ATCO NEWSLETTER

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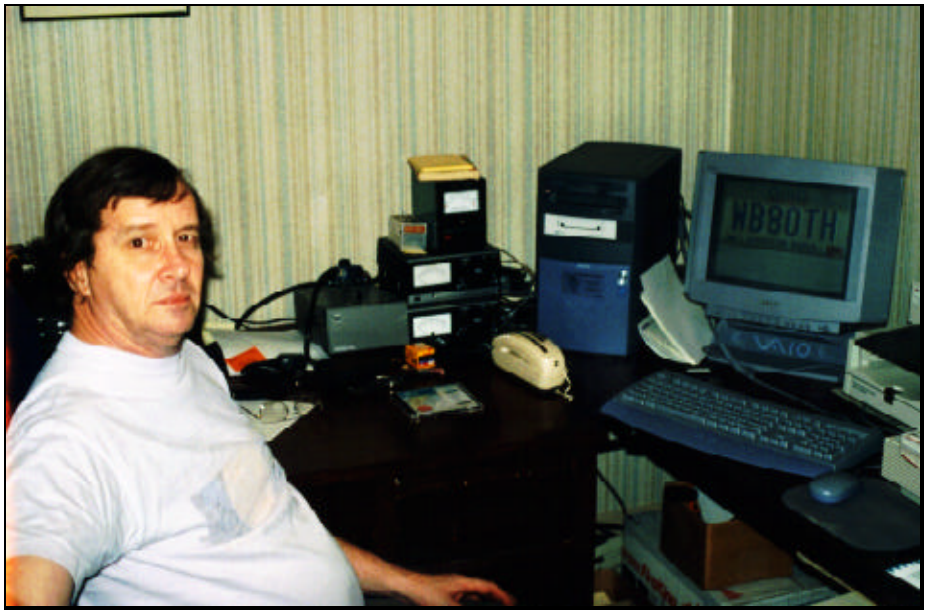
The ATCO newsletter is the official publication of a group of amateur television operators known as AMATEUR TELEVISION IN CENTRAL OHIO Group Inc." and is published quarterly (January, April, July, and October)

ATCO WA8RUT REPEATER UPDATE

The repeater gradually keeps getting better. Improved audio on 1250 and soon to be made improvements to the 439.25 receiver intermod problems. Hopefully I will also complete the roof camera soon. More details inside.

ATCO HAM IN THE SPOTLIGHT

This time we zero in on Perry Yantis WB8OTH. Perry has been more active on ATV lately...we like to see that, but he shares his ATV activities with the AMSAT group and scuba diving. I guess if we could find a way to create a practical underwater portable ATV repeater, he would *really* be active. Perry, after viewing some of your underwater video, I very firmly believe that you must stick to freshwater diving! Those sharks looked **too** close and **too** hostile for my liking. We want you around to participate in ATV!



ACTIVITIES ... from my workbench

Well, it's newsletter time again. Each time I sit down here, I wonder what I can say that won't totally bore everyone on the subscription list! Well, usually I find quite a bit to say, for sometimes it's hard to trim it down to only one page. Now, if I could only cure the boredom problem, we'll all be happier people. Seriously, if there is something I'm doing that you *don't* like,or something I'm not doing that you *would* like, let me know...I problably won't recognize you at the next net nite but that's the price we pay for honesty! HI! Just kidding. We need to know if the subject matter needs a shot in the arm. OK! Let's talk ATV.

Well, for starters, Dale WB8CJW decided he'd heard enough distorted audio on the 1250 transmitter and made a lone trip to the repeater with screwdriver in hand. A few turns of the pot and out popped inteligible audio. It sounds much better Dale. Thanks!

On my side, I finished my self proclaimed alternate 1250 transmitter. Since we upgraded the 1250 transmitter to 50 watts, I've had the remains of the old 15 watt transmitter minus the driver stage that got reused in the rebuilt transmitter. I decided to complete it and use it at my QTH as a 1280 transmitter and if at any time the one downtown failed, we'd have a spare till the main one was fixed. It's now finished and if you'd like to duplicate it yourself, turn a few pages further for the construction details.

Next on the list is to create a roof camera. Yes, I said create. I seem to never do things the easy way and this is no exception. I decided top build my own special camera design for this application. We would primarilly like the camera to be used to look at the horizon during severe weather periods. Also, it has to be rugged with low maintenance. A complete sweep of the horizon would be nice so how could this be done without having to reverse direction to unkink the control cable? IDEA !!! I decided to create a camera and lens combination that is stationary and points straight up. Then a right angle mirror that rotates is needed to bend the view 90 degrees. In this arangement, the outer housing and mirror rotates so the camera and associated cables remain stationary. This allows 360 degree rotation and beyond for a complete panoramic view. Also, there is no need to reverse the pan. Just let it continue to rotate. Well, the motorized lens is now operational (thanks to TED N8KQN) and a CCD camera is attached. At this point, I realized that a single mirror reverses the image (same as reading a book in the mirror) so I need two of them to reverse it back again. Moving on, the housing is next. I need a 6" diameter and 18" long tube (metal or plastic - I haven't decided yet) to mount it in. Soon I'll find what I want but not yet. If any of you have any material like this, let me know! That's where I'm at for now. If I keep working at this, we'll have a camera maybe by next year at this time. Boy, I hope not! The electronics need to be built yet. I know what to do but heating up the soldering iron is another matter. Do I have any volunteers?

On another front, I found a local TV station has agreed to work with us to rebroadcast weather radar if and when they have their unit installed. It's promising for this year but I'm not holding my breath yet. However, it's encouraging to see that they are willing to work with us. Other options are being explored also. The satelite delivered and packetized radar image reception capabilities are being worked upon by Tom KA8ZNY so soon we'll see data from his side of town.

Ken has been pressuring me to get involved in 2400 Mhz activity which is tempting. He even brought over a working unit for me to try. And try I did. I mounted the small dish/converter on my tower and pointed it toward Ken. No luck. The unshielded IF output that ran down the tower happens to be on the same frequency as channel 6. Since I was unable to convince ch 6 to shut down while we ran tests, I had to scrap it for a while. I promise, Ken, I'll look for stuff at Dayton and as soon as the camera is fnished, 2400 Mhz is the next priority. Check out the comments about the Wavecom units in this issue for some starter tips.

That's all for now guys. Yea, I know this page isn't full yet, but if I don't stop here and get back to the camera soon, the severe weather for this season will pass. More gory details next time...
...Art WA8RMC

NEWS FROM PENNSYLVANIA AREA ATV GROUPS

There have been a few changes to the Acme repeater in Pittsburgh. This info may come in handy if the band will *EVER* open up. New call sign on the Acme repeater is W3NBN in Acme, Pa 421.250 output 434 Input ....Alford slots.... 70 watts output power sponsored by the laurel highlands vhf society. 2300' above sea level. New output of 910.250 quad nano wheel on the output ... 40 watts out from Downeast microwave amp..... same receiver as W3NBN.
W3KWH Carnigie, Pa 421.250 output 439.250 input.....Alford slots 20 watts output Steel City Amateur Radio Club
If there is anyone who would like to work some dx, I would be your best shot into Pittsburgh. I have good antennas and high power 250 watts. Email me at Ka3fzf@usaor.net. There is a Beacon coming on in Indiana, Pa 427.250 soon.
...Jim ka3fzf Monroeville, Pa.

A REAL WILD ATV EXPERIENCE...fact or fiction?

I know this message is a little long but I would like to share with you folks a neat ATV project I've just completed. Here goes. I'm typing to you on my computer here at work. The word processor I'm using covers about 1/2 the screen. I have another window covering 1/4 of my screen. This window has the output of my ATV repeater in it. The repeater is six miles away. The audio is coming through my SoundBlaster card speakers. I pick up my HT, type a few touch tones and now am looking at the output of one of the cameras at the repeater site. I spin the camera around (via a pan/tilt rotor) and see my building where I work. It's neat but here's where it gets real interesting. With the press of a few more touch tones on my HT, I just keyed up my ATV transmitter at home 12 miles away. OOPS my boss came by so I shrank the ATV window down so he didn't see that I'm screwing around. (The loop yagi on my monitor has him guessing though!) At home I just turned on the living room camera. (I have red lights through-out the house so my wife knows when the ATV repeater is on.) I am looking at my four month-old baby bouncing in her bouncy-chair. I can hear her giggle. My wife just waved. Keep in mind I'm receiving the output of the ATV repeater via 1.2 GHz. A few more touch tones and I'm looking in the backyard. I have a camera on my tower that looks straight down. My dog (named Doppler) is barking. I can hear him. I pick up my HT and through a speaker mounted on my tower tell him to stop. He doesn't but it was a good idea anyway. I now switch to my other camera on the tower at home. This one in on a rotor. I pan the camera until I see my neighbor KC8CCG's house. The garage is open and I can see his car. I now flip to my computer's video output in the basement. My Davis weather meter that's attached to the computer shows it is 31 degrees outside and the wind is 8 MPH from the south west. I should mention all the sources from home are overlaid with my wife and my callsign in the bottom left. (I want to stay legal).
Before I go, here is a real world ATV application using my home remote control system. I ordered a 1.2 GHz VSB filter from DCI. My wife, baby, dog, and I went to Ohio to visit the in-laws over Christmas. The filter was coming via UPS and would be left on the doorstep. This is not good. It just so happens that I have a camera that from the corner of the house shows the front door and porch area. My friend N8QPJ each day turns on my home ATV transmitter from his basement 10 miles away, switch to the front door, and saw if the package had arrived before driving to pick it up. I sure love ATV! Sometime I'll describe the repeater site. Five cameras, pan/tilt rotor, a P strength meter, and temperature gauges are a few of the bells and whistles! It's not easy getting repeater users but I sure am having fun.
...Chris Oesterling N8UDK Detroit, Michigan D.A.T.S. (Detroit Amateur Television Society) chris@MurphySoftware.com
(Hard to believe one ATVer can have all this fun! True? You be the judge. After all, it's April 1st. Ed.)

ATV RECEIVER SYNC DETECTION IMPROVEMENTS

The following tip from Tom is directed to repeaters with NE567 sync detector IC's in the controller like ours. Dale WB8CJW has fixed ours already with a similar modification, but this info may be of interest to others with 567 type sync detectors... Ed.

Some weak signals seem to cycle ATV repeaters when they change scene. This is due to the amplitude of the sync plus the level of the video on each side of the blanking changing at the input to the 567 decoder. If the scene edges are white and then changes to black - the worst case - and the signal is just above the threshold, it can drop out the relay. An easy fix is to add a 510K or 470K resistor between pins 1 and 8 of the NE567 on the back of the board. This increases the sensitivity 6 to 8 dB when keyed to hold in better over varying scenes or signal strengths, and decreases back to your key up set level when the signal drops.
...Tom O'Hara W6ORG at P. C. Electronics.

ITEM FOR SALE

For sale Sony 3/4 inch cassette video player model VP7020. Contact Criss Huhn N8OPB.

ROCKET & BALLOON LAUNCH UPDATE INFORMATION

ROCKET:

Another note to let you all know that my web page has been updated again. I have added two AVI files of an amateur rocket launch. The rocket was launched by the Reaction Research Society and had an ATV payload designed by KC6CCC. It was launched on 11/23/96 and went to 50 miles.. http://web.io-online.com/users/forsberg/atv.htm

BALLOON:

Congratulations to Mike Henkoski (KC6CCC) and Bill Brown (WB8ELK) on a successful balloon launch on Feb 1, 1997. It went to almost 100,000 feet and carried a color camera and 2.4 GHz ATV FM transmitter. An AVI file of part of the trip is available at my web page. It is 4.3 MB is length http://web.io-online.com/users/forsberg/atv.htm Email: forsberg@io-online.com
...Bruce WB6IZG

ROCKOON:

OK, now the following is what I call a super rocket launch attempt. A late update informed me that the rocket portion had technical difficulty and was not launched. We'll try and keep everyone informed when the next attempt will be for it should be able to be seen in central Ohio if it obtains the height stated. Ed.

On the morning of Saturday, March 22, a small group of space enthusiasts will attempt to make space history by sending the first amateur rocket into space -- and the first hybrid rocket into space ever. Press and visitors are welcome to attend. The Huntsville Alabama L5 Society (HAL5), a chapter of the grassroots National Space Society (NSS), has spent the past two years developing and testing components for a "rockoon". A rockoon is a rocket that is launched from a high altitude balloon. The rockoon approach allows a small rocket to obtain a very high altitude because there is little air to slow it down during launch. Rockoons were first flown by James Van Allen in the 1950's as part of a joint Navy/university project, but were abandoned when sufficiently large ground-based sounding rockets became available. HAL5 has updated the rockoon concept using 1990's amateur rocketry and electronics technology. HAL5's goal is to make space more affordable for students, hams, experimenters and researchers. The HAL5 program, started in July 1994, is called Project HALO, for High Altitude Lift-Off.

The HALO rocket utilizes hybrid propulsion, whereby an inert solid fuel is kept safely away from a liquid oxidizer until the rocket is ignited. The solid fuel used for the HALO rocket is pure asphalt, the same material used on streets and roofs. The liquid oxidizer used for the rocket is nitrous-oxide, the same "laughing gas" used by dentists. After constructing their own rocket motor test facility in early 1995, HAL5 has since performed over 50 static firings of its hybrid rocket motors. HAL5 successfully launched a test hybrid rocket from the ground in Manchester, Tennessee in April of 1996. The garage-built HALO hybrid rocket, to be launched from off the coast of southeast North Carolina, will become the first of its kind to ever make it into space -- if it successfully exceeds an altitude of 50 nautical miles (300,000 feet). The highest hybrid flight to date was flown on January 8, when a NASA-industry team sent a nitrous-oxide and HTPB-rubber hybrid sounding rocket from the ground to 119,780 feet. The high-altitude helium balloon to be used is made of clear polyethylene plastic over 70 feet long, but thinner than a sandwich bag (only 0.35 mils thick). At the launch altitude of 90,000 feet, the balloon, which has a volumetric capacity of 54,000 cubic-feet, will expand to 47 feet in diameter. Floating in the frigid stratosphere, the balloon will be brittle enough to "pop" when the HALO rocket safely shoots through it. HAL5 successfully launched a smaller 19,000 cu. ft. capacity plastic balloon from Huntsville, Alabama in September of 1996. HAL5 also has successfully sent six smaller latex rubber balloons to the edge of space, which have carried both rocket test parts, electronics, and student experiments. The Project HALO rockoon, if the rocket successfully launches from the balloon gondola, will become the first amateur rockoon mission to succeed. Previous rockoon attempts involved solid rockets, which failed to ignite at altitude. Lessons learned from those attempts have been incorporated into Project HALO.

Due to limitations of recovery boats, the balloon will be launched inland, from a farm in Cerro Gordo, North Carolina (about 60 miles west of Wilmington). March winds will carry the balloon ESE as it rises to 90,000 feet. The command to launch the rocket will be sent only once the balloon is safely over open ocean and the rocket is pointed away from land. The balloon gondola will carry an amateur television (ATV) camera to record the launch live and transmit the color video back to earth. The frequency is 434.00 MHz corresponding to Cable TV channel 59. The rocket also carries an ATV camera, a smaller B&W model. Altitude verification for the rocket will be primarily based on signals from an onboard GPS receiver. Backup will come from the B&W camera, which is oriented so that the curvature of the Earth can be viewed, recorded, and later measured to estimate the altitude.
The balloon launch is scheduled for 6:30 AM EST, to obtain the calmest winds and to satisfy FAA requirements. Setup will begin around 3:00 AM. Rocket launch will occur about two hours after the balloon launch (between 8:30 and 9:00 AM EST). If March 22 is windy or rainy, the launch will be postponed until the Sunday the 23rd, or Monday the 24th. For more details (including directions, hotels, restrictions, and requirements), see the HALO web site at http://iquest.com/~hal5/HALO/SL-1/
This information can also be requested by sending an E-mail message to "hal5@iquest.com" or call one of the contacts listed.
...Bill WB8ELK

CABLE TV MODULATORS FOR ATV...Maybe good, Maybe bad...You be the judge

Cable TV head end modulators are starting to show up on the surplus market as the cable companies upgrade their equipment. Dayton is just around the corner so it might be wise to be on the lookout for one of these to upgrade your ATV signal, but beware. It may not be as simple as “plug and play”. In many situations, if you are not willing to build some associated equipment, it would be wise to stay clear. However, for those that are willing to work at it, the rewards of a high quality signal is well justified.

Basically a cable (CATV) modulator is a complete low level TV transmitter with video and audio inputs and an rf output on a cable TV channel (Cable channel 60 is 439.25 MHz). They are equipped with saw filters so the output is vestigial sideband directly with no need for additional filtering. However, it is usually in the +50 dbmv range (1 mw) which will require amplification even to drive a “brick”. Also some are fixed frequency and require a new crystal and retuning to alter the design frequency. Others (preferred) are synthesized and only need a new dip switch combination to put them on channel 60. Prices range from $50 for a crystal unit to $150 for a good synthesized one. Below is discussion on the subject. In any case...”happy hamfest hunting”...Ed.

If I may be so bold as to make a GENERAL statement about CATV modulators; They sound like our answer to cheap, commercial quality ATV signals,.. yes,.. and no...IF you have a well stocked junkbox, and IF you have the technical expertise, and IF you have access to high end test equipment, then they are a real bonus prize. On the down side, depending on each of the above factors, they can be a real terror and very expensive to put on the air. The output is low, in the order of 11mw max, consequently they require an intermediate/final stage of amplification to get the signal to a usable level which I call 3-10 watts, depending on your location from the repeater. Remember, they are basically exciters! Generally the older models that are available to us on the "surplus" market, use older type technology. (read as: lots of critical tuned circuits) specialized parts (read as: manufacturers #s only, no specs) so you end up totally redesigning the circuits. (Read as: I've done this before and spent a lot of money and time at it, 'cause my junkbox stinks) One area probably worth investigating farther, is heterodyning the intermediate frequency of 45.75, available at the back of ALL CATV modulators, to the desired frequency??? DEMI (Downeast Microwave...Ed) has boards to accomplish this. Intellectually, this is all fun and VERY necessary for OUR mental health and the "furtherment" of the state of the art, but bottom line, bottom dollar, there are several manufacturers out the that can provide us, with excellent equipment to "do" the job at nominal cost and do it well. This negates the “I got a good deal for nothing at the hamfest and can put it on the air for even less syndrome". Support your "local" hams. These guys that are in the "business" of producing ham equipment, are OUR most valuable asset. Without them, all the great products that are available to us would die. These guys work more for the love of the hobby, that for the "great" profits. The majority are excellent engineers, they are trying to help us with their products, and I'll guarantee, they're not living any better than the rest of us. Enough soapbox... thanks for listening. Keep pluggin' keep thinkin'....ATV RULES ....as someone said.
...Al Glynn wg7l@worldnet.att.net

WANT HIGH POWER FOR ATV?...check this out

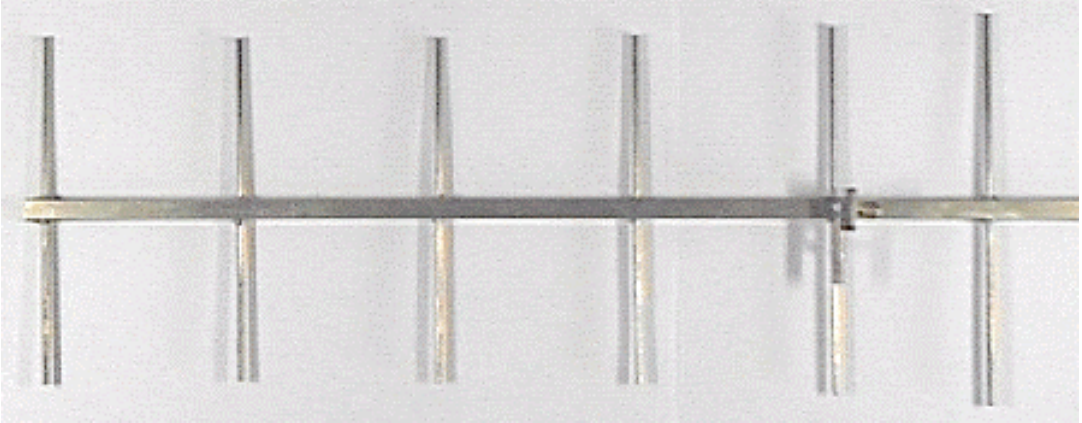
VK6TVA asked what is a good commercially available ATV repeater amp. Mirage was the only one making one - MFJ doesn’t seem to be interested in producing the D1010ATV-R or D100ATV-R anymore and delivery is taking 3 to 6 months - until now. I suggest the Teletec DXR-U150 repeater amp for 70cm ATV. I just got through testing one and making the ATV modifications to it, thanks to the loan from Downeast Microwave. I quit at 180 watts out with 23 in - KO4OX pushed his to over 200 watts. 15 watts pep out of my TC70-10 transceiver gave 142 watts pep output and only drew 18 amps peak from the regulated 13.8 Vdc supply. To modify it for ATV just solder short all but one of the wires on one end of L6 and L7 to reduce the inductance to that of one wire through the bead. These RF chokes feed the base bias and will develop a video voltage across them if too high. If too low the amp will go into low frequency oscillation. This made the biggest difference to cure the horizontal sync distortion. To improve the modulated bandwidth I added a .1, 10 and 100 mF in parallel with C59 right were the +13.8 connects to the PC board. Teletec has verified and agreed to put my ATV mods in their next production run of DXP-U150 and DXR-U150 70cm 150 watt linear amplifiers to make them true ALL mode. The first new DXP's off the line will go to Downeast Microwave in time to take to Dayton and I should have stock shortly thereafter. The DXP-U150 is about the same size as the Mirage D1010 or RFC 4-110 but higher power. All 3 amps do not have enough heat sink area for long keydown time which is normal with ATV and some FMers. The Teletec will run for about 5 minutes before the thermal cut out opens, but with a fan blowing down on the fins I stopped after 45 minutes figuring it should run forever. The amp is quite linear with the 1 dB compression point at 80 watts, and easily runs the rated 150 watts pep. With this amp, you will not have to reset the power output of the TC70-10 to go bearfoot or back to the amp since the gain compression curve is gentle and much more head room. You still need the sync stretch feature in the driving ATV transmitter, but not nearly as much as the Mirage or RFC, and in most cases not worth resetting going back to bearfoot. The DXP-U150 has a built in automatic RF sense T/R system and receive preamp. You can externally T/R switch the amp for CW or SSB modes. The DXP-U150 retails for $ 429 and the DXR-U150 repeater version $789. Just the thing for the coming early summer DX.
...Tom O'Hara W6ORG P. C. Electronics tomsmb@aol.com www.hamtv.com

TRY THIS 1255 MHz YAGI DESIGN...

I found this antenna design the other day while scanning the internet for updated homepage information. The following antenna design looks like it might be just the right size and shape to monitor the 1250 MHz repeater output. It might be especially helpful to Bob KF8QU who isn't supposed to have outside antennas in his neighborhood. Bob, try spraying it flat green to help convince your neighbors its a dead spruce that you just haven't had time to dig up yet! Seriously, it looks simple, has enough gain and Steve said he needs a guinea pig to test it. Any takers? Take a look at http://w6yx.stanford.edu/~stevem/atv to see this antenna and more. Good work Steve! ...WA8RMC

Overview

This Yagi is easy to build and ideal for portable ATV use. Its main features are:
1. Small size, 11.5 inch minimum boom length.
2. All elements are mounted through the boom and soldered. No screws!
3. About 10dB gain (over a dipole).
4. Easy to duplicate.



Design Method

All critical dimensions were obtained from a normalized table appearing in the "VHF UHF Manual", G. R. Jessop, Radio Society of Great Britain, fourth edition, P8.12. The values were scaled for 1255 MHz and then modeled in YagiMax (shareware) for design verification. The final step was to apply a correction factor for through the boom element mounting which appeared in the "UHF/Microwave Experimenter's Manual", ARRL, P9-5. After construction, the capacitive stub matching section was optimized with a network analyzer and should be repeatable with a simple VSWR measurement and adjustment.

Construction Materials

A 15 inch length 0.25" square brass rod for boom, 3 foot length of 0.095" brass brazing rod for elements, 1 inch length of 0.141" dia. 50 ohm rigid coax for matching section and 1 SMA female connector with a 0.5" square chassis flange for feedpoint connections. The brass rod stock used for the boom can be purchased at hobby shops and is sold as "hobby brass". It can also be found at local raw metals dealers and scrap yards for a fraction of the retail price. The element rod can be purchased through scrap dealers or as brazing rod from welding supply houses. Finally, the SMA connector and 0.141 inch rigid coax is common in the microwave industry and can be found at Hamfests.

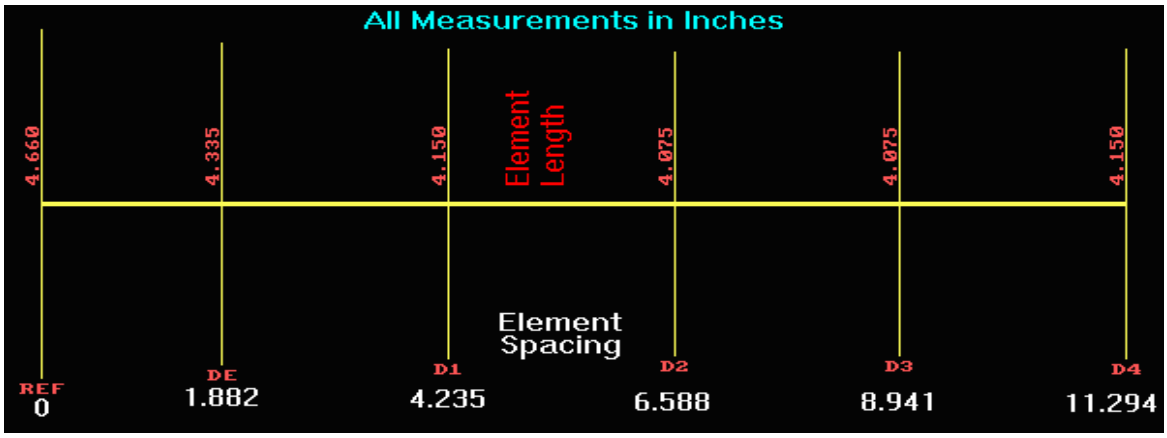
Tools Required

Drill Press with small vise, #41 (0.096") drill bit, Hacksaw with 32 tpi blade, Machinist's scale or vernier caliper, Propane torch, steel wool (for cleaning brass), 150 grit sand paper, X-acto knife, needle nose pliers, large pliers, wire cutters, solder etc.

Assembly

The overall dimensions are shown in the illustration below.

Step 1.
Cut the brass rods to form single piece elements with the lengths indicated in the following picture. This is best done by cutting them slightly longer than needed and sanding or filing them to the precise length. Using a caliper, I was able to get within 3 mils of the desired length.

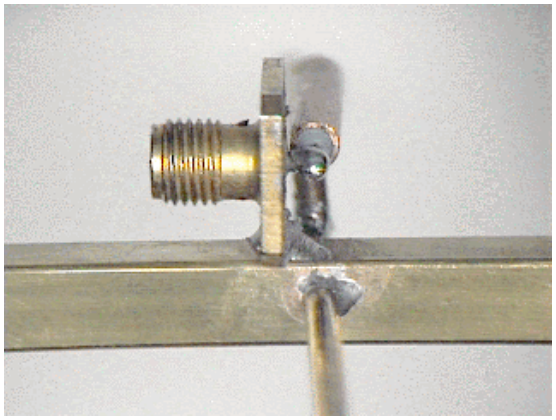


Step 2.
Cut the boom to the desired length. The minimum for this design is about 11.5 inches, however, you probably want about 15 inches to give you some space behind the reflector element for a hand hold or mounting bracket.

Step 3.
Drill the element mounting holes in the boom, along its center line, at the locations indicated. The required drill bit is one that is slightly larger than the element diameter. This will allow the elements to slip easily into the boom.

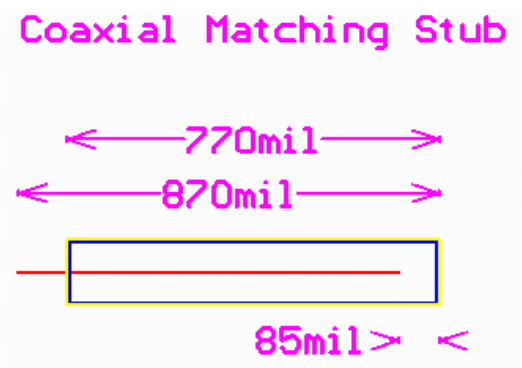
Step 4.
Solder each element in place using a propane torch. Use the machinist's scale or caliper to make sure each element is centered on the boom before soldering. While the amount of solder applied is of no real importance, the antenna will look nicer with only a small amount applied to each side of the boom where the element passes through. The solder will tend to flow inside the hole leaving a smooth boom surface.

Step 5.
Solder the SMA connector to the boom approximately 0.1 inches behind the driven element (between the driven element and the reflector) with the connector threads pointing in the direction of the reflector element. This allows the feedline to pass to the rear of the antenna. The illustration below shows the correct positioning of the coax connector and an edge-on view of the matching section.

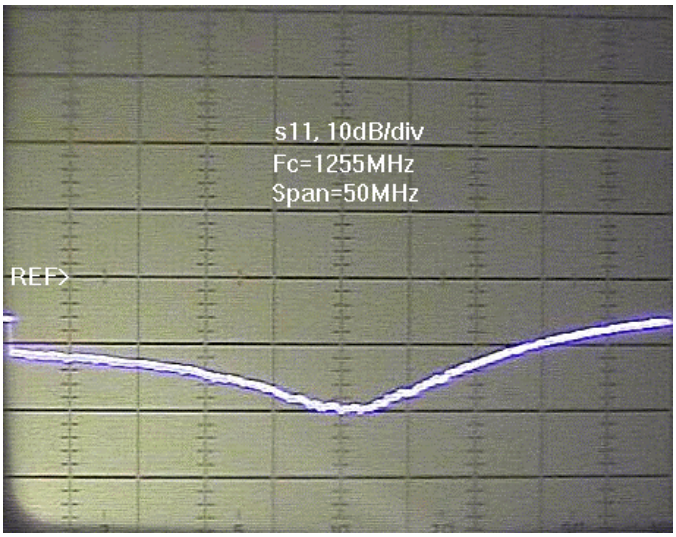


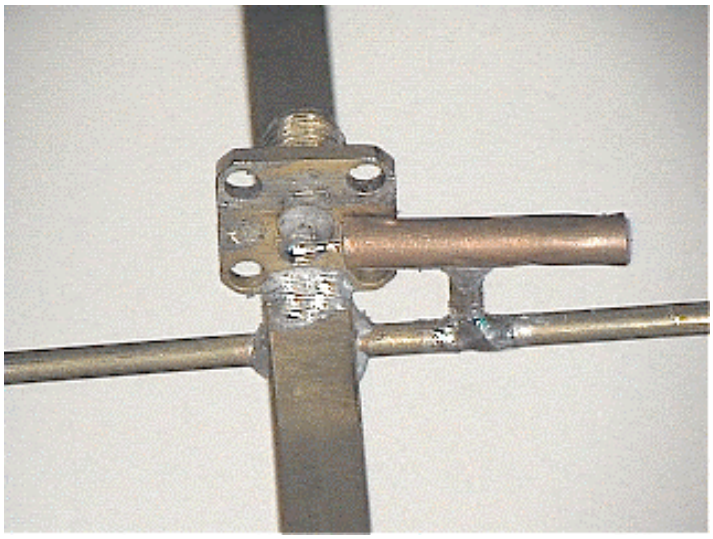
Step 6.
Cut and strip the rigid coax to dimensions shown below. Use an X-acto knife to score outer shield and break by bending the coax with long nose pliers. Use the knife again to strip the section of center dielectric from the center conductor. Pull the center conductor out of the dielectric to the amount indicated.

Step 7.
Solder center conductor of the matching section to the center pin of the SMA connector as shown in the image below. Also, solder the vertical "T" bar section between the driven element and the matching section. Its location will have to be determined experimentally for lowest VSWR at 1255MHz. On the prototype, the T bar was approximately 0.450 inches from the centerline of the boom. Note: it does not matter which side of the driven element is equipped with the matching section. Also, the shield of the matching stub should NOT be touching the SMA connector flange.



Results.
Below is the swept return loss for the Yagi. As you can see, its bandwidth is fairly narrow but adequate for single channel FMTV or AMTV use. Just don't expect to use it up on 1296! This limitation is due to the simplicity of through the boom mounting of the driven element and its associated matching network. The antenna has performed quite well in field tests.


s11, 10dB/div
Fc=1255MHz
Span=50MHz
REF>

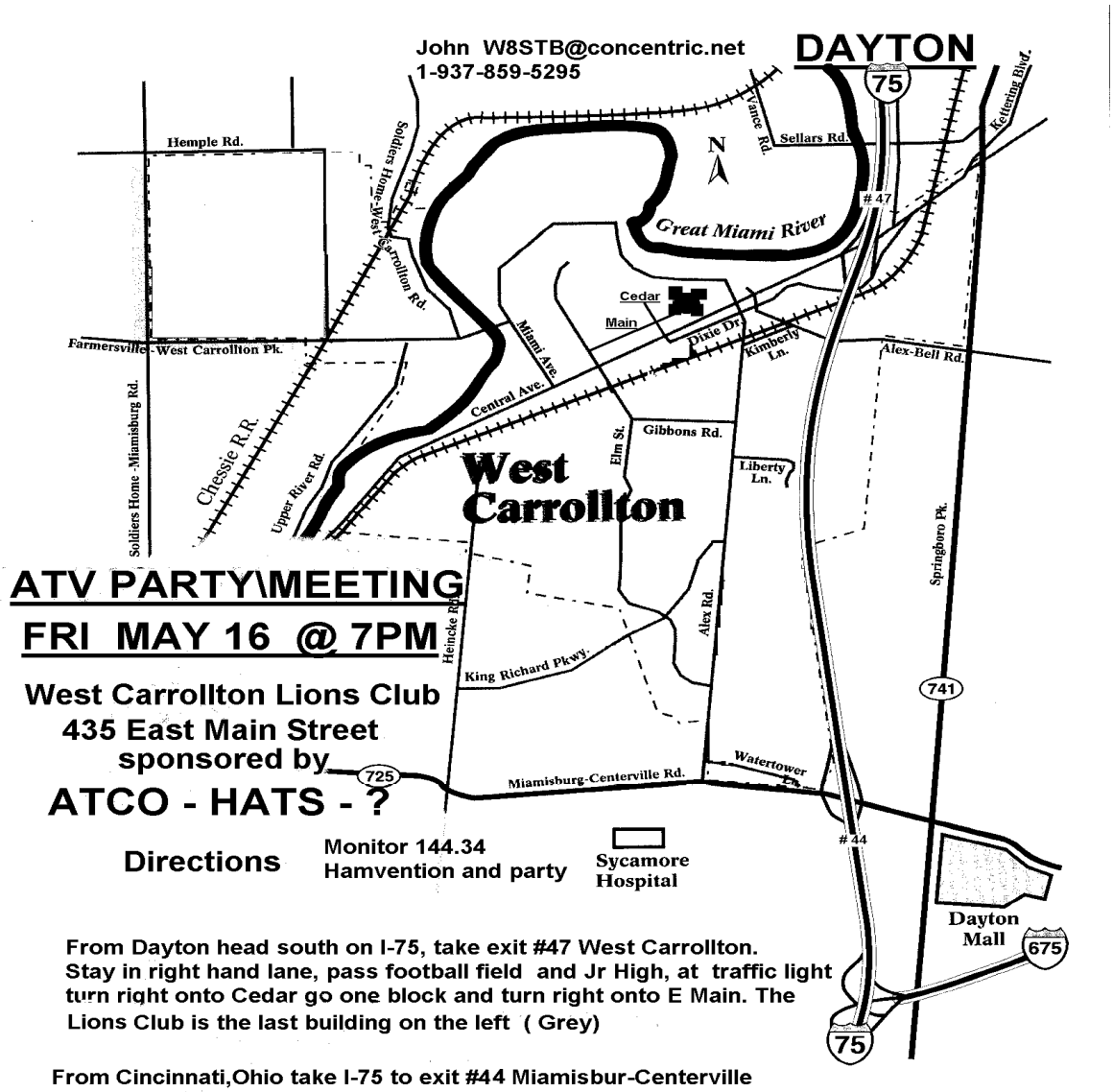


ATV PARTY AT DAYTON HAMFEST IS REALITY!

IT'S A GO. We will be able to have a Fast Scan ATV party this year during the Dayton Hamvention Weekend. This event will take place on FRI. MAY 16th (7pm or 7:30pm) at THE WEST CARROLLTON LIONS CLUB, West Carrollton, Ohio. This location is just 15 min. south of the motel that we had the last Fast Scan Meeting\Party. (The Holiday Inn raised their price to $1,600). Slow Scan ATV has also moved their meeting to another Motel. Plan on bringing a small portable ATV system with you to Dayton as Dayton has a ATV repeater. The input freq is 439.25. The control freq is 147.450 and *10 brings it up for 2min.

If you are coming to the party\meeting plan on giving us a update on ATV activities in your area. You can bring video tapes or overhead slides or just stand up and talk. This will be a very informal get together. BUT EVERYONE IS WELCOME.

Map and directions and etc. will appear in next ATVQ and is shown below. The Columbus Ohio ATV group (ATCO) will be helping with this event along with Henry @ ATVQ and many others.
...John W8STB



NATIONAL ATV CLUB? ...is this a good idea?

NOTES FROM W3HMS

Listening to Michel, F6ANO, the President of ANTA, stress the point of frequency use and defense of amateur frequencies made the need for each nation to have an ATV organization axiomatic. That we do not have one in the USA is regrettable and can only work to our detriment. Heck, we don't even know how many of us there are in ATV. ATVers are a very small percentage of the total number of hams in both the US and in France. As a result, ATVers may not receive what they consider to be proportional support by their national ham radio organization. So, here is my Proposal for An American National ATV Society.

1. We need a national ATV society because:
    a. Other specialized groups do it....QRP ARCI, satellite users, etc.
    b. Planning for adoption of new technology in a unified way....
2. We don't need any more provincial fights about polarization or 2 meter audio frequency.
3. We need to have some idea of the future when we make equipment investments.
4. ARRL may not always be the most effective lobby for ATVers.
5. There is always strength in unity to fight frequency takeovers or, even worse, FCC frequency sales which are FOREVER, I think.
6. INTERNET EMAIL will make communications among officers and members possible.
7. ATVers are now dependent on some magazine editor/company to host the ATVers meeting at the Dayton Hamfest. We should have a national organization to do it.
8. ATVers could easily have quarterly regional meetings rotating among principal cities in the region permitting members to participate in technical and business sessions.
9. Sharing tech info less formally than magazine articles...it is very time consuming to write to formal QST authors' standards.
10. Developing intercity linking standards.
11. The old USATVS was an insulting joke...we need a real society.
12. Lead Group. I believe that the Central Atlantic Amateur Television Network (CAATN) or another large US club/group should take the lead to set up a national organization because:
    a. Everyone has had the last 50 or so years to do so and no one has done anything of substance!
    b. There is already one or more organizations in place to build upon.
    c. We can "sell" the idea and implement the organization via the ATV Internet list and ATVQ.
    d. The Dayton Hamfest or the York Pennsylvania Hamfest Technical sessions can be the drawing card to bring in people to have the formation meeting.
    e. For the CAATN, it is situated on the populated East Coast which is advantageous for the national meeting or for regional meetings.
    f. The national group should have its headquarters close to or in Washington DC for purposes of liaison with FCC etc.
13. The CAATN will hold its regular August meeting at the York Hamfest on 16 August 1997. If this article appears in ATVQ and in ATV list EMAILs, it could be discussed at the Dayton Hamfest with a view to holding the formation meeting or perhaps a regional meeting at York used to finalize the organizational structure. The group could start to formulate the following:
    a. Band plans for ATV sub-bands working with either regional or National Frequency coordinators.
    b. Liaison (perhaps lobbying) the FCC as needs arise by promoting communications by ATV groups.
    c. Pull together various groups now in existence and combine forces to work for a common cause.
    d. Plan for a series of meetings perhaps four a year, one in York (east coast) , one in Dayton, (mid west), one in the Rocky Mountain area, (Houston, Denver), and one in Los Angeles or some where on the West Coast. This would give most ATVer's a chance to provide their input at least once a year without extensive travel.
14. Proposed Organizational Structure. The most democratic plan is to have the national organization COMPOSED of the member ATV Clubs much like is done in some countries overseas, ZL and ON I believe. By this method, all major issues would be decided by totaling the votes of the member Clubs such that each person has one vote and the larger Clubs have a larger vote based on the number of their paid members.
15. Another idea is to copy the national QRP society, ARCI. A plea: think broadly about national issues, making American progress and little of egos (all officers salaries to be 6 figures $000,000)...and do not focus on petty details !. Let's DO SOMETHING!
16. Where do we go from here:
    a. I will put this proposal on the ATV lists known to me.
    b. We recommend discussion on the Internet Lists, Letters to the Editor of ATVQ, and EMAILs to myself with copies as you desire.
    c. We recommend attendance at the CAATN meeting at the York Hamfest and Computer Show at the York Fair Grounds Complex at York, Pa on Saturday 16 August 1997. The luncheon, seminars and meeting will cost $10.00 or less.
    d. We will plan to publish the specific agenda and details in the May or June ATVQ.

...John Jaminet W3HMS W3HMS@aol.com

ATV SUBCARRIER POSSIBILITIES...have you tried this?

I have a question regarding the FM audio subcarrier. I wonder if any one is using a separate FM transmitter for this? I tried it with a separate FM transmitter set 4.5 MHz above the video carrier and it seems to work a lot better than the standard 4.5 MHz sub carrier generator that is included with most ATV transmitters. If anyone is doing it with a separate transmitter maybe you could fill me in on what you are using. If the same antenna is being used what kind of couplers are being used to combine both signals onto the same antenna. With the normal 4.5 sub carrier generator on the ATV board it seems very hard to keep the sub carrier out of the color. The injection has to be set very low and then you pick up some noise in the sound. I have checked the 4.5 frequency with a counter and it is right on. So that's why I am looking for a better way to do it. Any thoughts on the subject would be appreciated.
...Gene N9GJJ

I have done the same thing in the past...only using catv type equipment. Where you are using a separate transmitter, I got the aural signal at the IF stage from the modulator, before it was combined with the visual carrier. Both signals were converted to the desired output frequencies of 439.25 and 443.75 (two upconverters). I then ran each signal to an amplifier, the visual going to a linear 100 watt amp and the aural going to a class C 25 watt amp. The signals were combined at this point with a power combiner, then on to the duplexers and antenna. I did this to reduce CTB products, 2A - V, 2V - A, 2(2V - A) - V, etc. This is a MUCH better way than running both carriers through a single amplifier. If you are having trouble keeping the aural carrier out of the chroma, then I suggest you take a look at the oscillator circuit. It is likely not very stable. This could be phase locked to the visual carrier to maintain the proper 4.5 MHz spacing. You did state that this was on the correct frequency however... you might check the video carrier as well. There is another way to measure the 4.5 spacing... using LOW POWER from your transmitter, a hot carrier diode and a low pass filter about 6 MHz. With this method you can read the inter-carrier ratio directly. Another problem you may be having is a non linear amplifier at the aural carrier injection point. This could cause beats as well.
...Randy Smith KN4KB email: randysmith@rica.net

Separate sound transmission. The easiest way is to just put up another antenna rather than trying to find a surplus directional coupler of the right frequency, power and dB. The ERP should end up about 10 dB less than the peak envelope power of the video. Try to isolate the two antennas so the isolation is as good as you can practically get so you aren't right back at the same point with the intermod generated in the finals giving the 912 kHz triple beat. Usually 10 ft vertical antenna separation will be good enough. Same thing with the directional coupler, get the best isolation you can. You can use any of the amateur FM voice rigs if you can increase the deviation to 25 kHz and change the pre-emphasis to 75 uS. I have done it to an Alinco by just turning up the deviation pot, but you may have to bypass the limiter if you cant get enough. Find the pre-emphasis network and decrease the cap value by a factor of 10. The triple beat problem in some systems is due to long leads to a power supply or not running the amp on a separate power supply. The intermod is generated in the power amp by the supply not being low enough impedance at all frequencies through 5 MHz. Also some times if the exciter is on the same supply or the leads do not go directly to the supply terminals but go to an external junction block, the AM video modulated voltage generated across the leads will feed back to the exciter.
...Tom O'Hara W6ORG P. C. Electronics.

In Utah, we have always used a completely separate Visual/Aural transmitter/antenna system on our repeaters. When it was at it's old site, the Visual signal was transmitted via a set of Trough reflectors, but the audio was pushed out of a simple dipole. Since modern TV's can tolerate a very wide range of A/V power ratios (8-20db) all that is required is that enough power pushed out the Aural transmitter to maintain that ratio, taking into account things like feedline loss, antenna gain, etc. On the new repeater that we are putting up (at a commercial mountaintop site) we are going to use only 1 antenna. Aural power could be injected using a traditional filter/combiner, but if you have seen one of those, you know that it may beyond an amateur budget. Instead, we are looking at using a adjustable directional coupler into the same antenna being used for video and running enough power to obtain (at least) a 20db A/V power ratio (typical of what is used in translator service.) If you are interested, a blurb on the configuration of the WB7FID repeater (as it was in the olden days) can be found at: http://uugate.aim.utah.edu/utah_atv/wb7fid_a.html. There is also another page with some of the details of the new (still being built) repeater. Of interest in this thread is the Aural Carrier transmitter. This is a synthesized, home-brew transmitter, capable of running 25 watts (or more) that has been designed solely for generating the aural carrier. You can find it at: http://uugate.aim.utah.edu/utah_atv/newfid.html. For repeater operation, we have always maintained that trying to generate the aural subcarrier and put it in the video baseband was an exercise in futility. Doing so makes the video repeater less of a good neighbor, and causes headaches - especially in the case of an inband repeater - in light of the myriad of low-level intermod products created that have audio modulated on them.
...Clint ka7oei@uugate.wa7slg.ampr.org

I also did this years ago using 2 Motorola T-44 transmitter strips (tube transmitter using 2C39 planar triodes). I used 2 quarter wave coax lines into a UHF connector "T" as a coupler (diplexer) so that the same antenna could be used. (Note that the quarter wave length must be calculated based on the dielectric of the coax that you use). Just got back on ATV in the past year and now use an HF Technologies 1.2 GHz FM transmitter. Check out our clubs WEB site: http://w6yx.stanford.edu/~stevem/atv/ 73 de Ray
...Ray Riordan WB6UQU rr@eimac.cpii.com

The commercial broadcast stations use this method. A standard FM rig would work, but the deviation is way too low to ever get much audio. You could try to increase the deviation on a standard FM rig, but it probably doesn't have enough swing to do the job effectively. A custom built or heavily modified radio would be needed. I have seen it done by one ATV'er out of NY city, but I am not familiar with his particular station setup and what equipment was used. Remember that the FM signal needs to be 15 dB below the video carrier to prevent and unwanted interaction with the video signal.

It is normally done with separate antennas for video and audio. Remember to calculate the ERP of each transmitter (audio & video) to maintain the 15 dB level difference between the video & audio carrier levels. To try to use a single antenna would get complicated & expensive because you would need to use some sort of duplexer and/or comb filters to keep the two transmitters isolated. This would work if you only planned on using a single frequency because these filters are very frequency specific. For a repeater application, this would work well. For a home ATV station, you would have to sacrifice the ability to change frequencies.

Having access to a service monitor will be necessary to set the levels accurately. The level of your color burst is quite critical in maintaining your color. It sounds more like a setup problem than a technology related problem. I am running several pieces of PC Electronics gear and do not exhibit any of the problems you described. I have seen problems with using poorly shielded coax cables, especially in the shack. I have found that using a good quality, double shielded coax (I.E. - 9913 or flexi 9913) has eliminated any audio problems I have had in the past. It seems that the lower grade coaxes (RG-8U & RG-213) are a bit leaky at UHF frequencies and allow RF to escape into the shack and I then could hear video sync 'buzz' on my audio. If your station is home brew, be sure to have adequate RF shielding between your circuit modules. I hope this is of some help. It's difficult to troubleshoot these problems without having the equipment in front of you.
...ROLAND N1JOY

DAYTON HAMFEST...coming atv events

Well, it’s just about that time of year again, guys! Hope you’ve saved up all some extra money for ATV goodies. I personally, decided to look for a new Icom all mode rig for 144/450. Yes, I know it’s a lot of money and when it comes right down to it, I’ll probably pass it up in favor of other things. But there’s other things happening at Dayton that weekend that don’t involve spending money so I guess there’s something there for all.

For instance, if you can make it down there on Friday night, please don’t pass up the ATV get-together at the West Carrollton Lions Club. See the bulletin elsewhere in this newsletter. It’s informal so we can just mingle and meet old/new friends. We will have some speakers but no formal presentation is scheduled at this time. Stay in touch with our Tuesday night nets for up-to-date news. In addition, we’d like each of you attending to bring an ATV construction project or purchased item for Show and Tell. Hopefully we’ll have many items to look at and discuss. We’d encourage any handouts that you can provide to go along with your project.

The other ATV event at Dayton is the seminar in Room 3 from 2:45 till 5:00 PM on Saturday at Hara Arena. Bill Brown WB8ELK and Bill Parker W8DMR will be our experienced moderators. This event is a “must see” for those seeking quality information. To help with the presentation, they have arranged for the following speakers and topics:

- Hawaii to California ATV DX record, by Mike Henkowski KC6HCC and Bill Parker W8DMR
- ATV from the edge of space via Balloons And Rockets by Bill Brown WB8ELK
- 10 GHz Radiation Phenomia demonstration video tape excerpt from Dr. John Kraus, W8JK Gugnus-Quasar Books

GETTING ON 2.4 GHz FM ATV...Bill Parker W8DMR

General details:

The WaveComm, 2.4 GHz transmitter and receiver may be purchased for about $125 (qty. 5, from W0KYQ Mel Shadbolt). The Tx and Rx are of excellent quality and workmanship. The main disadvantage is very low output power of about 0.25 (1/4) of one milliwatt.

There is an 8.9 dB attenuator that can be removed. The pad consists of three resistors, 100, 680, 100 ohms. The pad is located after a d-c blocking capacitor and before the PW filter. The resistors are surface mount components (SMC) and require a little skill to remove without damage to the PCB. The writer removed only the 680 ohm and the 100 ohm resistor next to the PW filter. The resistors are clearly marked as to value. If sufficient heat is applied to one end of a resistor, the other end may be slid from the connecting soldering pad.

Make a strap from a 5/16 inch long and 1/8 inch wide flat copper. Solder one end of the jumper to the junction of the d-c blockimg capacitor and the remaining 100 ohm resistor. Solder the other end to the input of the printed wiring (PW) filter. Be sure the jumper does not extend to the adjacent printed wiring ground pad where the l00 ohm resistor was formerly connected.

To make the RF TX unit more modular, an SMA fitting was added in place of the antenna cable. The center lead must be kept short in length and the shield of the SMA connector must be soldered to the ground foil of the PWB and the shield case. Removing the 8.9 dB pad will raise the output power from 0.25 milliwatts to about 2.5 milliwatts. The next step is to add a MMIC amplifier, Type ERA-5 manufactured by Mini-Circuits. The amplifier has about 20 dB of gain (100 times) at 4 GHz. It will draw about 80 milliamperes at 5 volts d-c. This will increase the output power to about 200 milliwatts or 0.20 (l/5) of a watt.

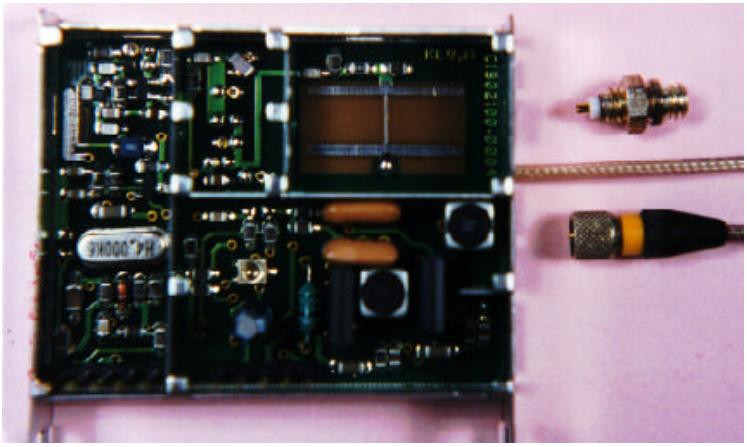
With a 18 inch parabolic reflector antenna, providing a gain of about 20 dB, the effective radiated power (ERP) will be approximately 20 watts excluding any feedline loss. The small PW antenna supplied with the units are advertised as circularly polarized antennas. Most ATV enthusiasts will use external antennas of linear polarization, be it vertical or horizontal. If the small PW antenna is replaced at the receiving unit with an antenna similar to the transmitting antenna, the LOS range will be extended even more.

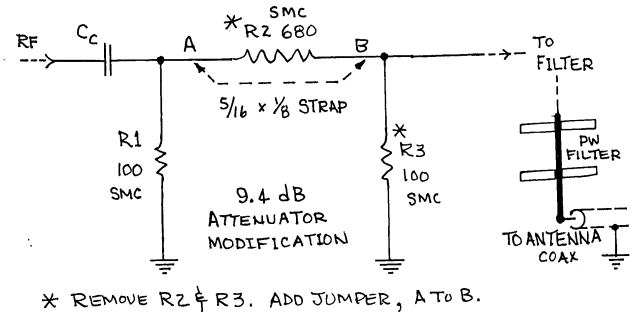
Study the accompanying photographs before starting this simple & worth while modification. The 300 foot range will be extended to a line-of-sight (LOS) range of many miles. The quality of the received color video & stereo sound is excellent. And best of all, interference free.

Parameters	Specifications
Transmitter; Model Tx 888	
A/V signal range	300 feet (100 meters) clear line-of-sight
A/V antenna	Directional circular-polarized antenna
A/V transmit power	FCC Part 15 complaint
A/V frequency band	2.4 GHz frequency band
A/V modulation	FM (color video high fidelity stereo audio)
Video input format	Available in NTSC or PAL
Video input level	Standard baseband color video level
Audio input level	Standard stereo line level
Power supply	12 Vdc, 500 ma
Dimensions	6.9 x 4.4 x 1.8 inches; 18 x 11 x 4.6 cm
Weight	12 ounces; 0.34 Kg
Receiver; Model Rx 999	
A/V antenna	Directional circular-polarized antenna
Video output level	Standard baseband color video level
Audio output level	Standard stereo line level
A/V output	Channel 3/4 modulated
Power Supply	12 Vdc, 500 ma

Table of Wavecomm Output Frequencies	
Channel Number	**Frequency (MHz)**
One	2,433.75
Two	2,452.75
Three	2,472.75
Four	2,410.75

Observe the channel frequencies are not in ascending order as one might expect. Channel 4 is the lowest, while Channel 3 is the highest. The channels are spaced approximately 20 MHz apart or about +/-10 MHz. The exact reasoning for the non logical frequency spacing is not known at this time. It is probably to reduce interference when several links are in close proximity to each other.





Po = 250 microwatts (with 8.9 dB attenuator) (100%)	20dB @ 4 GHz (100%)
	20 dB @ 2.4 GHz

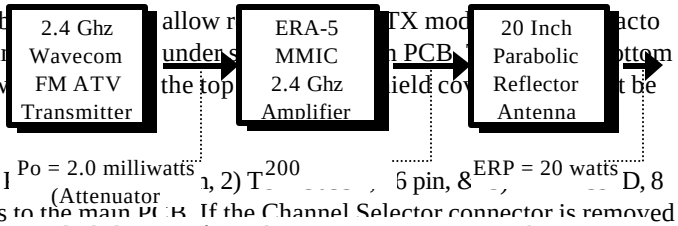
Dimensions	6.9 x 4.4 x 1.8 inches; 18 x 11 x 4.6 cm
Weight	14 ounces; 0.39 Kg

View at left shows bottom of transmitter PCB with R1, R2, R3 in place. The “H” etched circuit portion is the output filter. Above is the schematic representation of resistor deletions & strap addition.

Construction:

Remove the four bottom screws. The main printed wiring board is fastened with a fifth screw located under the shielded TX unit. The metal TX module is held very firmly to the PCB by an adhesive piece of b… allow r… TX mod… acto knife to release it from the foam. The fifth screw remains. There aren't a… under… PCB. … ottom shield covers on the TX module eventually need to be removed. Later w… the top … ield cov… t be oriented the same way as before they were removed. Important.

The regulator IC is a 7808. There are 3 IC's in the TX module, namely: 1) I… …, 2) T… …6 pin, 8… …D, 8 pin. A11 are of the flat pack variety. The Tx unit is connected via 10 pins to the main PCB. If the Channel Selector connector is removed for ease of handling, be sure to reconnect it when reassembly occurs.



Block diagram of 2.4 Ghz FM ATV Transmitter with MMIC Amplifier and dish antenna added to provide increased power and

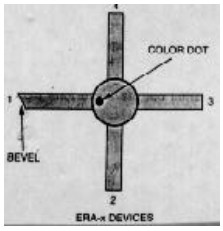
With the top and bottom shield covers removed, locate the 9.8 dB attenuation pad, consisting of 101, 680, 101 labeled resistors. Remove the 680 and the 100 ohm resistors. Install a short jumper strap to complete the RF circuit. Observe the before and after photographs of the TX module when the covers were removed. Remove the miniature coax cable that is connected from the output of the PW filter. The d-c resistance of the coax to the small square-encased C-P antenna will measure opened circuited. If you managed to short the coax, it will not. If you remove a "C" ring at the hinge of the antenna, the brass pin holding it may be removed, allowing the antenna assembly to be separate.

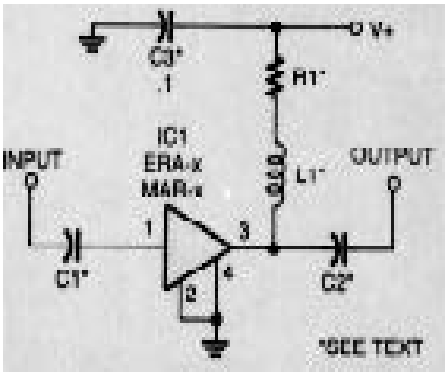
One side of the SMA connector was ground flat by employing a Dremel tool. This permits the SMA connector to lay flat on the PWB and fit within the envelope available. See photograph. The center lead from the SMA connector to the PWB should not be longer than absolutely necessary. Solder the case of the SMA connector to the PWB. The SMA connector uses Teflon insulation and will not be damaged when soldering the case to ground. The machine nut supplied with the SMA connector is not needed. After the SMA connector is installed, replace both covers.

Fasten a piece of miniature coax with a mating SMA connector to the SMA connector installed on the TX module. Insert the TX unit into the PWB. A small relief notch or hole is needed in the outer black plastic case to allow the coax cable to exit. Re-install the small black plastic slide that moves the OFF-ON switch. Connect the 5-wire cable for the Channel Selector and LED assembly to the PCB. Replace the four bottom screws that hold the outer case-halves together. As an option, the MMIC amplifier is the next step. Decide where it will be located, either internally or externally.

MMIC Characteristics (Mini-Circuits)					
Type Number	**Freq. R. (MHz)**	**Gain (dB)**	**-1 dB Comp. (dBm)**	**NF (dB)**	**IP3 (dBm)**
ERA-5	4,000	19.0	19.6	4	+36

The MMIC amplifier schematic and pin orientation is shown on the right. Pin 1 has the beveled lead @ 9:00, pin 4 @ 12:00, 3 @ 3;00 and 2 @ 6:00. Capacitors C1 and C2 should be 5 -10 pf chip caps. Resistor R1 is 33 ohms and L1 is 3 turns # 24 wire in a Amidon FT64-101 bead.





...Bill Parker W8DMR

IT'S ATCO SPRING EVENT TIME AGAIN!

It's that time of year again. Mark your calendar for May 4th. We were able to squeeze in the Spring Event ahead of Dayton again. Dayton wants dry weather and we have a shelter house so watch it be great weather for our event and rain like #$%@ at Dayton. Each year I say I'll bring the antenna plotting stuff and it either rains or we just don't have enough time so this year I'm NOT going to bring it so I'll make sure we plan an antenna party as a separate event later this year. Maybe we can combine the beer party I said we'd have late last year but didn't! Bill WB8URI, get that beer barrel started! More on that one later.

1. We'll need some door prizes. Will anyone be willing to talk to Universal Radio to see if they'll donate anything? Sift through your junk boxes to see if there is something that you can part with but is highly prized by others. If so, let me know so we can add it to the list.

2. It's officer election time again also. Our constitution dictates that we do this once a year so we know if we're doing a good job or if there is someone who would like an active job in the club. A sample ballot is shown below but we'll have extra ones to pass out during the business meeting.

Amateur Television in Central Ohio

ATCO Officer Elections 1997/1998
Official Ballot

For ATCO President (Check One)

_____ 1. Art Towslee WA8RMC

_____2. _____(write in)

For ATCO Vice President (Check One)

_____1.. Ken Morris WA8RUT

_____2. _____(write in)

For ATCO Secretary (Check One)

_____1. Rick White WA3DTO

_____2. _____(write in)

For ATCO Treasurer (Check One)

_____1. Bob Tournoux KF8QU

_____*2. _____(write in)*

ATCO

1997 SPRING EVENT

1:00 PM - SUNDAY
MAY 04, 1997
ABB PROCESS AUTOMATION
(ACCURAY)
*** SHELTERHOUSE ***
650 ACKERMAN ROAD
FOR MORE DETAILS, CONTACT
RICK - WA3DTO 877-0652

LUNCH PROVIDED - DOOR PRIZES -
BRING A FRIEND AND MEET OLD
SHOW AND TELL

DIRECTIONS TO THE ATCO EVENT

From I-70 either EAST or WEST Bound:

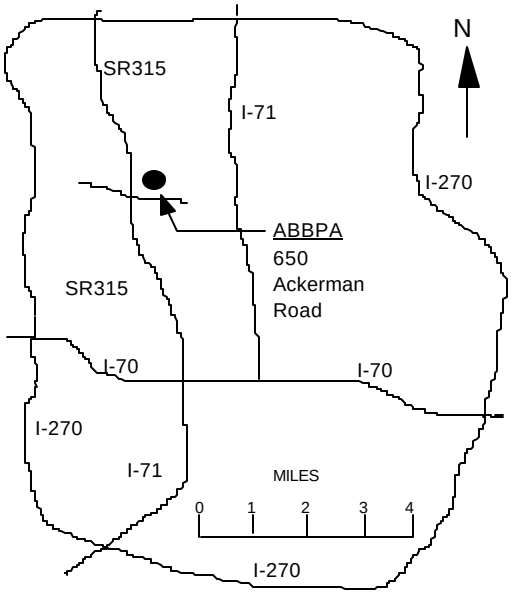
Take Route 315 (runs north and south and is just west of Columbus) and head NORTH. Get off at the Ackerman Road Exit and turn RIGHT on to Ackerman Road. Turn LEFT just beyond the first traffic light at the ATCO sign.

From I-71 traveling NORTH bound toward Columbus:

While traveling north on I-71, watch for the split to Route 315 just south of Columbus. Take 315 and head NORTH to the Ackerman Road Exit. Get off at this exit and turn RIGHT to Ackerman Road. Turn LEFT just beyond the first traffic light at the ATCO sign.

From I-71 traveling SOUTH bound toward Columbus:

(DIRECTIONS IF YOU'RE "NORTH" OF I-270).



Take I-71 SOUTH to I-270 Bypass Loop & head WEST on I-270.

OHIO AREA ATV REPEATER LISTING

This list is compiled from actual repeater sightings in the Columbus, Ohio area. We need to keep up-to-date listings so newer operators know what to look for when the band's open. H&V in freq. list = antenna polarization. Our repeater is obviously the best so I'll list it first.

LOCATION	CALL	INPUT	OUTPUT	BEAM	CALL FREQ	NOTES
Columbus, Ohio	WA8RUT	439.25 H	427.25 H	~	147.45	A signal on any listed input causes
		910.25 V	1250 H			an output on both listed frequencies
		1280 H	~			
Xenia, Ohio	KB8GRJ	434.25 H	421.25 H	240	144.36	*10= tone up for 1 minute
Dayton, Ohio	W8BI	439.25 H	426.25 H	250	147.45	*10=ID, *71= bul board
		1245	1287			
		1249.5	1291.5			
Lima, Ohio	WB8ULC	439.25 H	421.25 H	315		
Ashland, Ky.	WA4GSS	439.25 H	421.25 H	180		
Elizabethtown, Ky.	W4BEJ	439.25 H	421.25 H	210	146.98-	
Bowling Green, Ky.	W4HTB	439.25 H	426.25 H	200		
			1280			
Wheeling, W.Va	KB8QHO	439.25 H	426.25 H	080		
Acme, Pa	W3NBN	434 H	421.25 H			
			910.25 H			
Carnigie, Pa (Pittsburg)	W3KWH		439.25 H	421.25 H	090	

HAMFEST CALENDAR

This section is reserved for upcoming hamfests for as far in advance as we know about them. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here notify me so it can be corrected. I maintain the fliers that compile this list so for additional info Email me at towslee@ee.net. This list will be amended as further information becomes available.

LOCATION	SPONSOR	DATE	TALK IN FREQ.	COST	ARRL EVENT?	
Circleville, Ohio	Teays ARC	April 13	147.18+	$4 adv $5 door	no	
Dayton, Ohio	DARA	May 16,17,18	146.34/94	$13 adv $15 door	yes	
Monroe, Mich	Monroe Cty. Radio	June 15	146.72/12	$4 adv $5 door	no	
Angola, Indiana	Land Of Lakes ARC	August 3	147.18+	$3 adv $4 door	no	
York, Pa		August 16,17	146.37/97	$5	yes	
Findlay, Oh	Findlay RC	September 7		$5	yes	
Fort Wayne, In	Allen County ARC	November 15,16	146.18/88	no adv $5 door	yes	

NEW MEMBER SECTION

Let's welcome the following new members to our group**!** If any of you know someone who might be interested, let one of us know so we can flood them with information.

N8XYJ Dan Baughman, Gahanna
KC8CNV Jack Compson, Columbus

INTERNET INFO

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. We've tried to start a list of interesting places to look in case you get in the "surfing" mood. If any of you find different places to look, I'd appreciate having the info passed on to me so I can include it in this list. The ATCO home page is updated periodically so be sure to check often for late breaking NEWS. Most addresses listed below are case sensitive, so type exactly as shown below.
(If anyone has comments or would like additional listings contact me via Email at towslee@ee.net.

ATV home pages:

http://psycho.psy.ohio-state.edu/atco	ATCO ATV home page. **
http://fly.hiwaay.net/~bbrown/index.htm	Alabama, Huntsville,Tennessee Valley ATV (Bill Brown WB8ELK)
http://www.netbox.hayden.edu/Guests/AATV	Arizona, Phoenix Amateurs
http://www.citynight.com/atv	California, San Francisco ATV
http://www.ladas.com/ATN	California, **A**mateur **T**elevision **N**etwork in Central / Southern
http://w6yx.stanford.edu/~stevem/atv	California, South Bay ATV Group Stanford University
http://www.mindspring.com/~rwf/aatn1.html	Georgia, Atlanta ATV
http://www.smart.net/~brats	Maryland**,** Baltimore Radio Amateur Television Society (BRATS)
http://www.njin.net/~magliaco/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.navicom.com/~satva/satvainf.htm	Oregon, Silverton, Salem ATV Assoc (SATVA)
http://www.lloydio.com/oatva.html	Oregon, Portland ATV (OATVA)
http://wwwwebczar.com/atv	Oklahoma, Tulsa Amateur TV (TARC)
http://members.aol.com/n3kkm/w3hzu.html	Pennsylvania, York Keystone VHF Club
http://www.geocities.com/Hollywood/5842	Tennessee, East ATV
http://www.stevens.com/HATS/home.html	Texas, Houston ATV
http://uugate.aim.utah.edu/utah_atv/root.html	Utah ATV

http://www.ecn.net.au/~sbloxham	Australia, ATV (exhaustive list of other ATV & ham radio sites)
http://ourworld.compuserve.com/homepages/batc	British ATV club (BATC)
http://www.sfn.saskatoon.sk.ca/recreation/hamburg/hamatv.html	Saskatoon, Canada ATV
http://www.gpfn.sk.ca/hobbies/rara/atv3.html	Regina, Canada ATV
http://www.inside.co.uk/scart.htm	UK,Great Britain ATV (SCART)

**Check out the new look on the homepage located here. To the limit of my html capabilities, additional data and graphics have been added. We're not to the big leagues yet but it looks much better than before!

NOTE: If you are a regular Internet browser, maybe you'd like to be kept up to date on all of the ATV related news bulletins that are generated Nationally. If so, subscribe to the "ATV Internet mailing list" and your Email will receive the bulletins automatically. If you'd like to SEND a message to all other subscribers this can be done also. It's free to all.

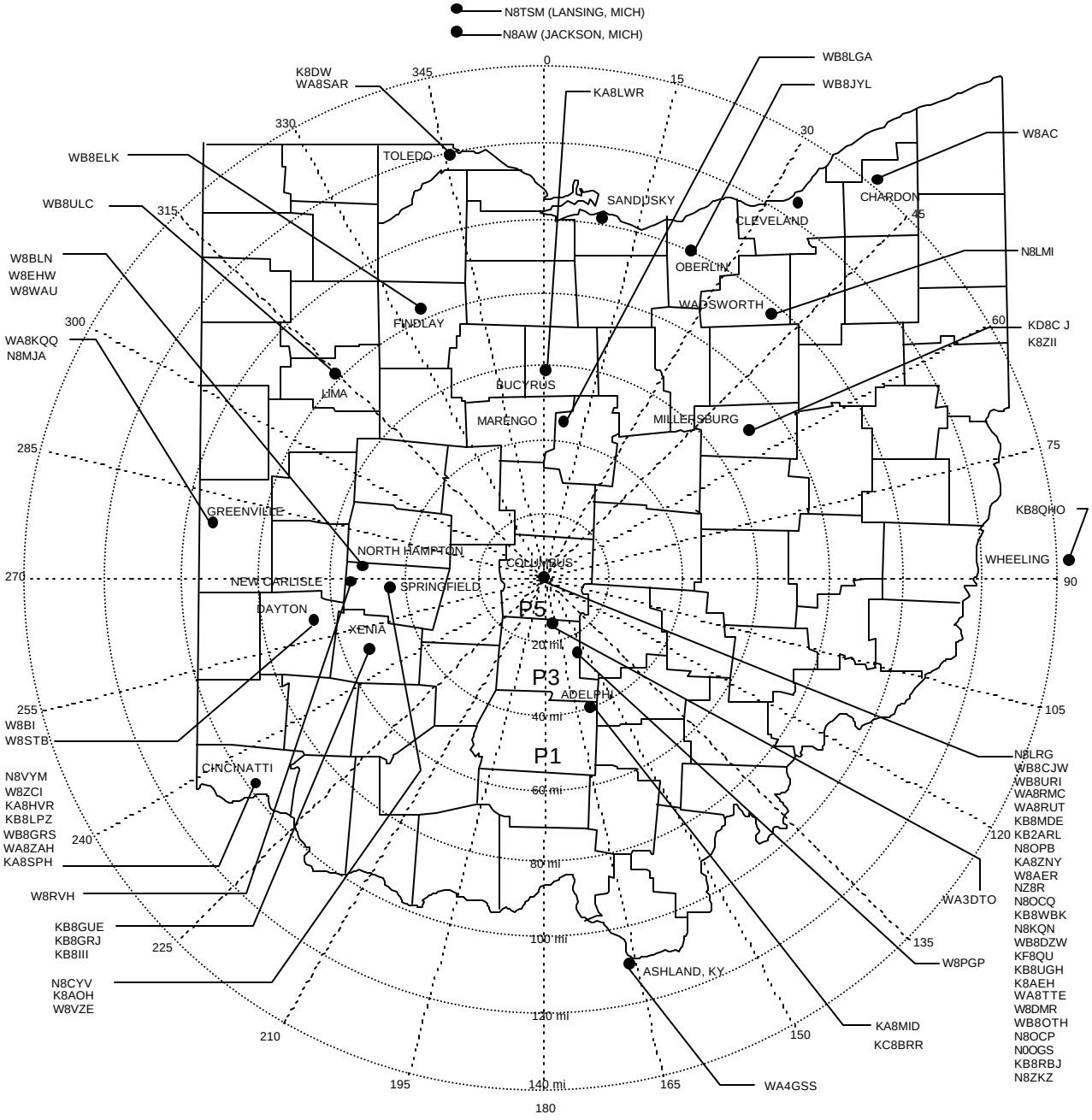
To *subscribe*, send Email message to "listserv@tallahassee.net" and include in the message the line SUBSCRIBE ATV.
To *send a message* address it to "ATV@tallahassee.net".
To be *removed* from list, send Email message to "listserv@tallahassee.net and include in the message "UNSUBSCRIBE ATV".

The following addresses are helpful in searching for many different Ham Radio items on the INTERNET.

http://stevens.com/atvq	ATVQ Magazine home page. ATV equipment & article references.
http://www.hamtv.com	PC Electronics Inc. Lots of proven ATV equipment for sale.
http://downeastmicrowave.com	Down East Microwave Inc. Lots of uhf/microwave parts & modules.
http://www.yahoo.com/Entertainment/television/Amateur_television	Listing of some of the available ATV home pages.
http:/www.acs.ncsu.edu/HamRadio	General ham radio info- satellite track, call sign database etc.
http://www.arrl.org/hamfests.html	Current yearly hamfest directory.
http://amsat.org	AMSAT satellite directory/home page.
http://www.arrl.org	ARRL home page
http://asp1.sbs.ohio-state.edu	Local & global weather map information (good detailed info)
http://www.ualr.edu/doc/hamualr/callsign.html	Search by call sign or name.

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. It also contains mile circles & 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 includes the technical information of our repeater. Each time a new feature is brought on line it's added here. Use this 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 1250 MHz FM modulation.
interdigital filter in output line of 427.25 & 1250 transmitter
Power - 40 watts average 80 watts sync tip (427.25)
50 watts continuous (1250)
Link transmitter - 1 watt NFM 2.5 KHz audio (446.350 MHz)

Identification Both 427 &1250 transmitters identify simultaneously every 10 minutes with video showing ATCO and WA8RUT with four different screens. Audio identification is 4 sequences of Morse Code.

Transmit antenna: 427.25 MHz - Dual slot horizontally polarized 7 dBd gain major lobe west
1250 MHz - Dual slot Hi Spec horizontally polarized 8 dBd gain major lobe west

Receivers: 147.45 MHz for F1 audio input control of touch tones
439.25 MHz for A5 video input with FM subcarrier audio
910.25 MHz for A5 video link data from remote sites
1280 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 west
910.25 MHz - Vert. polar. dB Products 10 dBd gain
1280 MHz - Horiz. polar. single slot 3 dBd gain major lobe west.

		UP	DOWN
Input control:	Major Touch tones: beacon (10 min)	*439	*22
	regional weather radar	697	#
	**Local radar(5 min)	264	#
	User repeat 1 minute	*45	*22
	Touch tone pad tester	#0	#5
	Manual mode (ID)	*7790	*22
	(910 input)	*7791	*22
	(439 input)	*7792	*22
	(1280 input)	*7793	*22
	(future)	*7794	*22
	NASA Select	*70	*20
	5 second ID	#9	*22
	Bulletin board	285	#
	Reset to scan mode	D37 or #437	

Remote sites:	Local radar (inactive at this time)	(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 and at the same address 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	Repeater trustees:	Art Towslee WA8RMC
V.President:	Ken Morris WA8RUT		Ken Morris WA8RUT
Treasurer:	Bob Tournoux KF8QU		Dale Elshoff WB8CJW
Secretary:	Rick White WA3DTO	Statutory agent:	Rick White WA3DTO
Corporate trustees:	Same as officers	Newsletter editor:	Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL ○ NEW MEMBER ○ DATE _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES ○ NO ○ HOME PHONE _____
NAME _____ CALL _____
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 KF8QU
3569 Oarlock CT
Hilliard, Ohio 43026

ATCO TREASURER'S REPORT - de KF8QU

CASH BALANCE (1/11/97)	$ 856.72	
RECEIPTS (dues)	$ 200.00	
OTHER INCOME (bank interest)	$ 6.86	
REPEATER DONATION	$ 10.00	
MISC ADDITION	$ 10.64	
EXPENDITURES(postage) ($.55 x 70)		$ (38.50)
BALANCE (4/7/97)	$1045.72	

ATCO MEMBERS AS OF 07 APRIL 1997

K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	Ohio	43068	866-1399
W8AER	Dave Sears	1678 Kaiser Dr	Reynoldsburg	Ohio	43068	861-0904
KC8AGZ	Dave Lukens	11780 Willowview Ct	Pickerington	Ohio	43147	
K8AOH	Charley Tucker	4546 Laredo Street	Springfield	Ohio	45503	513-390-0693
WB4BBF	Randall Hash	212 Long Street	Bluefield	Va.	24605	
W8BJN	Gene Kirby	13613 US 36	Marysville	Ohio	43040	513-644-0468
KC8BKD	John Miller	4419 Park Ave West	Mansfield	Ohio	44903	
KC8CNV	Jack Compson	5065 Sharon Hill Dr	Columbus	Ohio	43235	
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	P.O. Box #32	No. Hampton	Ohio	45349	
WA8EOY	John Schlaechter	3199 Lewis Rd	Columbus	Ohio	43207	491-4470
KA8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Ohio	44305	
N8KQN	Ted Post	1267 Richter Rd	Columbus	Ohio	43223	276-1820
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	Ohio	45331	513-548-2492
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	2630 Green Ridge Rd	Peebles	Ohio	45660	
KB8MDE/N8ZTL	Shaun Miller/Greg MacCartney	5061 County Rd 123	Mt Gilead	Ohio	43338	419-768-2588
K8MZH	Leland Hubbell	7706 Green Mill Road	Johnstown	Ohio	43031	967-8412
WD8OBT,KB8ESR,KA8ZPE	Tom Camm & sons	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
WA2PCH	Craig Stoll	PO box 1117	Orchard Park	N.Y.	14127-8117	
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
W8RIK	Joe Hussey	1678 Sandhurst Rd	Columbus	Ohio	43229	895-7601
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 Carlisle	Ohio	45334	513-964-1185
WD8RXX	John Perone	3477 Africa Road	Galina	Ohio	43021	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	Mich	48144	
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	Ohio	43119-8914	
KG8SN	Paul Ernst	67 Richards Road	Columbus	Ohio	43214	267-5758
W8STB	John Hey	894 Cherry Blossom Dr	West Carrolton	Ohio	45449	
N8TBU	Ed Latham	8399 Fairbrook Ave	Galloway	Ohio	43119	
KB8TRP	Tom Flanagan	1751 N. Eastfield Dr	Columbus	Ohio	43223	272-5784
WA8TTE	Phil Morrison	154 Llewellyn Ave	Westerville	Ohio	43081	
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
KB8UU	Bill Rose	2685 Kropp Road	Grove City	Ohio	43123	878-8964
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
N8XYJ	Dan Baughman	4269 Hanging Rock Ct	Gahanna	Ohio	43230	
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	Ohio	43223	272-8266
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	Ohio	43064	

KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	Ohio	43125	836-3519

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

FIRST CLASS MAIL

DON'T FORGET OUR NET AT 9:00 PM ON TUESDAY NIGHT ON 147.45 MHz
IT'S TIME TO DONATE ANOTHER $10 TO YOUR FAVORITE ATV CLUB IF NOT ALREADY DONE!