! I'd say that I probably better shut down my computer quickly so that I don't get zapped again (like last year!). I used my PCTIME video capture board to grab this off the ATCO repeater today. I know you can't see it, but I was able to see some color in this picture. I wonder if everyone else sees the radar better than this? I only have an attic antenna so I don't believe I see everything that there is to see! By the way, figure 2 shows what my attic antenna looks like. I am going to visit WA8RMC's QTH with WB8CJW to see just what kind of gain and maybe what kind of pattern this antenna has. If it is pretty bad, then I might try to talk someone into borrowing a good one to see what it will do in the attic. If it looks good, then I might try to perfect it -- who knows, maybe try making it out of aluminum, (my son wants to make it from titanium).

I just decided one night to put this thing together, so I looked in the ARRL handbook to see if I could find any equations. I thought that with a square loop I could put a full wavelength element into the smallest amount of space. I also thought that using half inch pipe would give me a wider bandwidth which I knew was necessary for video. A big drawback is that the thing is made of copper so it is heavy -- but, hey, there really isn't much wind in my attic! So, I went for it. I used a few simple equations to determine the size of the loops. (There are three sizes, one for the reflector, one for the driven element and one for the directors.) I found information for building quad antennas in the 1988 ARRL Antenna Handbook on page 12-1. The equations I used to compute the full wave length of the elements are:

Driven Element = 1005 / f (MHz)	= 1005 / 439.25	= 2.2879 feet	= 27.4558 inches
Reflector = 1030 / f (MHz)	= 1030 / 439.25	= 2.3449 feet	= 28.138 inches
Director = 975 / f(MHz)	= 975 / 439.25	= 2.2196 feet	= 26.636 inches

The text mentions that these are the equations to use for 30 MHz and below. I missed that when I built the antenna! The text said that at VHF the loop length must be increased in comparison to the wavelength. I found more information in the ARRL Antenna handbook that shows an equation for the full wave length λ to be equal to 983.6 / f (MHz). For 439.25 MHz that says λ = 983.6 / 439.25 = 2.239 feet = 26.87 inches. The physical wavelength depends on the diameter of the element. That equation is Length (feet) = (983.6 * K) / f(MHz) From a chart in the 1988 ARRL Antenna handbook (page 2-2) the K constant to use depends on the ratio of the wavelength to the diameter. In my case the element diameter is 0.5 inches, so the ratio is : 26.87 / 0.625 = 42.7 For that value the chart says the K value is about 0.95, so the element length should be (983.6 * 0.95) / f (MHz) = 934.42 / 439.25 = 2.127 feet which is 25.52 inches. From this it appears that the design length of the quad loop element is about 8% longer than that of a dipole. That may not be true, but that is how I built the thing!


Figure 3 - KF8QU "copper pipe" attic antenna

They say that this hobby is amateur radio; I certainly am an amateur when it comes to building anything mechanical! I'm going to describe what I did and how I made this antenna. I hope you'll forgive my crude methods of putting things together. Hopefully, someone can point out all the areas where I could make improvements. But, the antenna seems to perform well for me. The truth will be known as soon as I am able to get it the WA8RMC test center!

(The "WA8RMC test center" that Bob refers is my antenna measuring range set up in my back yard. His antenna measured at 9.0 dbd with a 5 dB front to back ratio. That's remarkable, in my opinion, for an antenna of that size! The side lobes are symmetrical and down at least 15 dB. The angle of radiation was checked and was found to be symmetrical about the X axis and about 3dB down at ±10 degrees. Congratulations on your good work, Bob...WA8RMC)

Well, as I said, I started with the above lengths. I made my loops out of half inch copper pipe; I joined the corners together with the right angle pipe connectors. I soldered all connections once I had the pipe fitted together. I needed 4 equal length pieces of copper pipe and 4 right angle pipe fittings for each element. I couldn't find any information on the dimensions of the right angle fittings, so I tried to measure it as best as possible. Since the inside of the loop will be quite a bit shorter than the outside (because the diameter is so large), I decided to try do design the loop so that the length through the center of the pipe would be the design loop length. In studying this, I found that the right angle pipe joint appears to add about 1/2 inch to the lineal measurement through the center of the pipe when it is used to join two straight pieces of pipe. Thus, to determine what length to cut the four pieces of pipe, I subtract (4*0.5 = 2) inches from the target loop length, then divide by four. For the 3 elements this became 6.36 inches for the Driven element, 6.53 for the reflector and 6.659 for the directors. However, when the pieces of pipe fit into the 90 deg pipe fitting, another 1 inch of pipe will be needed, you need to add 1 inch to each of these dimensions. Thus, the final dimensions for cutting the pipe are 7.36 inches for the driven element, 7.53 inches for the reflector and 7.159 inches for the directors. (I said I was crude -- how do you suppose I cut the pipe to 7.159 inches?)

When I made the driven element, I had to cut one of the pipe sections in half. I made each half 0.1 inches shorter to allow room to attach a PL259 (or N-type) chassis connector. I used a PL259 chassis connector; simply solder the center conductor to one half of the pipe, and then solder the other half of the pipe to the chassis side of the connector. I drilled a small hole through the piece of pipe after squeezing the end of the pipe to flatten it. I used this hole to screw the chassis connector to. I then soldered it to the pipe. Figure 4 in this article shows a close-up of my connection. Finally, I had to mount the elements to a boom. I used a wooden boom made of 1x2 poplar. In order to attach the elements to the boom, I drilled two holes into a smaller piece of 1x2 poplar. I cut a channel in each of the smaller pieces of wood so that it would be able to slide on the boom. Again, see figure 3. The smaller piece of wood is attached to the boom via tie raps so that it can be moved back and forth when tuning. Once tuned, the wood could be screwed together.

For the driven element, the holes are on 7-1/16 inch centers; for the reflector, 7-1/4 inch centers and for the directors, 6-7/8 inch centers. I spaced the elements about 5 inches (.18 wavelengths -- text suggests between .14 and .2) apart. Then I connected the antenna to the ATV transmitter and powered up. I adjusted the driven element, reflector and first director for the best SWR, then one by one added in the remaining three directors. I kept adjusting them for the best SWR. I probably could have been a little more scientific about how I did this, but the SWR was down to 1.15 to 1.0 so I quit!

Figure 4 - the feed point

Finally, when I mounted this antenna, I mounted it in the center of the boom to help distribute the weight. I built a second one to the same dimensions so that I could stack them together. However, I got a 1.7: 1 SWR and the signal was terrible when I tried it out. I think (at least hope) that my stacking harness was all fouled up!

Bob...KF8QU

UPCOMING HAMFESTS

Columbus Hamfest - August 5 (Saturday)
Aladdin Shrine Temple 3850 Stelzer Road, Columbus, Ohio 43219
Take I270 and exit westbound on Morse road. Turn south at 1st light (Stelzer road).
talk in 147.84/24 Indoor and outdoor facilities.

Huntington Hamfest - August 12
Huntington, West Virginia (Across Ohio river from Chesapeake, Ohio)

Union County Hamfest and Computer Show (Marysville) - August 20
Doors open at 8:00 am and close at 2:00 PM admission 4.00 advance & 5.00 at door
Location - Broadway Ohio community & civic complex. 1 mile west of intersection SR 31 and 347 on SR 347.
Talk in on 147.390/990 with backup repeater on 145.35
contact Gene Moore N8YRF 24461 Claibourne rd Marysville, Ohio 43040 513-246-5943

Findlay hamfest - September 10
(no further info at this time)

SURPLUS VIDEO EQUIPMENT AVAILABLE

I have recently received some broadcast surplus video equipment which was donated to our club. This equipment includes black/white video cameras, monitors, portable tape recorders, Ampex 1" and 2" recorders and assorted cables. Anyone just starting out in ATV and can use any of the above, just give me a call or check in at the next net to "claim" it. The only condition that we have is that acquired equipment is not to be sold. If it is found to be not useable by the recipient, please pass it on to someone who CAN use it (or give it back to me so I can redistribute it). I've checked the cameras and are in working condition with the exception of some of the camera viewfinders.

Art...WA8RMC

FIELD DAY…EXPLAINED BY ONE WHO NOW KNOWS!

Just having my ticket for six months, I asked my buddy Bill Rose KB8UU the silly question "what's field day?" Bill replied "its indescribable. I'll have to show you".

Saturday night came and so did the lightning and rain. I heard him mumbling something about this being a prerequisite to this sort of activity. Anyhow he drove me to a 145.21 MHz site in Lithopolis Ohio. What a drive, raining so hard we could barely see but I was told that its OK cause we stop at every traffic light anyhow, red or green, didn't matter. Bill's color blind. Sure helped to boost my confidence up to that point.

When we were about a mile away, I saw an ATV QSO from KA8ZNY on my Pocketvision TV. What a sight. Thanks Tom. There must have been a hundred people out there. And yes, I was the only one walking around with a TV. I think they thought I was kind of weird. They just haven't discovered how much fun this part of this hobby can be yet.

I quickly learned that night just what field day was. The 40 meter tent was sending cw faster than I could talk cause WU8A Mark was talking to me as he was sending code at about 27 WPM.

KA8ZXY had cw, packet and watched the weather radar on ATV inside his air conditioned urban assault vehicle. This helped to define the ham version of "roughing it". The weather radar picture on ATV actually helped significantly for it was there that I realized that the rain was about to end soon.

The 80 meter tent held my interest the most I watched them make 40 or 50 contacts in just about an hour. The next day I worked WA8RUT at his field day site on the northwest side of Columbus. P5 from a 910 MHz transmitter with the antenna attached to a step ladder 2 feet off the ground. He proved the line of site theory. Can't wait till next year for another field day. We'll be operating ATV for sure. By the way, ham radio with a picture is still the best.

Dave...KB8WBK

NEW MEMBER SECTION

We want to welcome the following new members to our group. They're the ones who will hopefully become more interested in this hobby and provide active support toward this segment of Amateur Radio!!!
The following list contains the new entries since the last newsletter.

W8STB John Hey
KB8YMN Mark Griggs
KB8TCF Ed Flanagan

CALLSIGN DATABASE ON THE INTERNET

If you have access to the Internet, you may be interested to know that there are several Ham Radio Callsign databases located there. I found one today that is updated daily! To get to this database open the following URL:

HTTP://WWW.UALR.EDU/DOC/HAMUALR/CALLSIGN.HTML Search by call sign or name. It works great!

Bob...KF8QU

NEWS FROM OUT OF TOWN ATCO MEMBERS

John Green KE8U writes on April 24:
"We have moved to Michigan and as I sit here and look out the window at the lake, it is still frozen (lake Michigan). However, it is melting and will soon be open. Tell everyone back in Columbus HELLO!"

KE8U P.O. Box 64 Presque Isle, WI 54557

John was always the one to capture the dx atv activity coming into the Columbus area with his high tower in New Albany. *(John, you must keep us informed of the ATV activity in your newly acquired terrain. Ed.)*

Fred Yost K8JGY writes:
"Hello fellow FSTVers. Sure was most enjoyable receiving the newsletter. It was the very best that I have ever seen. You guys sure are making a great name for yourselves. *(Thanks Fred. You sure know a sure fire way to get your letter in the newsletter. Ed)*

About one month ago the local high school in Lexington, SC worked with people in Canada to set up a simulated moon control operation, most of which was set up on 2 meters and fast scan TV. I did some slight help on the input of FSTV and loaned some equipment to the school for this operation. All in all things ran quite smoothly.

I am very heavy into SLOW SCAN and make up my own graphic and video pictures using video tapes and anything else I can get my hands on. Most of the time I'm on 20 meters, 14.230 and 14.233. I have exchanged pictures with about 25 countries and just about every state here. I find it interesting to have DX people sending me QSL cards and asking for one in return. It sure is a different world on slow scan.

We have a brick ranch style house here in the country. Not many stairs, makes it easy on the ole man, hi hi. I am so happy to have this much land which is about 250 x 500 feet. I have a small antenna farm and have a several element 20 meter beam in the works now.

It sure is quiet and peaceful in the country. We have super nice neighbors and exchanged visits. It's about 10 miles to Lexington, SC population about 3000 with Columbia 25 miles away. Anyone traveling through the area is more than welcome to stop by and have a nice visit. THE VERY BEST OF 73's. *(Hey Fred, how would you like to host our next ATV event? Ed.)*

K8JGY 234 Schofield Rd Gilbert, S.C. 29054

BALLOON LAUNCH UPDATES

A couple of balloon launches have been made recently. We try to keep up to date on these but unfortunately in most cases we don't hear about them far enough in advance to list them **before** they happen. The only sure fire way to keep up to date is to check in to the Tuesday night net (9:00 PM on 147.45 MHz)

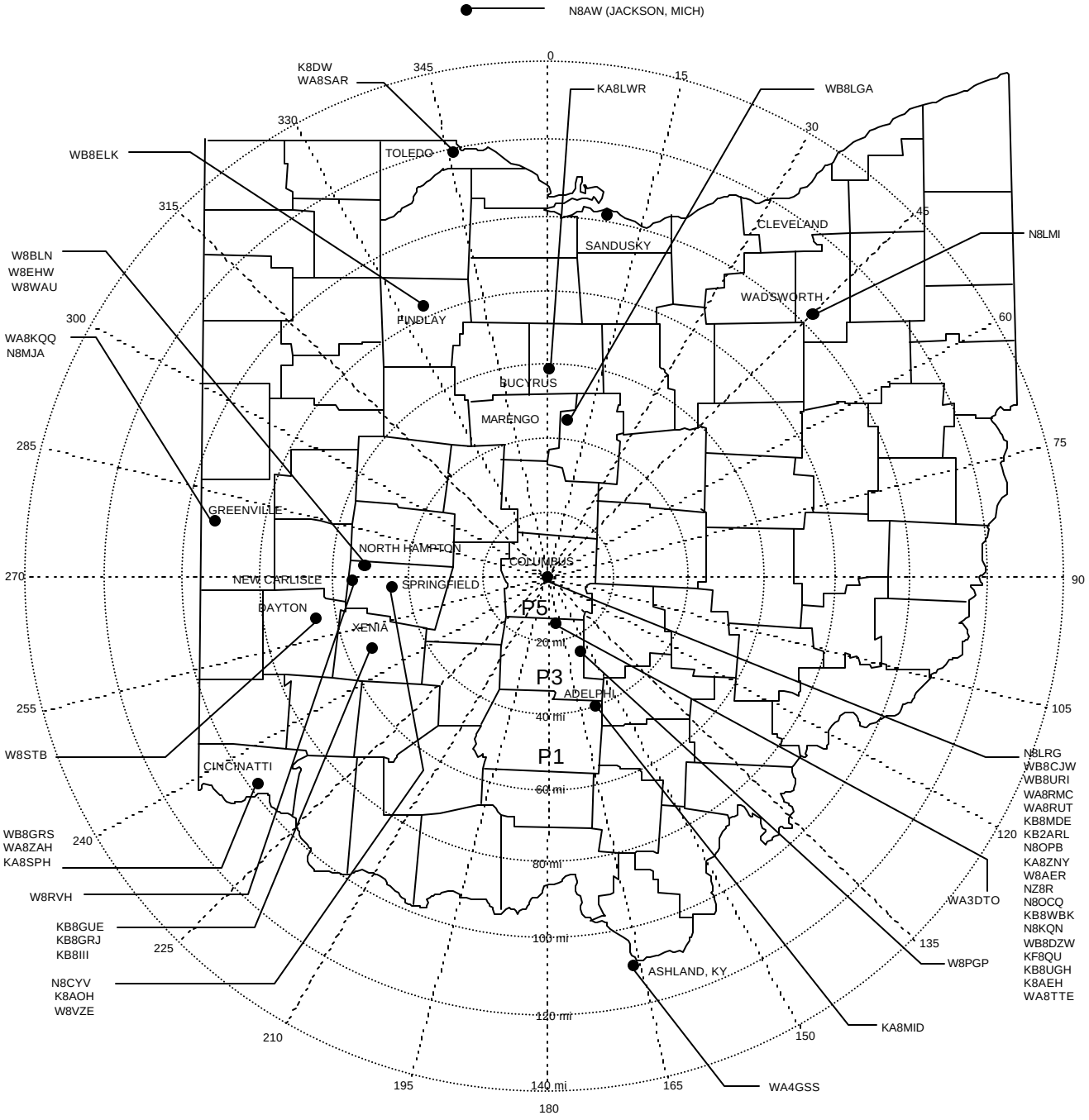
A balloon launch was made from Batavia, New York Sunday morning July 9th and was reported being seen here by Dave KB8WBK about P2 direct. It also was seen at about the same level through the repeater.

A balloon launch was made from Indianapolis, Indiana on Saturday July 15 at about 9:00 am. It was seen in the Columbus Ohio area by a number of hams direct but the signal strength was too weak to be received directly through the repeater. However, Dale WB8CJW relayed it into the repeater from his QTH. Signal strength at its best was P2 to P3. There was no telemetry superimposed onto the video so it was hard to tell the status of the balloon. I would guess that the main reason for the poor signal was due to extremely hazy conditions that day.

Art...WA8RMC

ATV LOCATOR MAP

Below is an Ohio map complete with counties, main cities, beam heading (from Columbus) and all of the hams known to have had video on the air recently. Please report anyone that has had video on and seen recently. If video is not reported for a given individual in about a year, I will remove them from the map. Let's see if we can make Ohio near the top for ATV activity. The map also contains mile circles with approximate P levels expected. Generally the signal drops by 1 P unit each time the distance is doubled if all other factors remain unchanged. The P numbers are typical reported values under average (non band open) conditions.



ATCO REPEATER TECHNICAL DATA SUMMARY

This space of each publication of the ATCO Newsletter will include the technical information of our repeater. Each time a new feature is brought on line it will be added here. Use this "table of information" as a quick reference for up/down access codes as well as some of the more important parameters of our system.

Main repeater:

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 and 1258.25 MHz FM modulation
vestigial sideband filter in output line of 427.25 & 1250.25 transmitter
Power - 50 watts average 80 watts sync tip (427.25) 15 watts (1250.25)

Transmit antenna: 427.25 MHz - Dual slot horizontally polarized 7 dbd gain major lobe north
1250.25 MHz - Single slot horizontally polarized 3 dbd gain major lobe west

Receivers: 147.45 MHz for F1 audio input control of touch tones
439.25 MHz for A5 video input
910.25 MHz for A5 video link data from remote sites
1280.25 MHz for F5 video input

Receive antennas: 147.45 MHz - Vert. polar. Hi Gain "Comet" 12 dbd (also for 446 MHz output)
439.25 MHz - Horiz. polar. dual slot 8 dbd gain major lobe south
910.25 MHz - Vert. polar. DB Products 10 dbd gain
1280.25 MHz - Horiz. polar. single slot 3 dbd gain major lobe ?

				UP	DOWN
Input control:	Major Touch tones:	beacon (10 min)	*439	*22	
		regional weather radar	697	#	
		CMH airport radar(5 min)	264	#	
		User repeat 1 minute		*45	*22
		Touch tone pad tester		#0	#5
		Manual mode		#77	*22
		NASA Select		*70	*20
		5 second ID		#9	*22
		Bulletin board		285	#

Remote sites: Airport radar at Port Columbus (910.25 MHz link output 8 watts)
NASA select at KA8ZNY QTH (910.25 MHz link output 10 watts)
Aux link at WA8RUT QTH (910.25 MHz link output 1 watt)
Aux link at WB8CJW QTH (910.25 MHz link output 1 watt)
Aux link at WA8RMC QTH (910.25 MHz link output 5 watts)

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 are included at no extra cost.

ATCO publishes the ATCO newsletter quarterly in January, April, July, and October. The newsletter 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. Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V.President: Ken Morris WA8RUT
Treasurer: Bob Tournoux KF8QU
Secretary: Rick White WA3DTO
Corporate trustees: Same as officers

Repeater trustees: Art Towslee WA8RMC
Ken Morris WA8RUT
Dale Elshoff WB8CJW
Statutory agent: Rick White WA3DTO
Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL O NEW MEMBER O DATE _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES O NO O HOME PHONE _____
NAME _____ CALL _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY
_____
_____

COMMENTS_____
_____
_____
_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK ¡ CASH ¡
Make check payable to ATCO or Bob Tournoux & mail to:
Bob Tournoux KF8QU
3569 Oarlock Ct
Hilliard, Ohio 43026

ATCO TREASURER'S REPORT - de KF8QU

CASH BALANCE (4/6/95)		$ 1010.47
RECEIPTS	(dues)	$ 155.00
OTHER INCOME	(bank interest)	$ 10.16
EXPENDITURES	(Spring Event food)	$(148.70)
	(film and processing)	$ (5.24)
	(misc supplies)	$ (6.20)
	(postage)	$ (33.60)
BALANCE	(7/15/95)	$981.89

ATCO MEMBERS AS OF 18 JULY 1995

K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	Ohio	43068	866-1399
W8AER	Dave Sears	1678 Kaiser Dr	Reynoldsburg	Ohio	43068	861-0904
KB2ARL	Dave DiGiuseppe	2081 Elmore Ave	Columbus	Ohio	43224	478-4539
WB4BBF	Randall Hash	212 Long Street	Bluefield	Va.	24605	
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	Ohio	43065	766-5823
N8CYV	Blaire Standley	721 West North St	Springfield	Ohio	45504	
K8DW,W8FB	Dave & Paul Wagner	2045 Maginnis Rd	Oregon	Ohio	42616	419-691-1625
WA3DTO	Rick White	5314 Grosbeak Glen	Orient	Ohio	43146	877-0652
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	Ohio	43026	876-6033
W8EHW	Foster Warren	124 East Clark St	No. Hampton	Ohio	45349	
WA8EOY	John Schlaechter	3199 Lewis Rd	Columbus	Ohio	43207	491-4470
N8FFO	Edward Hauff	1001 Parkview Blvd Apt 330	Columbus	Ohio	43219-2273	253-5794
KA8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Ohio	44305	
K8JGY,KA8WGX	Fred & Martha Yost	234 Schofield Rd	Gilbert	SC.	29054	803-892-6513
N8KQN	Ted Post	1267 Richter Rd	Columbus	Ohio	43223	276-1820
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	Ohio	45331	513-548-2492
WB8LGA	Chuck Beener	2548 State Route 61	Marengo	Ohio	43334	419-864-7224
N8LMI,N8SIR,KB8UVK	Phil,Jim,Phil jr Buckholdt	153 East Bergey St	Wadsworth	Ohio	44281	
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	Ohio	43123-4100	871-0751
KA8MID	Bill Dean	PO Box 458	Adelphi	Ohio	43101	
KB8MDE	Shaun Miller	3469 Oakcrest Rd	Columbus	Ohio	43232	238-0918
WD8OBT	Tom Camm	1634 Dundee Court	Columbus	Ohio	43227	860-9807
N8OCP	John O'Bryant	3139 ElPaso Drive	Columbus	Ohio	43227	274-5410
N8OCQ	Robert Hodge	3689 Hollowcrest	Columbus	Ohio	43223	875-7067
N8OPB	Chris Huhn	146 South Hague Ave	Columbus	Ohio	43204	
W6ORG	Tom O'Hara	2522 Paxson Lane	Arcadia	Cal	91007-8537	818-447-4565
WB8OTH	Perry Yantis	1850 Lisle Ave	Obetz	Ohio	43207	491-1498
KE8PN	James Easley	1507 Michigan Ave	Columbus	Ohio	43201	
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	Ohio	43154	614-474-3884
KF8QU	Bob Tournoux	3569 Oarlock Ct	Hilliard	Ohio	43026	876-2127
N8QLD	Rick Callebs	P.O. Box 266	Jackson	Ohio	45640	
NZ8R	Greg Radcliff	1763 Hess Blvd	Columbus	Ohio	43212	
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	Ohio	43081	891-9273
WA8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	Ohio	43224	261-8583
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlis le	Ohio	45334	513-964-1185
WD8RXX	John Perone	3477 Africa Road	Galina	Ohio	43021	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	Mich	48144	
W8STB	John Hey	894 Cherry Blossom Dr	West Carrolton	Ohio	45449	
KB8TRP	Tom Flanagan	1751 N. Eastfield Dr	Columbus	Ohio	43223	272-5784
WA8TTE	Phil Morrison	154 Llewellyn Ave	Westerville	Ohio	43081	
KE8U	John Greene	PO Box 64	Presque Isle	Wi	54557	
KB8UGH	Steve Caruso	39 South Garfield Ave	Columbus	Ohio	43205	461-5397
WB8URI	William Heiden	4435 Kaufman Rd	Plain City	Ohio	43064	614-873-4402
WB8VJD	Rick Morris	203 Merton Street	Holland	Ohio	43528	
W8WAU	Jake Fuller	PO Box 117	No. Hampton	Ohio	45349	
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	Ohio	43062	927-3883
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	Ohio	43223	272-8266
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	Ohio	43125	836-3519
N8ZTL	Gregory MacCartney	3469 Oakcrest Rd	Columbus	Ohio	43232	

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

FIRST CLASS MAIL

VISIT THE COLUMBUS HAMFEST AUGUST 5

DON'T FORGET OUR NET AT 9:00 PM ON TUESDAY NIGHT ON 147.45