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)

CONTENTS LISTING

ATCO HAM IN THE SPOTLIGHT

This time the magic camera caught up with Paul, W8RRF. Paul's "shack" is unusual because it seems to occupy just about every upstairs room in his house. One is the main shack, the other is the "workroom, the third is the antenna research room and a fourth is the computer room. It's a good thing he has a 5 bedroom house or he wouldn't have a place to sleep.

I found the secret to his good signal…house on a hill at 1000ft+ elevation looking down on downtown Columbus from Lithopolis, Ohio. He can see the buildings in downtown Columbus from his back yard!

Paul is an "old timer" with lots of antenna experience and I'm told he keeps Bill Parker, W8DMR, on his toes. With his experience and

antenna expertise, I'm sure we'll see some great design ideas in the future. Look at that facial expression. See…he's thinking of one already.

ACTIVITIES ... from my “workbench”

Well, here we are again; another wonderful year is approaching us. I say that with confidence because I see the upcoming Dayton Hamvention that promises to be greater than ever. (They tell me that every year!) In any case, the Hamvention most assuredly signals warm weather to come. It's been a short winter however, at least for me, as the warmer than normal winter weather kept the thoughts of antenna work in the foremost part of my mind. Actually I was thinking if the present antenna system at the repeater would last through the winter. (They did!). So, let's get on with the things that are happening now. Here goes.

The first thing that happened at the repeater since last year is the new video controller. Dale has been working feverishly to create a new controller with the help of a unit purchased from Intutitve Circuits Inc. (the ATV group in Detroit, Mich). The VS100 controller we had was just not able to cut it for a number of reasons, poor sync capture, limits with video adjustments, inability to select inputs etc. so we are trying the unit from Intutitive Circuits. It too has limitations but so far, only seems to be minor. In any case, we need something *new* to try, **so there**! So far it seems to work pretty good (see Dale's description later in this issue) but things still need ironing out. The biggest thing we need to get used to is the new codes to manipulate the repeater. (See the expanded and improved listing by Dale in the "Repeater Details" section). It's been up and running for several months now and seems OK but the failure of the repeater to drop out after loss of video sometimes has been plaguing us. I don't think it's controller related but it's *possible* that RF is getting back into it somewhere causing problems. More work to follow.

The new transmitter for the 427.25 output is still in process. Actually, I think the poor RF delivered from the existing Mirage amp is causing some of the controller problems but we'll have to wait and see on that one. I've got the modulator and driver circuit working but am stopped till we find out what power amp is available. We don't want a Mirage amp because of its inherent intermod problems and would like a Teletec but they quit making them. I'm told that they might resume so we'll have to wait and see. Maybe Dayton will supply an answer. If anyone knows of a possible candidate let me know so we can investigate it.

The next thing on the list is the 2.4GHz problems (what a mouthful!). First, Downeast Microwave is now making 2.4GHz 15 watt amps and we got one of the firsts to replace the existing 5 watt unit. It is now installed and producing a good signal for all to see. Reports from some that never saw the signal before are now seeing it near snow free. Jay, KB8YMQ, who is about 20 miles from the repeater now reports snow free signals at this time. However, he also reports that the conifer dish antenna is very sharp and it will be missed if not precisely positioned. Also, a higher location on the tower (above the trees) helps! So much for the transmitter for it now works fine. The transmit filter and antenna were also given a clean bill of health.

Now the 2.4GHz receiver is another story! The problems started sometime last year where "flashing" showed up on the received signal which wasn't there before. Many tests followed which included a portable receiver, antenna and monitor so we could walk around to see if we could locate the interference source. With the unit on the roof and pointed at Ken's signal, it seemed to not be present but as soon as I got close to the microwave dishes operating on 7.1 GHz, the Wavecom went berserk. Aha, that’s got to be the problem…we thought. We then received the help of Tom Holmes, N8ZM, a technical consultant with Agligent Technologies (Hewlett Packard) who graciously offered to bring his spectrum analyzer equipment to the repeater site for analysis. I thought the third harmonic of our 2.4 GHz filter bandpass was letting some 7 GHz energy back down the line into the receiver desensing it. Nope! That wasn't the problem either. In fact, we found absolutely **no** RF energy within the bandpass of the receive filter. The mystery continued. We then found the receive filter bandpass slope right where the receiver center frequency rests. That's got to be it. "The receiver is slope detecting the signal because of the mistuned filter bandpass causing the flashing" was the thought. Many days passed, with me making two trips to Dayton to have Tom retune the filter on his "extremely elaborate, expensive" network analyzer. Both the transmit and receive filters were optimized and I feel confident that they are now operating correctly but…the flashing continues. It's still a mystery. The next effort will be to move the 2.4 GHz receive antenna back to the place on the roof where we knew it once worked good in an attempt to retrace our steps. I'll try to get back up there with the next week or so to do this. Until then, the problem still keeps us from receiving any type of weak signal on this band. To make matters worse, the increased transmit power is causing a fair amount of receiver desense too. But one problem at a time please!

Dale has been busy improving the 915 MHz link signal that transmits our bulletin board announcements. He increased the power level to about 30 watts on his end so it's now a snow free signal at the repeater. Good work Dale. Lately, however, the signal seems degraded but doubt if it's a problem on Dale's end because the weather radar signal is bad also. Dale told me that the last time that happened, he went to the repeater, opened up the rear door and randomly tightened all 915 MHz cables. He then went around to the cabinet front to check the monitor, which produced a crisp clean P5 picture by that time. He never found out what he did to fix it but suggests that "we try it again". Good one, Dale, after all folks, it's ham equipment here…don't complain, it's supposed to do that!

Well, that's all for now. I think we have enough problems to keep us busy for some time. (The roof camera is ready but no further comments now)…I've talked about it too much already. More details when it's installed and **works**. By the way, I've not seen very much experimentation and project building by others lately. Let's get with it guys! We need construction articles too!!!

Don't forget the Spring Event on the 7th of May. Details later in this issue.

ILLEGAL INTERFERENCE ON THE HAM BANDS…Is the FCC helping?

The local FCC office told an FM voice repeater owner that they couldn't act on interference reports given to them. The report has to go through Washington. This came about due to yet another unlicensed surveillance system interfering on the ham bands in the Los Angeles area. This one is FM video centered on about 1284.9 and is trashing a number of amateur voice repeaters in a 5 mile radius. The picture looks like a surveillance camera looking down on a parking lot or storage facility. No ID and its been on continuously for about 6 weeks.

If you experience interference from these unlicensed and greater than part 15 power level systems, don't bother the local FCC, they have to hear it from Washington. You can email your report to: fccham@fcc.gov. It will be interesting to see if they react and shut the illegal system down.

On another negative for ham radio, the FCC has granted the Los Angeles City petition for an experimental license to operate video from helicopters in the 2.4 GHz amateur band. This is a big foot in the door for future Part 90 take over. The report is on the ARRL web site news page: http://www.arrl.org/news/bandthreat/

Digging into Part 15 and Ramseys advertising 433 MHz as a "license free" band for their 10 mw board. We found that the devices can indeed be legal under part 15 on 433 MHz but no where near the 10 mw level and they **do** have to have FCC Compliance to be legally sold. The actual power level allowed is less than 50 microwatts to a zero dB gain antenna and must shut down automatically after 5 seconds. The purpose of these kinds of intentional radiators are for garage door openers or other intermittent control devices. A good discussion of Part 15 and some of the myths can be found on the ARRL web site: http://www.arrl.org/tis/info/part15.html

…Tom O'Hara W6ORG

ULS FCC REGISTRATION PROCEDURE…It's easy (or is it?)

The FCC says only a small minority of the Amateur Radio population has registered in the FCC's Universal Licensing System, which was deployed for the Amateur Service on August 16, 1999. If you're not registered because you're not sure *how* to register, here's a ULS primer for those registering on-line. In response to requests from the amateur community for simplified, yet detailed, steps to register for the ULS, the ARRL offers the following procedure for individual Amateur Radio licensees:

1. Start Netscape Communicator version 4.5 or later. (Other browsers may work, but the ULS supports only Netscape. It's available free at http://www.netscape.com --click **"Browsers"**). The FCC indicates that the following browsers have been tested and are presently compatible with ULS: Netscape Communicator vers 4.7, 4.61, 4.51 and 4.5. (Note: Your computer must be equipped with a 32-bit operating system such as Windows 95, Windows 98 or Windows NT).
2. Go to the Universal Licensing System home page, http://www.fcc.gov/wtb/uls
3. Click **"TIN/Call Sign Registration"** on the main ULS screen.
4. On the next screen, check **"Register Now"** then **"Continue".**
5. On the next screen, check **"An Individual"** then **"Continue".**
6. You should now be at the Form 606 screen, identified in tiny print on the upper left. Complete only the "Licensee Information" part of the form--the top part. Don't complete "Contact Information." (That's for those who deal with the FCC via a communications law firm or other third party.) You also do not need to be concerned with something called "SGIN" that you might encounter.
7. The "Taxpayer Identification Number" or "TIN" is your Social Security Number. Enter it without hyphens or spaces (ie, 123456789).
8. Complete your name and address information. First name, middle initial, last name, and any "Suffix" such as "Sr", "Jr", or "II", as appropriate. You may provide a PO Box address, street address, or both. You must include a ZIP code.
9. Form 606 still requires you to put something in the telephone number field, even though the FCC has said that a telephone number is not now required of amateurs and that it will not make telephone numbers public. If you do not wish to give the FCC your telephone number, you can fill this field with zeros or with your area code plus 555-1212. A fax number is not required. The FCC does not require an e-mail address, so if you prefer not to provide it, leave that field blank.
10. Once you've provided the entire "Licensee Information" scroll down to the bottom of the screen.
11. At the bottom of the screen you must pick a password of at least five characters. We recommend that you do not use your call sign for this. Enter it in the "New Password" field. The characters you type will be displayed as asterisks (*) on the screen, so type carefully.
12. Verify the password by entering it again in the "Verify Password" field. The characters will be displayed as asterisks (*) on the screen.
13. Type in a personal identifier in the next field. The FCC suggests using your mother's maiden name, but any word you prefer will suffice.
14. If you click "Notice to Individuals" it will tell you that everything but your Social Security Number will be available for public inspection. The FCC has told the ARRL that it will not make telephone numbers or e-mail addresses public.

15. Once you're happy with your choices, click **"Submit".**
16. If you leave out anything or make an error, the ULS will list "Error(s)" when you attempt to submit the form. If this happens, go back and correct the errors identified and click **"Submit"** again.
17. Once you have the form correctly completed, you'll be asked to submit your call sign(s). Click **"Enter Call Signs"** and follow the directions. If you're not yet licensed click **"Continue"** without entering a call sign. If you have no call sign yet, skip over the next item.
18. You should now be on the screen that requests you to enter your call sign(s). Enter your individual Amateur Radio call sign in the first space provided. If you are a club station trustee, you may enter your club station call signs, but this is not necessary. The FCC requires a separate registration and an Assigned TIN for club stations.
19. Once your call sign(s) are entered, click **"Submit"** at the bottom of the form.

You now should be registered in the ULS. Your screen should display a form that shows your "Licensee Information" as well as Licensee ID Number, personal identifier and password. It's a good idea to print this screen and keep a copy in your files for safekeeping (primarily in case you forget your password).

That's it! You're done! You're now registered in the Universal Licensing System. ULS registration is required before amateurs can transact business (i.e., file applications, renewals, vanity call sign requests, address changes, etc) with the FCC.
…Rick Lindquist, N1RL, with assistance from Bart Jahnke, W9JJ

HAM RADIO MODIFICATION INFO…Check out this web page!

I ran across this web page the other day which lists modifications to ham radios and seems to be the best one of many on the web. It might be a good idea to scan the list, locate your radio and find out if a modification is available for that feature you wish you had or maybe a modification you'd like to try after seeing what it does. It's located at **http://www.mods.dk** which claims to be the biggest WWW sites on internet for tips, tricks, and modifications of HAM rigs, HAM modems, etc. You can find how to modify a radio to receive and transmit out of range. There are over 1400 different methods, and 400 models of radios.
…WA8RMC

PROPOSED PART 97 RULES COULD KILL ATV!…This could happen to you.

PROPOSED RULE MAKING FOR RESTRUCTURING PART 97 AMATEUR RADIO LICENSE CLASSIFICATIONS (FCC)

Section I- No amateur or amateurs or person or persons acting on the direction or suggestion or supervision of an amateur or amateurs may try, or attempt to try or make, or make attempt to try to comprehend or understand any or all, in whole or in part of the herein mentioned FCC Regulations, except as authorized by the Administrator or agent appointed by, or inspected by, the Administrator.

Section II- If an amateur, or group of associate amateurs becomes aware of, or realizes, or detects, or discovers, or finds that he or she, or they, are or have been beginning to understand the FCC Regulations, they must immediately within three (3) days notify, in writing, the Administrator.

Section III- Upon receipt of the above-mentioned notice of impending comprehension, the Administrator shall immediately rewrite the FCC
Regulations in such a manner as to eliminate any further comprehension hazards.

Section IV- The Administrator may, at his or her discretion, require the offending amateur or amateurs to attend remedial instruction in FCC
Regulations until such time that the amateur or amateurs are too confused to be capable of understanding anything.

…Credit to Fred/KB5BQA (April Fool)

DIGITAL ATV EXPERIMENTATION

The latest issue of Electronic Media has a large story about 8VSB digital not working as tested by NBC and GE scientists. Basically the GE and NBC scientists confirm that indoor reception and portable TV reception of 8VSB is a failure compared to NTSC indoor/portable reception. While not saying COFDM would be a better method, it does lend more credence to the testing of COFDM for broadcast use.

I understand some of you guys in Dallas are already experimenting with digital ATV. Spill the beans, what works and what doesn't?

Henry KB9FO

Henry,
The experimentation with digital ATV here in Dallas is being accomplished using neither 8VSB or COFDM, but instead 64QAM. Since this modulation format allows 30 MB/s in a 6 MHz channel, it supports a single HDTV signal, or as many as 6 NTSC video/multi-channel
audio channels just like 8VSB. Having good experience with the 8VSB format from my testing with local HD commercial stations, 64QAM do not exhibit those problems, but this is why - the frequency. Our testing occurs on 2422-2428 MHz, and is less likely to experience multi-path and lower frequency AM interference than the typical VHF or UHF 8VSB signal. 64QAM don't work at UHF or VHF frequencies well, unless carried via cable. Another ATV repeater testing digital MPEG2 is PI6ALK in the Netherlands. They are uplinking via QPSK modulation on a Ku satellite. Now that is the ultimate - cover half of Europe with your ATV repeater!
…Lee AB5IG

CCD IMAGE SENSOR UPDATE…The balloon launchers should love this!

I ran across this story in EDTN magazine the other day and thought it to be of interest to us. From time to time we must be aware of the new and upcoming electronic miniaturization developments in process.. WA8RMC.

CCD advocate Philips turns to CMOS image sensors http://www.edtn.com/story/OEG20000228S0037

LONDON; Philips Semiconductors, a longtime proponent of charge-coupled devices for image sensors, has adapted a mainstream CMOS process technology for use in making lower-resolution image sensors. Philips calls its process adaptation SeeMOS and touts it size and power advantages.

"With our new SeeMOS technology, you will one day be able to make a video camera no thicker than a pencil and about a centimeter long," said Theo Claasen, chief technology officer at Philips Semiconductors (Eindhoven, Netherlands). Claasen said the picture quality of the CMOS sensor "is excellent" at 640 by 480 pixels.

Many other companies, such as VLSI Vision Ltd. (Edinburgh, Scotland) and Tower Semiconductor (Migdal Haemek, Israel), have pursued CMOS image sensors with an interest in possibly integrating additional image-processing circuitry on the same die as the sensor to save cost, size and weight in systems.

Though previously critical of the quality of such image sensors compared with CCDs, Philips now agrees that by eliminating the need for added chips it should be possible to build smaller, less expensive video cameras with CMOS and use 20 percent less power than current designs.

"[SeeMOS] opens up a tremendous range of low-cost, high-volume applications," Claasen said, "especially since it operates at 3.3 volts, which can easily be supplied by a couple of batteries, as opposed to the 15 volts required by today's designs.

"The small size and tiny power requirements are perfect for handheld, battery-operated products-in particular, the next generation of mobile phones that are now being designed for introduction in 2000 and will have videophone capabilities," he said.

Among the expected applications are low-cost video conferencing for laptops and PCs, medical cameras, security cameras, image-recognition systems, solid-state camcorders and computer vision for collision-avoidance systems in cars.

Web-cam app?
Claasen said, "One interesting possible application, which the ultrasmall size and low power consumption open up, is to build one of these tiny cameras into a pair of glasses for a Web-cam or video postcards."

Philips said that the use of conventional CMOS processes to form image sensors had not taken off because of problems tuning the photodiodes to be sensitive enough across the entire visible spectrum. Philips said it is using its experience in CCD manufacturing to develop process options for high sensitivity, compatible with generic CMOS processes, that it is currently prototyping.

"Most of the other companies working in this area do not have CCD expertise or systems knowledge, nor do they have their own fabs," said Claasen.

The second problem Philips claims to have solved is figuring out how to put image-processing circuitry on an IC without reducing the area available to capture the image. The limitation makes the CMOS-based sensor intrinsically less sensitive than a CCD.

For example, a pixel in a CCD device measures 5 x 5 microns, all of which captures light. With SeeMOS technology, over half the area is taken up with circuitry and thus lost for light capture. Using techniques from its CCD technology, Philips Semiconductors places a tiny lens over each pixel to focus the light onto the light-sensitive area. Before applying the microlenses, a Bayer color filter pattern is placed on the surface of the sensor area to obtain full-color images.

CCD complement

Philips Semiconductors said it views the addition CMOS imaging technology as complementary to its existing CCD business. SeeMOS is not currently suitable for high-resolution imaging, the company said, so digital still cameras with requirements for more than 1 million pixels and high-resolution video cameras will continue to be served by CCDs. SeeMOS will be used for lower-resolution, small-physical-format video or digital still cameras.

For more technology news, visit http://www.edtn.com

NEWS FLASH!!! Bill Parker adds new key to his computer keyboard!

OK. How many of you wish you had a key like this on your computer? I'm told that John Busic snapped this picture of Bill's computer when he wasn't looking. I believe we now know why Bill hasn't sent many Emails…he's busy pushing this little key all the time. Now that he has a way to record his keyboard mistakes I'm told he uses this key frequently.

In all honesty, I believe that the rest of us qualify for one of these little keys also! So you see, Bill, you're not alone.
…WA8RMC

Photo From W8DMR via John Busic.

AMATEUR RADIO BILL INTRODUCED

AMATEUR RADIO SPECTRUM BILL INTRODUCED IN SENATE

The Amateur Radio Spectrum Protection Act bill now has supporting legislation in the US Senate. Idaho Sen Michael Crapo (that's his real name) has introduced a bill that mirrors the house bill, HR 783. The Senate measure has been designated S 2183.

"In introducing this bill, we want to do something for Amateur Radio in return for all the good it has done the people of Idaho and elsewhere in the US by providing a reliable means of backup communication in times of emergency," said Crapo, who pledged to work hard to push this bill in the Senate.

Like the House version, the Senate bill, if enacted, would require the FCC to provide equivalent replacement spectrum should it ever be necessary to reallocate Amateur Radio frequencies for some other purpose. The new Senate legislation was introduced with bipartisan co-sponsorship.

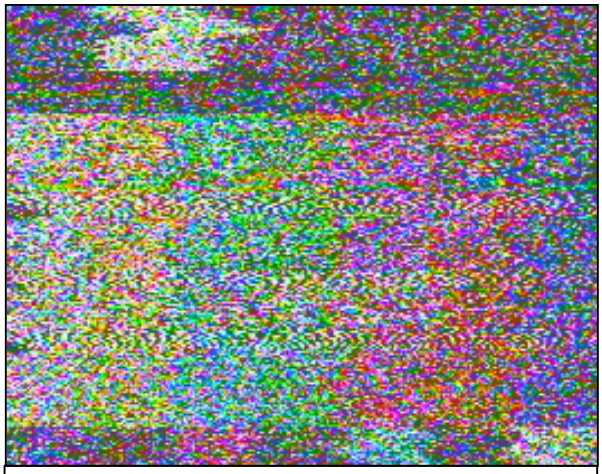
So far, the House version of the spectrum bill has drawn bipartisan support, with 140 cosponsors to date, and has met with no opposition. However, Congress, and the all-important House and Senate Commerce committees have been preoccupied with non-telecommunications matters and the Amateur Spectrum Protection Act has not yet moved out of committee. The new Senate bill provides additional motivation for the Congress to consider the legislation.
…From The ARRL Letter, Vol 19, No 10 3/10/00

ATV SIGNAL REPORTING…See how the P chart works

The following article is part of the one I did for the new ARRL Operating Manual that's supposed to be available at Dayton. I think that P picture reporting is important so I included it here. Also, if you want to see the pictures on the following page in color, dial up our ATCO web page for a look at the same article. Enjoy.
…WA8RMC

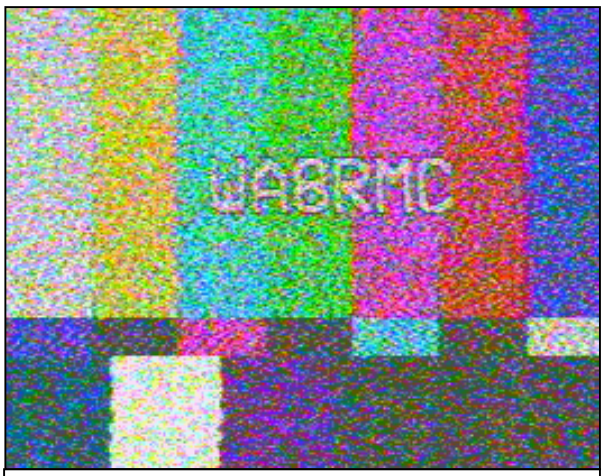
When you watch an ATVer's picture, you would like to tell the sender conveniently how well it is being received. You could say, "Your picture is 20% snow", etc. But that terminology is very vague and wordy. The only exceptions are "I can't see it at all" or " You're perfectly snow free" which, we all understand very well. It's analogous to the digital 1's or 0's indicating "On" or "Off" but it's the "shades of gray" that become a bit more arbitrary. To solve this the "P" system was developed for AM signal reception. It goes like this. "P" stands for picture level and is broken into six levels from P0 to P5. A signal received as P0 is recognizable to its existence only. No detail is discernable and usually only sync bars can be seen in the snow. Experience has demonstrated that the minimum recognizable signal *change* is about 3db (2:1 power change) so 6 dB/step is easily recognized and represents sufficient precision. The numbers continue in 6 dB steps to P5, which is a snow free signal and 30 dB greater than P0. Beyond that, we tend to be complementary to the sender, such as, "P5 plus", "broadcast quality", etc. Everyone likes complements and ATVers are no exception so if you like what you see, tell the sender about it. However, try not overdoing it. P-unit reporting is universal across the USA and in other countries as well. (Remember the P-unit reporting system is accurate only for AM modulation because of the near linear levels. P-unit reporting of FM signals can be used as long as it's understood that it will not be 6 dB/P unit because of the non-linear nature of the receiver detection system). For a visual representation of what the AM signal for each P-unit level looks like, see the next page.

P Level reporting system

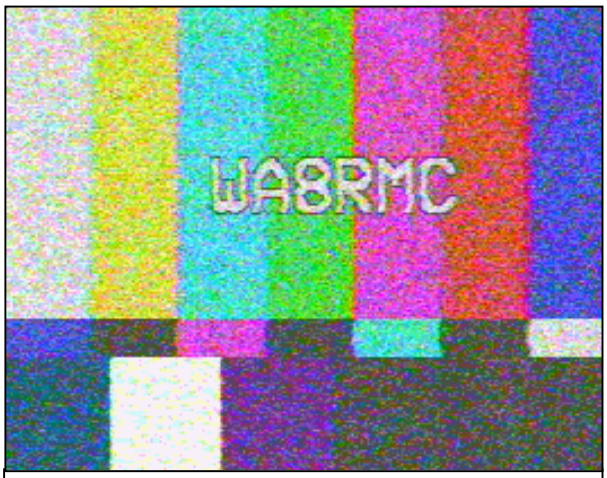


P0 - This picture is barely recognizable. Only Sync bars can be seen. Call letters are not visible.

P1 - Signal strength 6 dB stronger than P0. This represents sender power level 4 times stronger. Picture recognizable but extremely snowy.



P2 - Signal 12 dB stronger than P0. Picture easily recognizable but lacks detail and still quite snowy.



P3 - Signal 18 dB stronger than P0. Picture detail is much better but snow is still visible.

P4 - Signal 24 dB stronger than P0. Picture detail is better with very little snow.

P5 - Signal 30 dB stronger than P0 and represents a 1000 times stronger power level from sender. Picture is snow free.

DIGITAL TELEVISION UPDATE…See the task forces "debate" the issue.

I thought I'd give you a glimpse of what's going on in the digital TV world. No, it's not ATV (yet) but we must stay on top of advances so we're better able to judge our direction in the future. This story is from the April 10 Electronics Design Email that I subscribe to. This story and related issues can be found at http://www.edtn.com/story/OEG20000405S0016. …WA8RMC.

SAN MATEO, Calif. After months of divisive arguments over the need to add an alternative modulation scheme to the U.S. digital-TV standard, the broadcasters, chip vendors and consumer electronics companies who have debated the issue came together last Friday (March 31) to discuss the problem some of them see with terrestrial DTV signal reception. Over 100 people attended the first meeting of a new task force of the Advanced Television Systems Committee (ATSC), formed to revisit DTV standards issues. Participants included many broadcasters and non-ATSC members. While one attendee described the meeting as "more of a therapy session than anything else," giving attendees a chance to vent, Mark Richer, ATSC's executive director, said that the meeting was "truly very positive."

According to Richer, the ATSC task force will focus its work on three areas: a study of current applications and requirements from broadcasters' perspectives; an assessment of the vestigial sideband (8-VSB) modulation scheme chosen by ATSC as the standard for terrestrial DTV; and the development of a common methodology for field testing. At a time when a growing number of broadcasters are showing interest in new businesses such as datacasting and mobile data services, "We need to know what broadcasters plan to do with their DTV spectrum, other than delivering TV services," said one industry source. "We'd like broadcasters to clarify what their businesses are, and what functions are required for such services."

Standard study A subgroup will look into performance of 8-VSB modulation "to determine what if anything needs to be done," Richer said. Coming up with a consistent testing methodology appears to be one of the most important objectives of the task force. With a common methodology, it's expected scientists and engineers could finally compare apples to apples interpreting 8-VSB field test results.

Although it is not yet a part of the formal agenda, the ATSC task force may also consider setting a DTV receiver standard. If that happens, it will be a radical step for the ATSC, which has been designed to establish a standard only for broadcasting. The standard for a DTV receiver could also be extremely useful, since it would allow many in the industry — chip makers and system vendors alike — to establish what the target performance of their products should be. As the task force involves more broadcasters in its activities, "It seems prudent and reasonable to set up a standard for receiver requirements," said Robert Stokes, director for operations of DTV at Motorola Inc.

The DTV industry has been split over whether the U.S. DTV system based on the vestigial sideband has DTV signal reception problems today. Some broadcasters have clashed with chip companies and DTV receiver manufacturers over how to interpret varying assessments, with differing opinions on remedies for perceived problems. Hoping the task force can break the logjam in the DTV market, one industry source who spoke on the condition of anonymity said that this new initiative will finally "get the issue out in the open" and hopefully find solutions to technical problems, "if there are any."

Some broadcasters have claimed that problems inherent in 8-VSB are so serious and basic that the ATSC standard should allow another modulation scheme — coded orthogonal frequency division multiplexing (COFDM), if necessary. Chip vendors, having launched a newer generation of 8-VSB demodulation chips last fall, now say that system-level designs need to be improved before their chips can perform to their full potential. Both Sarnoff Corp. and Motorola, for example, acknowledged that they are working together to tweak the RF front-end of their systems, and are making improvements in software running on MCT2000, a jointly developed DSP for 8-VSB demodulation.

Neither company believes, however, that 8-VSB has a fatal flaw. To get better DTV signal reception, "you need small incremental improvements on all areas including component selection, value selection, circuitry routes on a board and cleaner signals coming out of a tuner," said Motorola's Stokes. Most DTV receiver manufacturers, meanwhile, have kept mum on DTV signal reception issues. In general, they are adamantly opposed to any notion of introducing changes to the DTV standard, or to allowing the COFDM option. For most big consumer electronics companies, which have already invested millions of dollars in the development of digital HDTV receivers, it is simply "too late to turn back," according to some industry observers.

Pointed comparisons A summary of the problems is evident when comparing terrestrial DTV service in the United States with the OnDigital terrestrial DTV service of the United Kingdom, according to Gerry Kaufhold, DTV analyst at Cahners In-Stat Group (Scottsdale, Ariz.). "Nobody wants to make a complete receiver" for the U.S. market, Kaufhold said. In the U.K., OnDigital engineers test and approve each and every OnDigital receiver system — from antenna to tuner to demodulation to microprocessor software, said Kaufhold. And when a consumer purchases an OnDigital system, an installation technician typically brings the equipment and installs it using instructions from the OnDigital service, he said. "However, in the United States, the broadcasters don't talk to the

consumer electronics companies who don't talk to the tuner companies who don't talk to the antenna companies," Kaufhold said. "It's a laisse faire mess."
…Source credit is EDTN News @ http://www.edtn.com.

COMMERCIAL OHIO TV STATION DATA

I was surfing the net the other night and came across this table from the FCC which lists the allocations for the new digital TV channels. Since it also lists other data of interest, I decided to include it here. Space permits only the Ohio listing here but if you're interested in the complete US listing, visit the FCC's page at

http://www.fcc.gov/Bureaus/Engineering_Technology/News_Releases/1998/et8002a.pdf.

…WA8RMC

DTV TABLE OF ALLOTMENTS

STATE AND CITY	NTSC CHAN	DTV CHAN	DTV POWER (kW)	ANTENNA HAAT (m)	DIGITAL TELEVISION SERVICE DURING TRANSITION AREA (Sq km)	DIGITAL TELEVISION SERVICE DURING TRANSITION PEOPLE (thous)	EXISTING NTSC CURRENT SERVICE AREA (Sq km)	EXISTING NTSC CURRENT SERVICE PEOPLE (thous)	NEW INTERFERENCE AREA (% NL Area)	NEW INTERFERENCE PEOPLE (% NL Pop)	DTV/ NTSC AREA MATCH (%)	CHANNEL	LONGITUDE	LATITUDE
OH AKRON	23	59	449.1	293.0	22395	3919	20985	3623	1.5	0.1	99.7	59	41-03-51	081-34-59
OH AKRON	49	50	50.0	299.0	13287	3159	13146	3112	9.0	7.9	99.7	50	41-04-58	081-38-00
OH AKRON	55	30	108.8	356.0	18196	3465	18536	3478	0.5	1.7	95.4	30	41-23-02	081-41-44
OH ALLIANCE	45	46	50.0	253.0	13961	1862	13494	1972	0.5	0.3	97.7	46	40-54-23	080-54-40
OH ATHENS	20	27	50.0	244.0	14130	480	13715	456	2.9	2.7	100.0	27	39-18-50	082-08-54
OH BOWLING GREEN	27	56	50.0	320.0	16401	1112	16601	1148	0.0	0.0	98.8	56	41-08-13	083-54-23
OH CAMBRIDGE	44	35	50.0	393.0	15459	605	14436	551	0.1	0.1	100.0	35	40-05-32	081-17-19
OH CANTON	17	39	50.0	137.0	9384	1382	8453	1277	6.7	4.7	100.0	39	40-51-04	081-16-37
OH CANTON	67	47	85.1	148.0	11032	2892	11092	2864	0.1	0.0	97.5	47	41-06-33	081-20-10
OH CHILLICOTHE	53	46	154.7	362.0	18653	1769	17836	1689	6.6	4.8	99.5	46	39-35-20	083-06-44
OH CINCINNATI	5	35	1000.0	305.0	31943	3036	27785	2835	0.0	0.0	99.4	35	39-07-27	084-31-18
OH CINCINNATI	9	10	15.4	305.0	23606	2609	23981	2781	8.3	5.3	92.7	10	39-07-31	084-29-57
OH CINCINNATI	12	31	839.3	305.0	27626	2572	25519	2800	0.3	0.1	96.9	31	39-06-58	084-30-05
OH CINCINNATI	48	34	50.0	326.0	18013	2267	17522	2170	2.9	2.6	99.1	34	39-07-30	084-31-18
OH CINCINNATI	64	33	95.5	337.0	21010	2751	20336	2719	0.0	0.0	99.7	33	39-12-01	084-31-22
OH CLEVELAND	3	2	9.3	305.0	27851	3824	28219	3783	0.0	0.0	90.7	2	41-23-09	081-41-23
OH CLEVELAND	5	15	1000.0	311.0	32803	4064	26249	3694	1.9	0.5	100.0	15	41-22-27	081-43-06
OH CLEVELAND	8	31	937.2	305.0	28382	3886	25576	3659	0.0	0.0	99.8	31	41-21-47	081-42-58
OH CLEVELAND	25	26	66.9	304.0	17099	3291	15343	3019	6.6	2.5	99.9	26	41-20-28	081-44-24
OH CLEVELAND	61	34	50.0	354.0	18152	3325	18024	3318	1.3	3.4	99.9	34	41-23-02	081-42-06
OH COLUMBUS	4	14	1000.0	274.0	29825	2326	20823	1872	0.1	0.5	99.9	14	39-58-15	083-01-39
OH COLUMBUS	6	13	40.8	286.0	24515	2056	22531	1855	0.0	0.0	96.3	13	39-56-16	083-01-16
OH COLUMBUS	10	21	897.9	271.0	25581	2069	22429	1915	11.7	8.8	99.6	21	39-58-16	083-01-40
OH COLUMBUS	28	36	65.8	293.0	17256	1672	16990	1675	2.5	2.7	97.7	36	40-09-33	082-55-21
OH COLUMBUS	34	38	50.0	329.0	16958	1672	16567	1642	2.5	1.6	99.8	38	40-09-34	082-55-22
OH DAYTON	2	50	1000.0	305.0	31600	3422	23541	3049	0.6	0.1	99.7	30	39-43-28	084-15-18
OH DAYTON	7	41	493.2	348.0	27263	3242	22628	3069	0.0	0.0	99.9	41	39-44-02	084-14-52
OH DAYTON	16	58	104.6	350.0	20293	2869	18568	2681	3.4	2.1	99.9	50	39-43-07	084-15-22
OH DAYTON	22	51	138.8	351.0	20578	2964	19726	2774	5.7	2.1	94.5	51	39-43-15	084-15-39
OH DAYTON	45	30	133.5	357.0	18639	2431	18391	2724	6.1	1.2	95.0	58	39-43-16	084-15-00
OH LIMA	35	20	50.0	165.0	10462	439	10054	433	2.7	4.2	100.0	20	40-44-54	084-07-55
OH LIMA	44	47	50.0	207.0	11873	480	11788	478	0.0	0.0	100.0	47	40-45-47	084-10-59
OH LORAIN	43	28	125.6	336.0	19371	3374	18868	3315	5.4	2.3	99.3	28	41-22-45	081-43-12
OH MANSFIELD	68	12	3.2	180.0	11703	560	11882	566	0.0	0.0	97.2	12	40-45-50	082-37-04
OH NEWARK	51	24	50.0	189.0	10379	1287	9830	1265	8.6	16.8	100.0	24	39-56-53	082-24-33
OH OXFORD	14	28	50.0	91.0	6062	1091	5898	1202	22.9	31.5	97.1	28	39-30-26	084-44-09
OH PORTSMOUTH	30	17	50.0	237.0	15306	537	14379	446	2.7	1.1	100.0	17	38-45-42	083-03-41
OH PORTSMOUTH	42	43	50.0	382.0	14521	456	14020	445	3.7	3.1	99.3	43	38-45-42	083-03-41
OH SANDUSKY	52	42	50.0	236.0	13436	657	13432	657	0.1	0.0	100.0	42	41-23-48	082-47-31
OH SHAKER HEIGHTS	19	10	3.6	351.0	18511	3396	18107	3086	17.1	3.6	88.9	10	41-23-15	081-41-43
OH SPRINGFIELD	26	18	50.0	149.0	11998	1308	11922	1299	2.0	2.6	99.6	18	39-54-33	083-51-36
OH STEUBENVILLE	9	57	1000.0	268.0	25596	3369	21576	2862	0.0	0.0	99.9	57	40-19-06	080-24-07
OH TOLEDO	11	17	543.6	305.0	28616	4266	26457	4003	0.0	0.0	100.0	5	41-44-41	084-01-06
OH TOLEDO	13	19	559.0	305.0	21300	2438	22248	2293	6.0	2.9	90.6	17	41-40-22	083-22-47
OH TOLEDO	24	49	315.8	424.0	23784	2278	23321	2257	6.2	2.1	100.0	19	41-41-00	083-24-49
OH TOLEDO	30	29	50.0	314.0	16186	1774	16109	1767	4.5	2.9	100.0	29	41-39-27	083-25-55
OH TOLEDO	36	46	66.2	372.0	17224	1402	17031	1398	5.7	2.0	100.0	46	41-39-21	083-26-40
OH TOLEDO	40	5	1.0	174.0	10435	925	11127	958	9.6	2.7	93.7	49	41-40-03	083-21-22
OH YOUNGSTOWN	21	20	147.0	302.0	20889	2676	19013	1952	3.6	4.4	99.8	20	41-04-46	080-38-25
OH YOUNGSTOWN	27	41	50.0	436.0	19743	2533	19241	2366	1.9	4.9	99.2			
OH YOUNGSTOWN	33	36	50.0	177.0	11361	1212	11212	1190	5.6	4.9	100.0			
OH ZANESVILLE	18	40	50.0	162.0	10820	399	10509	384	2.1	5.0	100.0			

CONGRATULATIONS DALE, TRANSPLANT SUCCESSFUL!

Dale, WB8CJW, as many of you may know has been on the list for a kidney transplant for almost two years now. All this time he has had to wear a beeper in case he was called because a donor had been found. Several times had been spent making emergency trips to Cleveland, Ohio where the transplant was to occur only to find that a more suitable recipient had been found and he had to make the trip back home without the surgery. Last week he was called again; this time ***he*** *was selected as the best match. The rest is history with a very successful operation! We're happy for Dale as he describes it in his own words…WA8RMC*

"I have been feeling better than what I imagined it would be like. It was nothing like what I had been prepared for 2 years and 3 months ago. We were told it would be at least a week stay in the hospital and would be necessary to stay at a nearby hotel in Cleveland for 1 or 2 months because of diagnostic tests required and being 2 1/2 - 3 hours away. One thing they didn't tell us was that even if we were called in we might not be the recipient of the organ. I don't know how many people were called but we got there at 10 AM and the final tests didn't conclude until about 5 PM. Surgery begain at about 7 PM and I guess was about 3 1/2 hours long. They run everyone through a blood test, digital scanning x-rays and put them into a room. I was very relieved when they told me I was the one and they have to live in the hospital room for however long it takes to obtain a good match. My roommate has been there for a month now, hooked up to a heart monitor. He can walk around but has to pull the stand around everywhere and finds it most difficult to take a shower. I feel I have been blessed, the pain didn't amount to more than a bad sunburn and even after the surgery recovery I felt more alert than after a minor surgery a few years ago at Riverside for the peritoneal cathedor for dialysis. The scar looks like a "smiley" face beginning about 6 inches below my belly button and in an arc down clear over to the hip (about 7 inches long I would guess). I go back to Cleveland Clinic Wednesday for various tests and to get the staples removed. I take a load of medication - 11 different ones in varying quantities 4 times a day. Some of them will go away and some will be tapered down. I've been used to taking pills anyway but there is one anti-rejection pill that smells like a skunk that I'll have to take forever. Oh well, sorry for the details but I have been so elated about how everything went and Sharon has even pointed me out to strangers at restaurants asking if they could believe I had surgery just a week ago".
…WB8CJW

DAYTON HAMVENTION ATV…Sounds like a great idea!

If anyone would like to try portable ATV at Dayton, it would be a good idea to link up with the people listed below. Sounds like a neat idea if the flea market stuff gets boring. At least you can communicate with W6ORG and (or) WB9MMM. I'll take my camera along so if I spot someone with a strange 70cm slot antenna strapped to their hat, I'll be sure to capture it on film for the next newsletter!…WA8RMC

Tom at PC Electronics and ATVQ booth will have ATV going - switching off from time to time as to whom is transmitting. The plan is to use 426.25 MHz.
…Gene Harlan - WB9MMM

I've seen articles before about people doing "walk-about" ATV, but I am just wondering what actually is done other than the ATV Friday Night Get-together and the Saturday Forum. We always have video on 426.25 from our booth - #207 next to ARRL. This year we will be repeating 23cm FM ATV from N8QPJ's R/C Humvee through the 426.25 transmitter. Communications Concepts usually has a receiver going to pick us up and the DARA Van also. This year, the ATVQ booth will try to swap video with us. In the past we have had "handy lookies" or "Kreepie Peepies" walking around and being received in the booth. If anyone wants to transmit on 426.25 or 23cm FM please come by the booth and we will work out the operating times so as not to interfere with each other.
…Tom O'Hara W6ORG P. C. Electronics

Sounds like we should try to do some simplex between the ATNA booth and PC Electromnics and perhaps others in flea market the Hamvention com Truck ?? Multipath might be a problem ! Maybe some 2.4 gig activity. I will have flea market spaces but no power. I can bring small portable ATV gear on 426.25. I will be located at spaces 3130,3131.
…John W3SST

At least an ATV receiver in the ATNA booth would be nice. I have an 11 element Yagi and 70 cm converter to Ch 3/4.
… John W3HMS

STOLEN ATV EQUIPMENT…Be on the lookout at Dayton!

*It seems strange that someone would break into a communications shack and only steal the Ham equipment but stranger things have happened before. I know it's a long shot, but if anyone sees anything like this at Dayton or elsewhere, contact one of the ATCO guys or Ed directly to see if we can solve the mystery! (PS: Ed, are you **SURE** you paid the rent?)…WA8RMC*

We had a beacon on a mountain near Mountain City, Tennessee for three years and the building it was in was broken into over the weekend and JUST my 1250 MHz FM ATV transmitter was stolen as well as the camera outside. The transmitter was in a box 18x18x18 and it looked HB, It had a 6 GHz video generator that was heterodyned to 1.2 GHz.

There was lots of stuff in the building radios for the FBI, ATF Forest service as well as others plus a nice ham repeater on 440 MHz. They were untouched. A locked gate and a wire fence surrounded the whole compound. Plus they took the door on the building, too.
…ED WA4DFS

70CM ATV BAN IN AUSTRALIA

Australia Loses 70cm to Olympics. VK 70cm loss for Olympics The 70cm amateur band is now being used by the non-amateur Sydney Olympic Games Radio Service until 31 December, 2000.

The Australian Communications Authority today announced that effective immediately, it has authorized the non-amateur use of the 440-450MHz band, in addition to the 421-432MHz band announced in April 1999.

The decision not only affects VK radio amateurs in a zone 150kms around the Sydney Olympic Stadium, including an immediate ban on amateur television, but also those visiting the area during the Paralympic and Olympic Games. Fuller details are reported by the WIA Victoria News Online at www.tbsa.com.au/~wiavic.
….Jim Linton VK3PC, President, WIA Victoria via Bob Naumann, N5NJ relayed by WA3DTO.

AMATEUR TV AND HANG GLIDING…When the nightly QSO's get boring.

(From http://members.aol.com/_ht_a/hgjohn1/index.htm)

The idea for combining an amateur television (ATV) system with hang gliding came about because I noticed that once a glider takes off, the family or friends of the pilot hardly get to enjoy any of the experience, especially when the pilot is lucky enough to gain considerable altitude in a soaring flight. I've brought family members several times to sites, and basically what is unbelievably exciting for me is generally fairly boring for them because they are quite far removed from the action. As such, I thought that spectators might be able to follow along a lot better with a live video and audio signal that they could watch and listen to on a portable television. I decided that my winter project would be the research into what was needed to construct such a system, then the actual construction and testing of it. The results of the first test flight of this system are shown in the pictures and video at the right.

The 439.25 MHz transmitted signal was approximately 2 watts into a whip antenna sticking out of the side of my harness. The battery packs that I used were good for approximately 3 hours of constant use during bench testing. I ended up doing two test flights with different antenna angles, proving conclusively that the weak link in this system is the current antenna. Video on the ground was viewed on a 13" color television and recorded with a VCR. After returning home, the VCR was connected to my PC via an ATI All-in-Wonder video tuner board where the video was digitized and stored in YUV9 format. Various frames were captured and stored as JPEG images, and a 50 second sequence was compressed in MPEG 1 format with a Ligos MPEG video encoder software package.

Right after take-off from the launch cart. The towplane is visible on the horizon. Note the video overlay display that was programmed to come on once every two minutes. The transmitter/overlay/battery pack module is located in the bulge in my harness in the lower right-hand corner of the photo. The 3 white cables coming out are for the camera video and power lines, as well as the microphone line running into the front of my helmet.

Around 1000 feet, the low cloud ceiling is really apparent. A sunnier day would produce much better video performance than what is shown here. But hey, a 50 degree Saturday in the middle of a New Jersey winter is not something to turn down...

Hands up, ready for landing. The video transmitter performed reasonably well with the horizontally mounted whip antenna I used until about 50 feet off the ground, then there was quite a bit of multi-path interference in the signal.

The equipment that I used for this project is listed here -

ATV12-440 MK2 2 watt 439.25 MHz television transmitter kit from North Country Radio
OSD-ID PC programmable video overlay module from Intuitive Circuits
PC79XS bullet-style color video camera with 4mm lens from Supercircuits
TVC-4G downconverter from PC Electronics
'Eggbeater' receive antenna from M2 Antennas
RD-98 transmit antenna from Pryme Radio
2 7.2 volt nickel-cadmium RC battery packs from Radio Shack

…John Wiseman KE3QG

IT'S ATCO SPRING EVENT TIME

Once again we will get together have lunch, pass out door prizes and discuss our ATV experiences since the Fall Event last year. Since we have swapped places with the Dayton Hamvention, we can discuss our plans for that event. Come one, come all. Let's see if we can break an attendance record this year. Check out the "poster" on the next page for details. See you there!

ATCO

2000 SPRING EVENT

1:00 PM - SUNDAY
MAY 07, 2000
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:

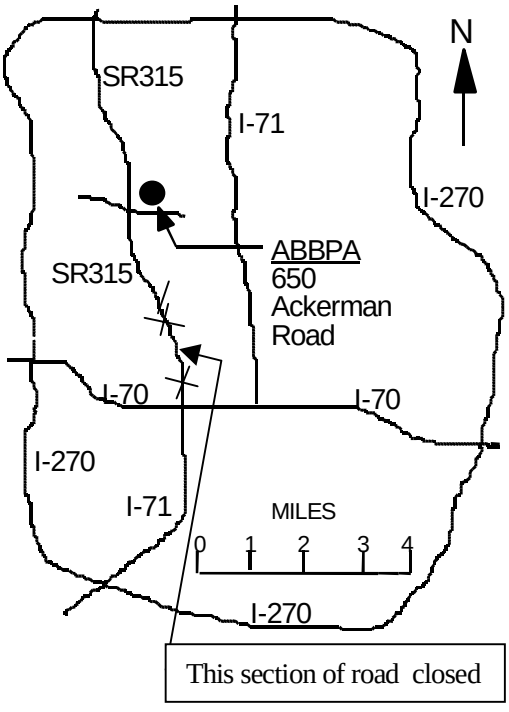
Take I-70 to I-270 bypass on the west side of the city. Exit onto I-270 north to the SR-315 exit on the north side of the city. Travel SR-315 south about 5 miles to Ackerman road. Turn east on Ackerman under the freeway about 200 yards to first driveway on left. (SR 315 is still closed between I-70 and Ackerman road)
.

From I-71 traveling NORTH bound toward Columbus:

While traveling north on I-71,take I-270 bypass west crossing I-70. Continue north on I-270. Exit I-270 onto SR 315 south. Travel on SR 315 south about 5 miles to Ackerman road. Turn east on Ackerman under the freeway about 200 yards to first driveway on left. (SR 315 is still closed between I-70 and Ackerman road)

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 to SR 315.
Take SR 315 south about 5 miles to Ackerman road. Turn east on Ackerman



(under SR 315) about 200 yards to first driveway on left.

NEW MEMBER SECTION

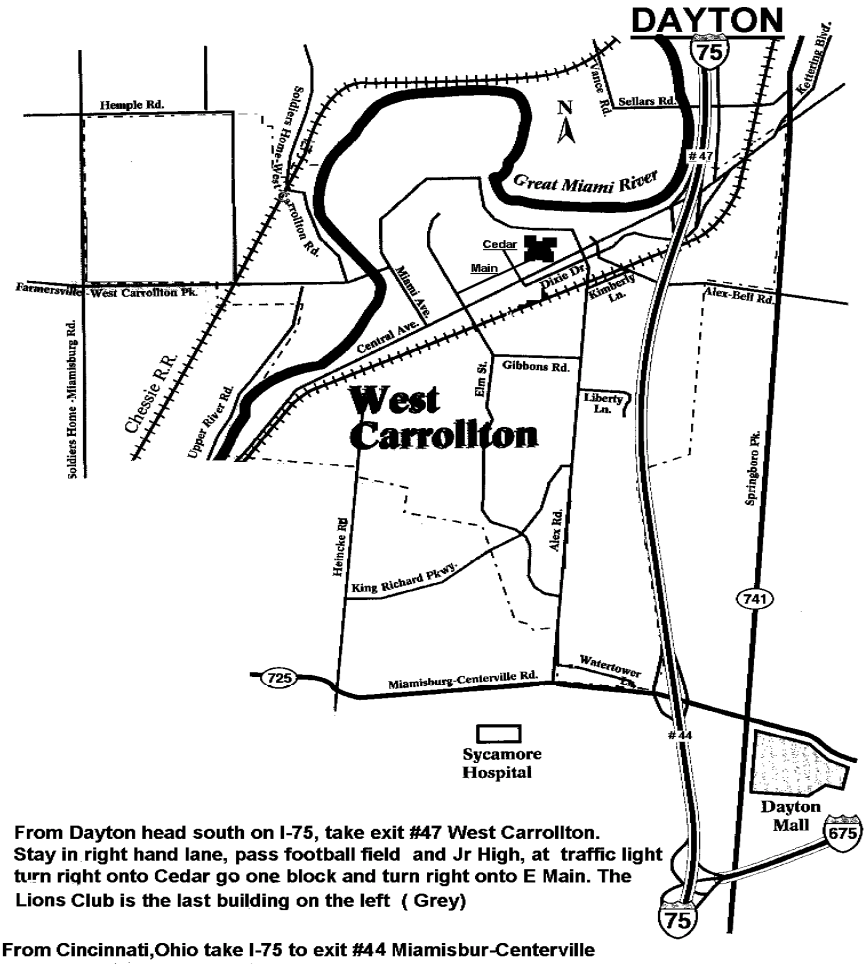
Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are the lifeblood of our group so it's important that we actively recruit new faces aggressively.

W8RRJ John Hull, Westerville Ohio

…Art WA8RMC

DAYTON ATV AGENDA

Again this year the Dayton Hamvention will be jam packed with topics of interest to the ATV'er. Besides the fleamarket where all sorts of bargain ATV goodies are found, will be the regular ATV fourms.



On Friday night the ATV forum at the West Carrolton Lions Club (map at left) will host a number of speakers talking on ATV related topics. Hosted by ATNA, the gathering will include a large number of door prizes so even if you don't find anything at the flea market earlier that day, you could pick up a great prize just for showing up. There is no charge so how can you resist? Festivities will start around 7:00PM.

Next, on Saturday, the Fast Scan and Slow Scan forums will NOT be held in the Hara Arena. They have been moved to the Meadowdale High School located at 4417 Williamson Drive, about one mile south of the Hara Arena. Buses will take participants from Hara Arena to the school and return them to Hara. The Slow Scan Forum starts at 10:45AM on Saturday and the Fast Scan Forum is at 1:00PM.

1:00 – 3:00 ATV Fast Scan Television - Room 2 At Meadowdale High school. Moderator: Bill Parker, W8DMR Speakers: Bill Brown, WB8ELK – "More High-Flying ATV Adventures" Highlights of an ATV balloon experiment to capture the Lenoids meteor storm on video from the stratosphere.
Bill Parker, W8DMR – "Getting Started in Amateur Television" without any external converters. See ATV pictures in your home. TV set, where to look, when to look, and what you may see. Video sources, antennas, transmitters and more.

ATV EQUIPMENT SUPPLIERS… Find your ATV stuff here!

Below is a list of manufacturers of ATV equipment that I have found. There is no endorsement of any of the manufacturers listed below so buyers beware. If I or anyone else that I know of has had any trouble with a manufacturer, it won't be listed. As I get more info, I'll add manufacturers. Likewise, if I hear of any trouble, it'll be removed. Good luck and keep me advised.
…Art WA8RMC

Michael Kohlstadt, KD6UJS has a limited supply of used but working Pacific Monolithics 2.4ghz downconverters and power supplies which will work fine for the repeater.
Phone: 408-926-0430.

Downeast Microwave
Antennas, Power Amplifiers, Deluxe Downconverters, microwave parts.
954 Rt. 519 Frenchtown, NJ 08825
Phone: 908-996-3584
Fax: 908-996-3702

Hamtronics Inc
Ham receivers, transmitters
Antennas, Preamps
http://www.hamtronics.com/

M²
Antennas
7560 N. Del Mar Ave.
Fresno, Ca 93711
Phone: 209-432-8873
http://www.m2inc.com

CCI Communications Concepts, Inc.
508 Millstone Drive
Beavercreek, OH 45434-5840
(937)426-8600 Voice
(937)429-3811 Fax
Email: cci.dayton@pobox.com
http:://www.communications-concepts.com ATV Equipment

ATV Quarterly (ATVQ)
ATV magazine publisher
5931 Alma Drive
Rockford, Il. 61108
Phone 815-398-2683
FAX 815-398-2688
Email: atvq@hampubs.com

PC Electronics
ATV Transmitters, Receivers
Manufacturer/Reseller
2522 Paxson Ln.
Arcadia, CA 91007-8537
Phone: 626-447-4565
Fax: 626-447-0489
tom@hamtv.com
www.hamtv.com

Black Box
1000 Park Drive
Lawrence, PA 15055-1018
(800)552-6816 Voice
(800)321-0746 Fax
Email: info@blackbox.com
http://www.blackbox.com
Electronic Connections

SHF Microwave Parts Company
10GHz Gunn oscillators and Antennas
7102 W. 500 S.
LA PORTE, INDIANA, 46350
Fax: 219-785-4552

Allied Electronics
7410 Pebble Drive
Fort Worth, TX 76118
(800)433-5700
http://www.allied.avnet.com
Electronic Parts House

GEKCO Inc
TV test signal circuit boards
PO Box 642
Issaquah, Wa 98027-0642
Phone: 425-392-0638
Email: sales@gekco.com
www.gekco.com

Cable X-Perts
416 Diens Drive
Wheeling, IL 60090
800-828-3340 Voice 847-520-3444 Fax
http://www.cablexperts.com
Wire and Cable

DCI Communications
Interdigital filters and cavities
Box 293, 29 Hummingbird Bay
White City, SK, Canada S0G5B0
Phone: 306-781-4451
http://www.dci.ca/

ATV Research Inc.
TV cameras & related parts
1301 Broadway PO Box 620
Dakota City, NE 68731-0620
Phone: 402-987-3771
Homepage: www.atvresearch.com
Email: atc@pionet.net

E. H. Yost & Company
2211-D Parview Road
Middleton, WI 53562
(608)831-3443 Voice
(608)831-1082 Fax
Email:
ehyost@midplains.net
Battries

Phillips-Tech Electronics MMDS, ITFS downconverters and antenna systems
P.O. Box 8533
Scottsdale, AZ 85252
Phone: 602-947-7700
Fax: 602-947-7799

MCM Electronics
650 Congress Park Drive
Centerville, OH 45459
(800)543-4330 Voice
(800)765-6960 Fax
http://www.mcmelectronics.com

Jameco Electronic Components
1355 Shoreway Road
Belmont, CA 94002-4100
(800)831-4242 Voice
Email: infor@jameco.com
http://www.jameco.com
Electronic Parts

Fair Radio Sales
1016 E. Eureka P.O. Box 1105
Lima, OH 45802
(419)227-6573 Voice
(419)227-1313 Fax
Email: fairadio@wcoil.com
http://alpha.wcoil/~fairradio
Electronic Surplus Equipment

Directive Systems
RR#1 Box 282 Dixon Road
Lebanon, ME 04027
(207)658-7758 Voice
(207)658-4337 Fax
Antennas
http://www.directivesystems.com/

Mouser Electronics
958 North Main Street
Mansfield, TX 76063-4827
(800)346-6873 Voice
(817)483-0931 Fax
Email: sales@mouser.com
http://www.mouser.com
Electronics Parts House

Hosfelt Electronics Inc.
2700 Sunset Boulevard
Steubenville, OH 43952-1158
(800)524-6464 Voice
(800)524-5414 Fax

Pauldon Associates
210 Utica Street
Tonawanda, NY 14150
(716)692-5451 Voice
ATV Receivers and Transmitters

Spectrum International
J-Beams, KVG, Micromodules,VSB
John Beanland
Phone:978-263-2145.
Email:
Spectrum@ma.ultranet.com
filters

The Wireman, Inc.
261 Pittman Road
Landrum, SC 29356
(800)727-9473
(864)895-4195
Wire and Cable

Webster Communications, Inc.
115 Bellarmine
Rochester, MI 48309
(800)521-2333 Voice
(810)375-0121 Fax
Electronic Parts

Wyman Research Inc.
8339 S 850 W
Waldron, In 46182-9608
765-525-6452
http://www.svs.net/wyman
wyman@svs.net
ATV transmitters & transceivers
SSTV equipt.

INTERNET ATV HOME PAGES (list verified 7/10/99)

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. Most addresses listed below are case sensitive, so type exactly as shown. (For comments or additional listings contact me at towslee@ee.net).

Domestic homepages

http://psycho.psy.ohio-state.edu/atco	Ohio, Columbus, homepage (ATCO)
http://www.radio-amateurs.com	Ohio, Dayton ATV group (DARA)
http://users.erinet.com/38141/atv.htm	Ohio, Xenia KB8GRJ
http://www.hayden.edu/Guests/AATV	Arizona, Phoenix Amateurs (AATV) Carl Hayden High School
http://www.qsl.net/aatv/	Arizona, Pheonix Amateurs(AATV)
http://www.citynight.com/atv	California, San Francisco ATV
http://www.qsl.net/atn	California, Amateur Television Network in Central / Southern
http://w6yx.stanford.edu/~stevem/atv	California, South Bay ATV Group Stanford University
http://www.qsl.net/wb6izg	California, southern ATV Sights and Sounds
http://www.snowcrest.net/ebell/page_ix.html	California, Redding Repeater & ATV Society (RRATS)
http://home.tampabay.rr.com/k4lk/	Florida,Tampa Bay Amateur Television Society (TBATS)
http://www.nfds.net/~kb4oid/atv.html	Florida, Emerald Coast Amateur Television Society (ECATS)
http://www.qsl.net/scats/	Florida, Melborn Space Coast Amateur TV Society (SCATS)
http://www.bsrg.org /aatn/aatn1.html	Georgia, Atlanta ATV
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
http://kcatv.winning-edge.com	Kansas, Kansas City Amateur TV Group (KCATVG)
http://www.qsl.net/k4kjq/atv/BATS.htm	Kentucky, Lexington, Bluegrass Amateur Television Soc.(BATS)
http://www.bratsatv.org	Maryland, Baltimore Radio Amateur Television Society (BRATS)
http://www.icircuits.com/dats	Michigan, Detroit Amateur Television Ststem (DATS)
http://www.minn.net/~n0mnb/	Minnesota Fast Scan Amateur Television (MNFAT)
http://www.intecnet.net/vidking/	Missouri, St Louis Amateur Television
http://www.mt.net/~erhardt/atvrptr.htm	Montana, Helena Amateur Television
http://www.njin.net/~magliaco/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.qsl.net/~no3y	New Mexico, Farmingham
http://www.lloydio.com/oatva.html	Oregon, Portland ATV (OATVA)
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm	Oregon, Southern Oregon ATV
http://www.webczar.com/atv	Oklahoma, Tulsa Amateur TV (TARC)
http://www.usaor.net/users/ka3fzf/	Pennsylvania, Pittsburg Amateur Television in Pittsburg
http://www.voicenet.com/~theojkat/w3phl.html	Pennsylvania, Phila. Area ATV
http://www.geocities.com/Hollywood/5842	Tennessee, East ATV
http://www.hats.stevens.com.	Texas, Houston ATV (HATS)
http://www.wacoatv.org	Texas, WACO Amateur TV Society (WATS)
http://www.hamtv.org/	Texas, North Texas ATV
http://www.ussc.com/~uarc/utah_atv/utah_atv.html	Utah ATV
http://www.qsl.net/w7twu	Washington, Western Washington Television Society (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://www.batc.org.uk/index.htm	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)
http://www.cmo.ch/swissatv	Swiss ATV
http://www.rhein-land.com/atv	German ATV in "Niederrhein" area
http://www.arcadeshop.demon.co.uk/atv/	UK, G8XEU ATV homepage
http://lea.hamradio.si/~s51kq/	Slovenia ATV
http://www.burnabyradio.com/ve7rtv/	British Columbia, Canada VE7RTV repeater
http://www.qsl.net/zl1qf/atvug/ATVusers.html	Auckland, New Zealand ATV

INTERNET MISCELLANOUS HAM RELATED HOME PAGES (list verified 7/10/99)

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

http://www.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://www.arrl.org/fcc/fcclook.php3	ARRL/FCC revised CALLSIGN database. Search by call sign or name.
http://hamradio-online.com	Ham Radio Online "newsletter" Lot of Ham related information.
http://www.qsl.net/atna/	ATNA homepage
www.qth.net	ATNA members list server (click "select list" to subscribe to listserver)
http://www.ham-links.org	Ham Radio collection database
http://bro.net/explorer/part97.htm	FCC part 97 details. Look up the FCC regulations
http://fly.hiwaay.net/~bbrown/index.htm	Tennessee Valley Balloon launch information (Bill Brown WB8ELK)
http://www.ipass.net/~teara/atv4.html	Arizona ATV 2.4Ghz Wavecom page (Wavecom mod. information)
http://www.ham.net/lisats.html	Space Shuttle Launch Info Service & Amateur TV System (LISATS**)**
http://www.svs.net/wyman/	Wyman Research Inc. W9NTP Don Miller ATV equipment
http://www.m2inc.com /	M^2 Antenna Systems Inc.
http://www.dci.ca/AMATEUR.htm	DCI Digital Communications Inc. Bandpass filters
http://scott-inc.com/wb9neq.htm	Kentucky, Airborn ATV from WB9NEQ in Bowling Green
http://www.icircuits.com/	Intuitive Circuits Inc
http://www.ipass.net/~teara/atv4.html	2.4 GHz Wavecom modification details
http://www.qsl.net/kd4dla/ATV.html	KD4DLA ATV web page index
http://www.severe-weather.org	Columbus, Ohio severe weather net at Columbus airport
http://www.mods.dk	Ham radio modification lists.

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 some 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.

30 Apr Athens, OH Athens County ARA Contact: John Cornwell, NC8V 15100 Scatter Ridge Road Athens, OH 45701 Phone: 740-593-6474 Email: jcornwell@eurekanet.com

19-21 May Dayton, OH ARRL National Convention Dayton ARA http://www.hamvention.org Contact: Dave Coons, WT8W 932 Hedwick St. New Carlisle, OH 45344 Phone: 937-849-0604 Email: wt8w@arrl.org

28 May 2000 Franklin County Hamfest Contact: Chris Lind, KC8BUO PO Box 14281 Columbus, OH 43214 Phone: 614-267-7779 Fax: 614-263-7934 Hilliard, Ohio.

11 Jun Canfield, OH Twenty Over Nine ARC Contact: Don Stoddard, N8LNE 55 South Whitney Youngstown, OH 44509 Phone: 330-793-7072 Email: n8lne1@juno.com

11 Jun Suffield, OH Goodyear ARC Contact: Fred Mealy, KC8BQX PO Box 1264 Bath, OH 44210 Phone: 330-665-4563 Email: fmealy@earthlink.net

17 Jun 2000 Milford ARC Contact: Chris Reinfelder, KB8SNH 3691 Charter Oak Amelia, OH 45102 Phone: 513-753-5066 Fax: kb8snh@cs.com Email: kb8snh@cs.com Milford, OH

18 Jun 2000 Cuyahoga ARS http://www.cars.org Contact:Rich James, N8FIL 526 West Aurora Road, PMB 133 Sagamore Hills, OH 44067

Phone: 800-404-2282 Email: n8fil@aol.com Macedonia, OH.

9 Jul 2000 Wood County ARC http://bravais.bgsu.edu/~boughton/hamfest.html Contact: John Lagger, AA8XS PO Box 534Bowling Green, OH 43402 Phone: 419-662-9686 Email: aa8xs@arrl.net Bowling Green, OH.

16 Jul 2000 Van Wert ARC http://www.bright.net/~barnesrl/w8fy.html Contact: Bob Barnes, WD8LPY 411 North Walnut Street Van Wert, OH 45891 Phone: 419-238-1877 Email: barnesrl@bright.net Van Wert, OH.

22 Jul 2000 OH-KY-IN ARS http://www.qsl.net/k8sch Gene McCoy, N8KOJ 6541 Teakwood Ct. Cincinnati, OH 45224-2111 Phone: 513-541-6935 Fax: 513-541-1656 Email: n8koj@arrl.net Cincinnati, OH.

30 Jul 2000 Portage http://parc.portage.oh. Joanne Solak, 9971 Diagonal Mantua, OH 44255 Phone: 330-274- Email: ljsolak@apk.net Randolph, OH.

5 Aug 2000 Voice of Aladdin ARC James Morton, 6070 North Gap Columbus, OH 43229-1945 Phone: 614-846- Email: kb8kpj@cs.com Columbus, OH.

ATCO REPEATER CONTROLLER SUMMARY…Verbal drippings from Dale WB8CJW

Intuitive Circuits Inc, Troy, Michigan, manufacture the new video controller model ATVC-4. It constantly scans four video inputs (1 – 4) looking for horizontal sync (i.e. a valid video signal from one of the receivers). Channel 1 is 439.25MHz. (AM), channel 2 is 915MHz. (FM), channel 3 is 1280MHz. (FM) and channel 4 is 2411MHz. (FM). If sync is found on a channel and the receiver is enabled the controller will turn on the transmitters and direct video and subcarrier audio from that channel to an added circuit board containing audio and video amplifiers that provide isolation (buffering) and the ability to individually set the gain for each of the 4 transmitters. The controller will switch to video ID every ten minutes displaying the ELKtronics video ID screens for 10 seconds and also at the end of receiving video on the current channel. The other situations that key the transmitters is entering 00* on the control radio frequency. This will let any user of the repeater manually select a video channel for perhaps a test signal from the ID video to adjust antenna positioning or to tweak that converter or maybe examine a receiver input to see if any trace of sync is appearing from that new transmitter module you just packaged. The problem here is that the controller doesn't have a time-out timer and must be manually shut down with code 00# or else the equipment remains on until someone shuts it off, power goes out or the whole thing goes into melt down. I haven't discovered a "clean" way to accomplish this yet because a direct reset of the controller causes the "allow sync" of the receivers to be turned off as default. It was suggested to program a BASIC stamp device to produce the DTMF codes (00#) following the timeout – perhaps 30 minutes to control it. Another feature of the controller is if code C0* has been sent it will transmit the ID video for twenty seconds every ten minutes continuously (beacon mode).

Additional commands that users can access are "Allow sync" from any of the four receivers (01* through 04* to enable and 01# through 04# to disable) – this is really helpful when we have interference problems on the 915MHz. receiver and some noise that looks like sync to the controller keys the repeater on and off. When the transmitters have been forced on with 00* you can select individual receivers or the video ID (5) plus individually turn on or off any of their audio inputs (A1* through A4*). Generally I prefer to leave all the audio channels off (A1# through A4#) because if anyone likes to leave the speaker turned on listening to the repeater the open channel noise with no signal from the receivers becomes annoying when someone turns on the manual mode just looking for a test signal. This mode operates independent of when the manual mode ("force transmitters on") is off (00#). The normal scan mode will pass the audio subcarrier when video is present. Also you can control the power of the 427.25MHz. transmitter with C1* (high power) and C1# (low power). The other control output C2* (on) and C2# (off) isn't currently hooked up but it might be nice to turn off the 2.4GHz. transmitter to eliminate any desense that occurs on weak signal inputs. Finally you can receive Morse code telemetry from the controller to let you know the status of the beacon mode, just what video channels are enabled or disabled for sync detection, what audio channels are on or off, the status of the two controlled devices, and send repeater ID. A Morse code O (dah dah dah) is sent for settings that are ON and a Morse code F (dit dit dah dit) for settings that are OFF. Example if you send B1 you should hear *****"O O O O" on your receiver indicating channel 1= ON, 2= ON, 3= ON, 4= ON.

The programming not user modifiable are "hang time" – the number of seconds (01 to 99) the transmitters will stay keyed after the incoming signal is lost or DTMF command 00# has been received, the Morse code speed (01 to 25 WPM) , Morse code ID, DTMF password (up to 9 digits) to protect the repeater from illegal access or make it so cumbersome that you need a programmable dialer to manipulate the controller!

I did not program a Morse code ID (WA8RUT/R) into the controller because of a peculiarity that after a video drops it wants to ID (both video and Morse) each and every time and doesn't resume scanning or re-pick up that video from a momentary drop out for the length of time it takes it to send the c.w. – maybe 20 seconds or so before video is once again resumed. Probably moving the code speed to maximum 25WPM would match or be less than the video ID time but who wants to listen to an ID every time the transmission is dropped or the repeater pops up momentarily? The video ID meets the requirements.

Something that could be a nuisance after power failure is the latched settings defined by DTMF commands have to be reprogrammed (they are not stored in non-volatile memory). So if for some reason you are not able to "get in" there may have been a power failure. Everything defaults to OFF or perhaps someone turned off the "allow sync" you might want to try the telemetry to see if things are enabled or just enter – 01* 02* 03* 04* C1* C2* maybe allow a second between command sets but it does seem to take commands pretty quick and reliably.

Since the controller's 4 video inputs are already used by the 4 receivers, a method to allow camera inputs and other future devices had to be devised. Using the DTMF-8 board from Intuitive Circuits provided an expansion means. This board has a DTMF decoder with eight relays that can be set up with 4 modes of operation – you can put all eight relays in "latch" mode where any selected relay will stay on or off as selected by 4* turns on relay 4, 4# turns it off. Mode 2 is "momentary" where only the toned relay is on for the duration of the tone, all others remaining off. Mode 3 provides a mix of modes 1 and 2 – you program the number of relays to be latched (1-7). I chose mode 4 where all eight relays are latched and mutually exclusive (an ON relay will be forced OFF when another is selected). Also it provides a default ON when it is powered up plus there is no need for * or # commands. The default relay is number 1 where the 2411MHz receiver video is connected and the next 3 relays are daisy chained through their normally closed contacts to their neighbor's common contact. The camera video inputs are attached to the normally open relay contacts (roof camera = relay 2, equipment room camera = relay 3) such that if relay 2 for example is selected the 2411MHz. video will be disabled and the roof camera video will pass through from its normally open contact through relay 1's common and out it's normally closed contact feeding into channel 4 of the controller board. The board was programmed with two password characters so as not to conflict with the controller board or a remote site VS-100 or either of the weather radar controllers. It would be nice to use the remaining relays or at least 4 of them at this point to provide on/off control of the 4 transmitters in a toggle mode. Oh well, there is

always something else that has to be added as a feature or improvement down the road! These boards have a nice clean layout and were a pleasure to work with providing better reliability and the additional control capability that we required.

ATCO REPEATER TECHNICAL DATA SUMMARY

Location: Downtown Columbus, Ohio
Coordinates: 82 degrees 59 minutes 53 seconds (longitude) 39 degrees 57 minutes 45 seconds (latitude)
Elevation: 630 feet above average street level (1460 feet above sea level)

Transmitters: 427.25 MHz AM modulation, 1250 MHz FM modulation and 2433 MHz FM modulation.
Interdigital filters in output line of 427.25, 1250 & 2433 transmitters
Output Power - 427.25 MHz: 40 watts average 80 watts sync tip
1250 MHz: 50 watts continuous
2433 MHz: 15 watts continuous
Link transmitter - 446.350 MHz 1 watt NBFM 5 kHz audio

Identification: 427, 1250 & 2433 xmtrs. Video identify every 10 minutes showing ATCO & WA8RUT on four different screens.

Transmit antennas: 427.25 MHz - Dual slot horizontally polarized 7 dBd gain major lobe west
1250 MHz - Diamond vertically polarized 12 dBd gain omni
2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Receivers: 147.45 MHz for F1 audio input control of touch tones
439.25 MHz for A5 video input with FM subcarrier audio (lower sideband)
915 MHz for F5 video link data from remote sites
1280 MHz for F5 video input
2411 MHz for F5 video input

Receive antennas: 147.45 MHz - Vert. polar. Hi Gain 12 dBd dual band (also used for 446.350 MHz output)
439.25 MHz - Horiz. polar. dual slot 8 dBd gain major lobe west
915 MHz - DB Products vertically polarized 10 dBd gain omni
1280 MHz - Diamond vertically polarized 12 dBd gain omni
2411 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Input control: Touch Tone Result (if third digit is * function turns ON, if it is # function turns OFF)

00*		turn transmitters on (this mode must be ON for some functions)
00#		turn transmitters off (controller returns to scan mode)
1	Ch. 1	Select 439.25 receiver (hit 00* then 1 to view 439.25 receiver only)
2	Ch. 2	Select 915 receiver
3	Ch. 3	Select 1280 receiver
4	Ch. 4	Select 2411 receiver
5	Ch. 5	Select video ID (the 4 identification screens)
01*		Channel 1 439.25 MHz control (hit 01* to enable this receive channel & 01# to disable it)
02*		Channel 2 915 MHz control
03*		Channel 3 1280 MHz control
04*		Channel 4 2411 MHz & camera video control
A1*		Manual mode select of 439.25 receiver audio
A2*		Manual mode select of 915 receiver audio
A3*		Manual mode select of 1280 receiver audio
A4*		Manual mode select of 2411 receiver audio
C0*		Beacon mode – transmit ID for twenty seconds every ten minutes
C1*		427.25 transmitter power output select (C1* for 50W output power or C1# for 1.5W output)
C2*		(not currently used, could be hooked up to 2433 transmitter for on/off)

Telemetry (Morse code):

B0	Send on/off status of C0 beacon mode ("O" = ON, "F" = OFF)
B1	Send on/off status of the 1 - 4 receiver enabled/disabled settings
B2	Send on/off status of the A1 - A4 four audio sources
B3	Send on/off status of the C1 - C2 user devices
B4	Send repeater video ID

The following operates when the repeater is idle:

001 2411 receiver (normal mode)
002 Roof camera (currently not installed)
003 Equipment room camera (Please select 001 when finished viewing camera to turn off video so repeater will shut down)

ATCO MEMBERS AS OF 20 April 2000

K8AEH	Wilbur Wollerman	672 Rosehill Road	Reynoldsburg	Oh	43068	614-866-1399	wilbur.w@juno.com
KC3AM	David Stepnowski	735 Birchtree Lane	Claymont	De	19703-1604		kc3am@aol.com
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	Oh	43026	614-876-6135	
W4/F5BJV	Marcel Pitzini	443 Eastland Drive	Decatur	Ga	30030	404-378-2772	f5bjv@mindspring.com
KC8BNI	Fred Stutske	8737 Ashford Lane	Pickerington	Oh	43147		kc8bni@amsat.org
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	Oh	43065	210-0551	dale.elshoff@usiny.mail.abb.com
WA8DNI	John Busic	2700 Bixby Road	Groveport	Oh	43125	491-8198	jbusic@ee.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	Oh	42616	419-691-1625	
WA4DFS	Ed Walker	PO Box 150	Mountain City	Tn	37683	423-727-9611	ebwalker@preferred.com
WA3DTO	Rick White	5314 Grosbeak Glen	Orient	Oh	43146	877-0652	wa3dto@aol.com
W8DXF	Bob Lewis	192 Northview Rd	Blanchester	Oh	45107-8770	937-783-2740	docwest@in-touch.net
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	Oh	43026	876-6033	wb8dzw@aol.com
W8EHW	Foster Warren	P.O. Box #32	No. Hampton	Oh	45349		
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	Ky	40511	606-253-1178	ks4gl@juno.com
W8GUC	Reuben Meeks	428 Lewiston Road	Kettering	Oh	45429	937-294-0575	rcmeeksjr@mics.net
KA8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Oh	44305		
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	Oh	43026	777-4621	
W3HMS	John Jaminet	912 Roberts St	Mechanicsburg	Pa	17055-3451		w3hms@aol.com
W8JND	Richard Knowles	573 Plaza Drive	Circleville	Oh	43113	477-8132	
K8KDR	Matt Gilbert	5167 Drumcliff Ct.	Columbus	Oh	43221-5207	771-7259	mjgilbert@wcom.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	Oh	43223	276-1820	n8kqn@juno.com
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	Oh	45331	513-548-2492	walkingcross@mail.bright.net
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	Pa	17603-9563		hdeverter@redrose.net
KC8LOW	Bob Harmon	831 McDonell Dr	Gahanna	Oh	43230	478-2193	kc8low@netscape.net
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	Oh	43123	614-871-0751	phumphries@iwaynet.net
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	Oh	45660		ka8mid@qsl.net
N8NT (Ex KF8QU)	Bob Tournoux	3569 Oarlock Ct	Hilliard	Oh	43026	876-2127	rtournou@columbus.rr.com
WD8OBT,KB8ESR	Tom Camm & sons	1634 Dundee Court	Columbus	Oh	43227	860-9807	
N8OCQ	Robert Hodge	3689 Hollowcrest	Columbus	Oh	43223	875-7067	
N8OPB	Chris Huhn	146 South Hague Ave	Columbus	Oh	43204	279-7577	
W6ORG,WB6YSS	Tom O'Hara & family	2522 Paxson Lane	Arcadia	Ca	91007-8537	626-447-4565	tom@hamtv.com
WB8OTH	Perry Yantis	1850 Lisle Ave	Obetz	Oh	43207	491-1498	pyantis@compuserve.com
WA2PCH	Craig Stoll	PO Box 1117	Orchard Park	Ny	14127		
KE8PN	James Easley	1507 Michigan Ave	Columbus	Oh	43201	421-1492	jeasly@freenet.columbus.oh.us
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	Oh	43154	474-3884	
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	Oh	43081	891-9273	towslee@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	Oh	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	Oh	43081		
WA8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	Oh	43224	261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	Oh	45334	937-964-1185	w8rvh@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	Oh	43119	614-878-0575	comm21@coil.com
W8RXX	John Perone	3477 Africa Road	Galena	Oh	43021	740-548-7707	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	Mi	48144		
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	Oh	43119	851-0223	larry@psycho.psy.ohio-state.edu
KB8SFD	Doug Nicodemus	5837 Karric Sq Dr #185	Dublin	Oh	43016		rimlight@aol.com
W8SJV	John Beal & family	2899 Castlebrook Ave	Columbus	Oh	43026	876-9412	
W3SST	John Shaffer	2596 Church Road	York	Pa	17404		w3sst@juno.com
W8STB	John Hey & family	894 Cherry Blossom Dr	West Carrolton	Oh	45449	937-859-5295	heyjo@netzero.net
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	Oh	45040		
KB8TRP,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	Oh	43223	272-5784	ed.flanagan@ohcolu.ang.af.mil
WA8TTE	Phil Morrison	154 Llewellyn Ave	Westerville	Oh	43081		
KB8UGH	Steve Caruso	39 South Garfield Ave	Columbus	Oh	43205	461-5397	scaruso@freenet.columbus.oh.us
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	Oh	43338	419-947-1121	
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	Oh	43162	879-7482	
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	Oh	43212	297-1327	jrr@cscc.edu
K7VE	John Hays	P.O. Box 564	Sandy	Ut	84091		jhays@hays.org
KB8VUQ	Jack Wolff	2682 Hiawatha Ave	Columbus	Oh	43212	263-3092	
N8WLT	James Neymeyer	2879 East Moreland Drive	Columbus	Oh	43209	237-2331	
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	Oh	43062	740-927-3883	dhunter147@aol.com
KB8YIO	Ric Wise	1465 25th Ave	Columbus	Oh	43211	291-6508	rwise@columbus.rr.com
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	Oh	43223	272-8266	mmgriggs@aol.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	Oh	43064		
KB8ZLB	Dave Kibler	243 Dwyer Rd	Greenfield	Oh	45123	937-981-4007	k154@bright.net
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	Oh	43125	836-3519	ka8zny@copper.net
N8ZTJ	Jeff Skinner	25956 Locust Grove Rd	New Holland	Oh	43145		

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are $10.00 per person payable on January 1 of each year. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost.

The membership period is from January 1ST to December 31ST. New Members will receive all ATCO newsletters published during the current year prior to the date they join ATCO. For example, a new member joining in June will receive the January and April issues in addition to the July and October issues. 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 O NEW MEMBER O DATE _____ CALL _____

OK TO PUBLISH PHONE # IN NEWSLETTER YES O NO O HOME PHONE _____

NAME _____INTERNET Email

ADDRESS_____

ADDRESS _____

CITY _____ STATE _____ ZIP _____-_____

FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY

_____

COMMENTS_____

_____

_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK O MONEY ORDER O

Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026

TUESDAY NITE NET ON 147.45 MHz SIMPLEX

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

ATCO TREASURER'S REPORT - de N8NT (formarly KF8QU)

OPENING BALANCE (01/15/00)..…..... …… $735.03
RECEIPTS (dues)..... $
OTHER INCOME (bank interest).....$
Bank Charge……$
JANUARY NEWSLETTER FILM/PROCESSING…..…….$
POSTAGE (85 newsletters @ .55 ea)……..…….$ (46.75)
CLOSING BALANCE (04/20/00).....$

NOTE: Correct data is not available at publication time so a correct statement will be supplied with the next issue…WA8RMC

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

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED. I SEE QUITE A FEW UNPAID FOR YEAR 2000 YET. CHECK MAILING LABEL FOR THE EXPIRATION DATE AND SEND N8NT A CHECK IF EXPIRED.