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 HAM IN THE SPOTLIGHT

Now it's time to honor Bob Rector, W8RWR. He's our Ham in the spotlight. Since late last year, Bob has been looking for an ATV transmitter saying on numerous occasions that he would for sure pick one up at Dayton. Well, he kept his word and got a PC Electronics unit at Dayton and promptly put it on the air. The signal was very poor at first but with some antenna work, it has improved considerably. Bob hopes that with a tower and new antenna, an even better signal can be achieved. If the tower idea falls through, at least a chimney mount option will be exercised. From there…who knows! Good luck Bob and check into the Tuesday night net often with the progress.

ACTIVITIES ... from my "workbench"

Usually the last thing I do when preparing the ATCO Newsletter is to compose this portion so I can focus on some of the things I am working on rather than the things others have done. It also helps put things in the proper perspective. With that introduction, let's get started.

First I must report that the 1250 MHz repeater output is now officially fixed. As you may remember, we have been having trouble with the quality of the signal as reported by a number of us. However, every time I looked at it, it seemed to be fine. Then all of a sudden, my 1250 receiver started acting up. For a long time I blamed it on my receiver because when I switched receivers, it seemed to go away. Even when I opened up my "malfunctioning" receiver, the problem would disappear. (How many times has that happened to you)? When I was finally convinced that the problem was transmitter related, a trip to the repeater produced no abnormal behavior. An SWR check showed that it was nearly 1:1 so I turned attention to other things. Finally I was convinced that the problem was an intermittent antenna malfunction. Why it didn't show up as high SWR before, I don't know. In any case, while at Dayton we purchased a new Comet 1250 MHz antenna and installed it a few days later. Voila, is gone! After I disassembled the old antenna I found out why. That antenna has been in service for over 6 years in a high wind environment and subject to a lot of vibration. Now, the stacked elements inside were about 3/8" diameter inside a 1" diameter plastic tube with NO internal supports so they just flop around in there. As a result, some of the shrink sleeving had worn off and at least one soldered connection between line sections was broken. Thus, as the wind blew, the elements made and broke contact so that's the REST of the story! It looks like it is repairable so when fixed, it will be our spare 1250 MHz antenna.

The 1250 MHz transmitter power was down from 55 watts to about 35 watts so this item also needed attention. At first I thought the power reduction was because the 12 VDC supply feeding it was down slightly. However, after an internal inspection, I found part of the final output stripline had heated noticeably producing a small carbon trail on the circuit board. When cleaned and re coated, the power came back up to about the 55 watt level again. Because of the above mentioned antenna problem, it is now apparent that the trace over heating problem was due to the intermittent high antenna SWR. Now that the antenna is fixed, the transmitter should be OK now.

I would like to mention at this point that the replacement antenna is a 3 band unit designed to operate on 146, 440 and 1280 MHz. Because we are using it at 1250 MHz, the SWR is higher. Since they don't make an antenna cut just for 1250 MHz, we will have to put up with the 2:1 SWR unless someone out there knows of an alternative. I'm sure FOR A PRICE we could have Comet make us one for our frequency but I don't know what we'll gain from it. We also could run tests taking signal reports with the antenna in place now then swap it with the old one (after repair) and check the difference. Well, that's another task so in the meantime if anyone has any ideas, I'd like to hear about it.

Another topic of special interest recently is the possible linking of the ATCO and DARA repeaters so Columbus and Dayton guys can communicate as if local. I've been doing some calculations and since we can use a tower almost exactly halfway between us located on the highest ground in the area, I feel it is very possible. Now we must determine the communication details. I did a path loss calculation and found that with our present 1250 MHz repeater output, a 1280/1250 MHz link is best between us and midway. From midway to the DARA repeater in Dayton, it looks like 900 MHz is going to be the best. Since the DARA repeater has no 900 MHz equipment now, a high gain loop yagi could be used at the DARA and midway pointing at each other. If that part is solved, all we need to do now is determine the proper protocol and start building. The later is always the hardest part for most of us have jobs making that sort of activity secondary. Nevertheless we will pursue this effort for I believe that it will bring us closer together and build interest in what we do!

Thoughts are now forming for a 10 GHz output for the ATCO repeater. The start occurred at Dayton when a commercial 20 dB Omni slot antenna was purchased. Now we need to figure out equipment and installation details. I hope there'll be enough interest for someone to build a receiver for this band. I don't know of other ATV repeaters with 10 GHz outputs so maybe we will be first. Only time will tell.

The next repeater enhancement item is the replacement of the 147.45 MHz receiver. The existing receiver was plagued with intermod and sensitivity problems so when Roger, WB8DZW, offered to donate a GE Master II receiver complete with crystals for the repeater, I said yes without hesitation. I'm happy to report that it is installed and working very well in it's new home. Thanks, Roger.

Finally, we obtained a satellite receiver with the proper de-scrambling card to enable NASA select reception. Tom, KA8ZNY, has a dish reserved for him at Radio Shack so when secured, we will mount it at the repeater and into a spare video input on the controller to make baseband video of NASA available. I've reserved space in the rack for the receiver so it should install easily. Soon we will have this signal available for all to see.

That's all for now folks but let it be known that we will be touring the local WBNS Channel 10 facility on Thursday July 25 at 7:00 PM. Refreshments supplied by Channel 10 will be served so a head count is needed. Let us know via the Tuesday night net if you plan to go. Members, spouses and friends are invited. We did this about 3 years ago and was a big hit so with the introduction of HDTV, it'll be real interesting. Also, see the notice later in this issue.
…WA8RMC

ATCO ANTENNA PARTY…Sure, we measure them sometimes too!

Well, it's that time of year again where we drag our prized antennas to Ted's place (N8KQN), painstakingly set up the measurement equipment, meticulously arrange the cables and wind up talking about something totally different. Yes, we DO measure antennas but I must admit the fun part is just getting together and discussing ATV related topics. The food helps too and is especially welcome on an extremely warm…well, HOT day. Part of the "team" at the right is from L to R Jay KB8YMQ, Bud, KC8ASD, Jim, WA8UZP and Stan, AA8XA with his back to me. The best part…no rain! I didn't take an official count of the participants but I believe there were about 15 of us present at some part of the day. A few just came for an hour or so because field day is the same day. (Someone told me to schedule June 23rd because field day was going to be the following Sunday. I can't locate the one that said that. Oh well, that's two years in a row we scheduled our event on field day). Next year may be different!

As you can see in the picture below, we did actually measure one antenna but the session was mainly intended to test the new antenna plotting program created from scratch by Bob Tournoux, N8NT. He wanted to re-write the program he wrote for us about six years ago making improvements so it will operate under a Windows environment. It was a very aggressive effort and we all knew it would contain at least one bug. To that extent, we were not disappointed. However, I was amazed that he was able to make it basically work on the first try. My hat is off to Bob's effort. Great job! As the program plotted the antenna pattern however, we noticed the signal polarity to be wrong. This was fixed on line in short order but the problem of insufficient dynamic plotting range has all of our heads scratching so little else was accomplished with the antennas. We resorted to just measuring forward gains of a few 1200 MHz and 2400 MHz antennas.

I brought the G1MFG 1200 and 2400 MHz transmit and receive modules for "show and tell" so significant time was spend evaluating these. All were very pleased with them, especially both receive modules where they proved to be about 10 dB better than anything else we are using. It looks like they might find a place in the receive circuitry of the ATCO repeater. In the picture above Paul, W8RRF on the left is talking about the modules to Jim WA8UZP.

The photo at the right is an attempt to show the plotting capability of Bob's new program. The pattern was ok but some of the arithmetic calculations were in doubt. Bob is pointing to the suspected area. By next year we promise to have the bugs well away from the testing. We plan to replace the conventional rotor with a precision stepping motor so the exact antenna position will be known. If we fix it before then and the weather is still warm, who knows, maybe a party in the fall will be in order.
…WA8RMC

W3HMS REPORTS ON OVERSEAS UHF/ATV ACTIVITY

Hi Guys. The following is an article concerning my recent visit to a hamfest/tech meeting in France. This may have some value in your publication in whole or in part. It particularly concerns ATV and microwaves…John W3HMS 6 May 2002

Seigy 2002….an American visitors perspective.

Seigy is the annual French VHF/UHF/SHF Hamfest and Technical Session held at Seigy in the Community Hall and Grounds. It started here in 1955 in the center of France. Seigy is a very small town, close to St Aigan on the Cher River. It is about 40 km south of Blois and west of Orleans in the castle district. It is very centrally located and many hams can make the drive is 3-4 hours. Motel and food costs are much lower than in Paris or the Riveria.

My wife and I were there in April 1999 and decided to go again this year. The principal organizers are Michel, F5FLN; Gilles, F5JCB; and Phillipe, F6ETI. There is a Proceeding available for about 10-15 Euros published mostly in French with some articles in English. The entrance fee is about 5-10 Euros, which includes a half-liter bottle of wine specially packaged and labeled for Seigy, not bad either!

The meeting comprises two days with most activity on Saturday and some events on Sunday morning. This year the dates were 13 and 14 April. The Saturday events started at 0830 and ended about 1900. Like Dayton and other big hamfests, there is so much to do and one day seems not enough. As I had been to the Swiss and French ATV society meetings in 1996 and 1997, plus Seigy in 1999, I was constantly (and pleasantly) occupied in chatting with old friends and making new ones. I attended the ATV society; ANTA, Annual Meeting and we shopped for the "bargains of the century" in the flea market.

As to language, I read, write and speak French and was delighted to do so at Seigy. I was surprised at the number of hams who noticed my call letter/name hat and spoke in English with varying degrees of skill and confidence. Even more important than that was the fine welcome I felt as expressed by the attitudes and smiles of so many chaps. So, Seigy is ideal for a pleasant Saturday hamfest combined with a visit to the castles on other days irrespective of your language(s) skills. The weather in April in central France is usually very spring-like and the terrain is easily navigable in a rental car, as crowds are not yet at summer levels.

The flea market is not the usual USA variety of "tailgating", e.g. selling from the trunk of your car. In Seigy, the organizers arrange for many tables covered by a large tent so rain is NOT a showstopper. There were outside demonstrations of AO-40 with 70 cm uplink and 2304 MHz downlink.

Technically, Seigy is quite advanced. I saw a static demo by Jean-Louis, F6AGR, of 24.088 GHz AO-40 reception, digital Ham ATV via a commercial satellite channel from Holland with relaying then to a TV set in the main hall. This was presented by Marc Chamley, F3YX, the Father of French ATV, using his most advanced ATV Rovermobile. The quality of FM-ATV using PAL is superb and even more impressive is the digital ATV. I saw 47 GHz FM-ATV demos by Rene, F6CGB from a transmitter in the hall to a receiver on the stage. I was pleased to chat with the very effective Editor of HYPER, the French monthly magazine for microwave operations, in the person of Alain, F5LWX. I wanted to attend a lecture on digital ATV by Jacques, F6AJW, but it just did not fit with my schedule, too many nice things to do, HI!

The HYPER gang is a loose knit group that shares the work to turn out HYPER which is really a first-rate MW magazine published in French . Advance info about Seigy was on the French REF (ARRL/RSGB equivalent) Web site (in French) before Seigy. The dates in April 2003 have been set; I just do not have them handy at the moment.

The French micro-wavers are very technically advanced. I spoke with Michel, F6BVA and his co-record holder, Gil, F5CAU about their world record on 47 GHz and other topics including their ops on 76 and 145 GHz. I was pleased to speak with Andre Jamet, F9HX, about his article on 10 GHz superregenerative receivers, etc. from VHF Communications, etc. I was delighted to chat with Alain, F1ANY at the Friday night informal dinner where he was most helpful to my wife and I, as was Jean-Louis, F6AGR. Alain and colleagues are building transverters for 241 GHz. They will use medical syringe needles as wave-guide on 241 GHz!!!

I have, I suspect, omitted the names and calls of some of those who were most helpful and interesting to talk with at Seigy. It was just overwhelming to me to try and chat with so many and retain the new info I received plus keep in mind the names and calls. This was due in part that few people have badges with their names and calls and the French language, beautiful that it is, is not my first language.

All in all it was lots of fun. The chaps were most accommodating to my wife and myself. The true ham spirit of sharing info and perfecting techniques never burned brighter than among the French microwave hams.
…John Jaminet, W3HMS

2.4 GHZ FREQUENCY ALLOCATION UPGRADE DETAILS.

The FCC said its proposal to upgrade the Amateur Service allocation at 2400 to 2402 MHz to primary "seeks to protect current amateur use of this band." Hams have shared their other 2.4 GHz spectrum on a secondary basis with government users.

Amateurs already are primary at 2390 to 2400 and from 2402 to 2417 MHz. The ARRL has said primary status in the intervening spectrum slice was needed "to provide some assurances of future occupancy of the band segments for the next generation of amateur satellites."

The ARRL has expressed its belief that hams can continue to accommodate Part 15 and Part 18 devices at 2.4 GHz.

ARRL's Chief Development Officer Mary Hobart, K1MMH, was among those welcoming the good news from the FCC. "This a wonderful example of the work ARRL conducts in Washington on matters important to the Amateur Radio community," Hobart said.

"Thanks to the 10,000 hams who contributed so generously to the 2002 Defense of Frequencies Fund. The success of that campaign helps to make decisions like this possible."
…The ARRL Letter Vol. 21, No. 19 May 10, 2002

ATCO SPRING EVENT DETAILS

Out annual ATCO Spring Event was a success again this year…AND the weather cooperated. There were about 20 participants this year, down from previous ones but nevertheless, all attendees had a good time. We had food, discussions, door prizes and most important, elected by voice vote, a new club secretary. Congratulations Frank Amore WA8HFK. Franks comments and pictures follow.

As I remember our ATCO meeting on My 5, 2002:

- Good food.
- Introductions. Also (new member young person)every one look at him when talk of 125ft. Antenna work discussed.
- Bob Tournoux voiced concern about proper tax reporting. No vote taken. Some believe we are a social club and are not a profit generating body. Some believe the $150.00 fee and paper work could cause more trouble than not doing it.
- Talked about the Dayton Hamfest. The hoped for place to sit in the shade is not as extensive as first described. Rather than a RV only a van will be used. Only about two chairs will be available and if you bring your own, you will need to take it home with you. A sign in sheet and method to keep track of merchandise was shown and described. Sales tax collection and payments were discussed. Art will investigate and believes the club needs to set up and get the proper forms.
- Discussed linking the Dayton ATV repeated with our Columbus repeater. We had an active discussion. Ken W8RUT motioned to have a design team rather than have "design by committee". No one seconded the motion. One suggestion was the possibility of trying this as a passive repeater.
- Art set up an antenna get together at Ted's place. I did not record the time and date.
- Last and least important. Frank Amore volunteered for Secretary and was elected by a voice vote.

…Frank Amore WA8HFK

FCC TO CONSIDER DTV SANCTIONS FOR BROADCASTERS

We're not involved in digital television…yet but I feel we need to see what's coming at us in the upcoming years (months?). It is interesting and informative reading…WA8RMC

By George Leopold EE Times
May 16, 2002 (6:57 p.m. EST) <http://img.cmpnet.com/eet/v2/print_button.gif> <http://img.cmpnet.com/eet/v2/send_button.gif>

WASHINGTON — The Federal Communications Commission is launching a review of how to handle the failure of some broadcasters to complete construction of digital TV facilities by its imposed deadline of May 1.

Separately on Thursday (May 16), the agency said it will host on May 22 a meeting with international officials to discuss regulatory issues surrounding broadband deployment.

The DTV review will seek industry comments on a set of proposed "graduated sanctions" aimed at TV licensees who fail to demonstrate progress toward completing digital broadcast facilities. Under the proposal, sanctions would increase in severity for every six-month delay in completing the transition.

The proposal is part of an FCC initiative to jump-start the digital TV transition that has lagged behind schedule. Lawmakers are pressing the agency and broadcasters to renew efforts to turn over their analog channels by 2006, but few observers think the deadline will be met.

The broadband meeting will include representatives from Canada, South Korea and the United Kingdom. "I view this as the first in an ongoing dialog with my counterparts on the top priorities facing the FCC," said agency chairman Michael Powell.

The meeting, which is open to the public, will also address spectrum allocation policy and related homeland defense issues.
…Reprinted by permission from EE Times NEWSLETTER Friday, May 17, 2002 located at
http://newsletter.EDTN.com/cgi-bin4/flo?y=eHOq0ByGcT0tH0Bczx0A6

2.4GHZ ETHERNET REPEATER LINK…Anyone willing to try this?

John Beal, W8SJV, suggested that we try linking the ATCO repeater to a computer via a wireless Ethernet link as described below. I have discussed this on a number of occasions but have not had the time to experiment with it to see if it is possible or reliable. Is there anyone out there willing to experiment with it on a ham to ham basis? If so, I have some components to get it started. I'd hate to assume it would work and take the time to install it downtown only to find that the co channel interference would make it impossible. Maybe if two hams get it to work between them at a sufficient distance, we can try horizontal polarization for the downtown link and give it a try. If it would work, it could pave the way for Internet to repeater on line video. The following excerpt is from a group that tried it and succeeded. WA8RMC

From http://www.qsl.net/kb9mwr/projects/wireless/plan.html & sent to me by W8SJV on 5/29/02. Using Part 15 Wireless Ethernet Devices for Amateur Radio. In 1989 Al Broscius, N3FCT suggested the use of Part 15 Spread Spectrum wireless Ethernet devices that were becoming available for amateur packet radio use. Implications for the Radio Amateur- an excerpt from "License-Free Spread Spectrum Packet Radio" by N3FCT in 1989. There are numerous manufactures of these devices. They operate on the shared 900 MHz, 2.4 and 5.7 GHz bands with speeds between 1.5 and 11 Mbps. Wireless LAN product/feature comparison- by Barry McLarnon, VE3JF (slightly dated) (a local mirror) Amateur Band Allocations- for the 900 MHz, 2.4 & 5.7 GHz bands

In early 1997 TAPR began development of a 1 watt, 128 Kbps 900 MHz FHSS radio, suggesting this is the future for amateur packet radio. In late 1999 the FCC relaxed Amateur Spread Spectrum rules. Allowing any commercially available Part 15 SS device to be reclassified under Part 97. (Prior only certain spreading codes where allowed)

Part 97.311- current Amateur spread spectrum rules today:
We know it is possible as unlicensed Part 15 devices to obtain omnidirectional ranges up to about 5 miles and directional ranges up to about 17 miles using high gain antennas. We should also realize that greater communication ranges are possible (if necessary) by reclassifying these devices under Part 97. We are then allowed to modify them using pre-amps, RF amplifiers and high gain antennas. Then by placing a central routing node in the middle of town on top a tall building/tower or hill they can serve as a inexpensive high speed supplement/alternative to existing packet radio systems.

Part 97 Vs Part 15 Permissible Power Comparison - and clarification
True some urban areas may be very infested with Part 15 devices already. But you have 3 bands to choose from, and you shouldn't have any problems if you use FHSS, with one watt amplifiers before your antenna polarized the opposite of everyone else.

My Experiences:
I have experimented with Proxim's Symphony 1.6 Mbps Frequency Hopping Spread Spectrum 2.4 GHz network card. It was only $130 and as a Part 15 device coupled with an old 24 dB MMDS 2.5 GHz partial screen parabolic antenna (previously used for receiving rural wireless cable) you could easily obtain ranges up to 6 miles line of sight. Low Cost Wireless Network How-To- our abundance of documented, experiences work and research (which includes homebrew bi-directional amplifier designs and path-loss calculators)

Other Peoples Experiences:
During my Proxim Symphony experimentation I sought out reports from other hams who had attempted long distance communications paths: Symphony based links: KE6WED, VE3JF, K5OKC, and 4Z4ZQ. Other hams exploring and using this technology using different hardware: KO6YQ, N3WFI, KG6DFV.

Re-classifying:
All commercially available Spread Spectrum Wireless Ethernet Devices are suitable for Amateur Use. However there are 3 things you may need to pay attention to when re-classifying.

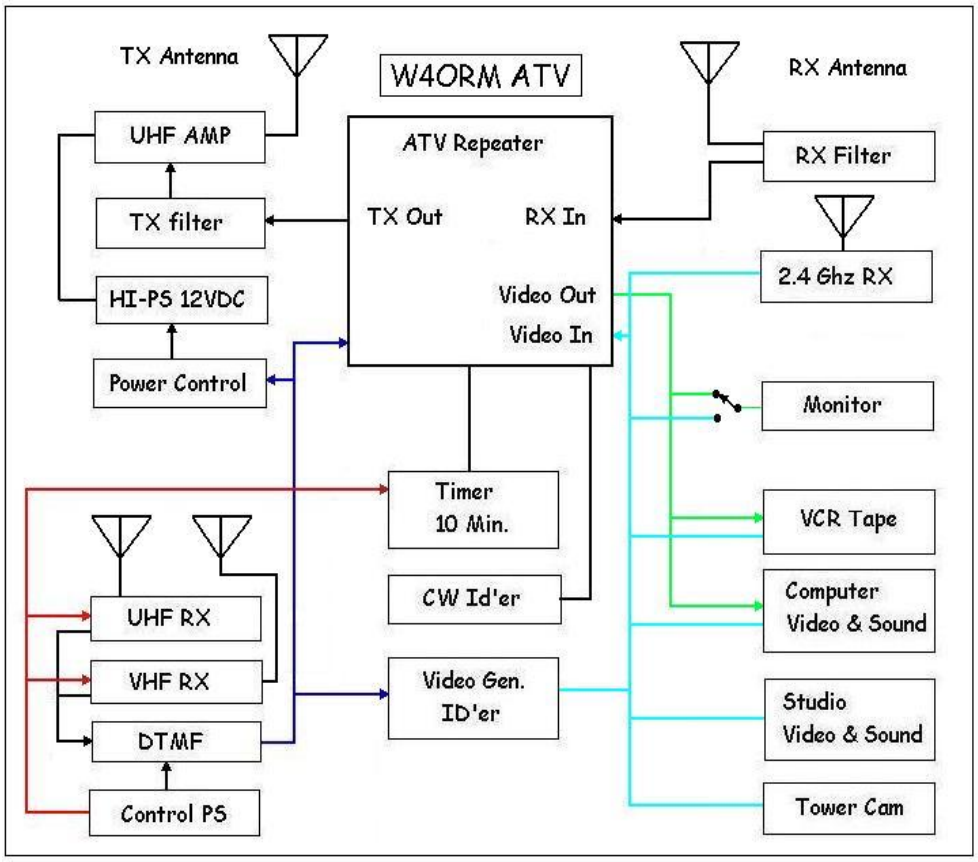
- You need to identify your station every 10 minutes by transmitting your callsign in ASCII or by some other method that is publicly documented. I suggest having a script send out a ping every 10 minutes with your callsign embedded in it. (more info)
- You will need to keep your operations within the 2400-2450 MHz amateur overlap if you plan to re-classify under Part 97. (this is only an issue on the 2.4 GHz band with FHSS, all other bands have full overlap & DSSS systems can be set by user for center freq below 2.45) Order your Symphony directly from Proxim and send a copy of your license and they will change your cards country code shifting operation below 2450. (more info).
- If you need to amplify your signal over 1 watt PEP you will need to incorporate automatic transmitter power control. You may need to buy an expensive commercial amplifier (such as Teletronics Bi-directional SmartAmp) to accomplish this. (more info)

If your like me and are seeking a simple way to build a high speed, affordable, RF network, where you mimic the internet and have web pages, conferencing, FTP and so on, I encourage you to look into this technology and use it. If you use this technology and would like to share your experiences or if you have questions, you may contact me. Also feel free to link to this document and or reprint any portion of it.
…Steve, KB9MWR http://www.qsl.net/cgi-bin/Count.cgi?sh=0%7Cdf=kb9mwr.dat.

K4PRS REPORTS MORE ATV ACTIVITY IN FLORIDA

Art,
Well the ATV project has gotten off the ground! A small step, but significant. I hope Dayton went well, and really missed attending. I will be moving into a home tomorrow, and I will be ready when the ATV repeater goes up. The following are the details of the new W4ORM repeater progress.
Thanks,
…Peter K4PRS

The Wormhole has just purchased an ATV Repeater system and it is under going configuration to be placed at the repeater site. We will be conducting tests of this system real soon, so get your outside antennas ready to hook up to you TV on CATV Channel # 57. We will be looking for signal reports from all points to get the system dialed in for all to use. Check into the Net Thursday at 7:30 p.m. for additional info on our newest system to come on line very soon.



Our ATV Equipment List:
Aptron Laboratories ATV Repeater - Model 1570a
Custom built DTMF remote controller w/Link Receiver
100' 3/4" Andrews Hard Line for TX
100' 1/2" CATV Hard Line for RX
2 ea. Home Brew 3 element Yagi Beam antennas (co-phased) Horizontal Polarized for TX. 421.25 MHz.
2 ea. Home Brew 3 element Yagi Beam antennas (co-phased) Horizontal

Polarized for RX. 434.25 MHz.
We need to locate a wideband UHF linear amplifier 100 Watts.
Here is a block diagram of the ATV System.

Amateur Television Remote Camera Transmitter.
This project is currently in progress. A camera will be mounted on the tower 150ft above sea level over looking St.Petersburg and Clearwater Florida, right on the Pinellas Trail!. From that height you can see many miles out over the existing terrain that is only a few feet above sea level.

The camera is a CCD type mounted inside a PVC pipe onto a custom pan/tilt mount that is controlled by DTMF tones that comes from a remote receiver into a computer to control the stepper motors that pan and tilt the camera.

The Video and sound signals are fed to a North Country Radio 439.25 transmitter to a 50 watt linear amplifier through 100ft of 1/2" - 75 Ohm CATV hard line to a pair of 3 element beam antennas side mounted on the 100ft tower horizontally polarized.

The picture and sound will be received on a cable ready TV with an outside antenna on channel 60.

MICROWAVE PUBLICATIONS OF INTEREST TO HAMS

John Jaminet, W3HMS, sent me this list in the hopes one or more of us would be interested in exploring the microwaves. After all, as we experience more and more interference on the existing bands, we tend to migrate to the "next" higher unpopulated band. Note that we are going to try a 10GHz output on the ATCO repeater in the near future so it would be wise to at least read about it before hand…WA8RMC

List of Magazines (both US and European) of Interest to Micro-waver Hams.

I have subscriptions to the following magazines of interest to microwavers and ATVers. The opinions of content and importance to microwavers are entirely my own. I am always on the lookout for the best magazines in the world on microwaving published in English or French, so please share your tips on it with me. I know that there are microwave publications by the San Diego and RSGB groups but I have not seen them to date.
…John Jaminet, W3HMS EMAIL: W3HMS@aol.com.

- **B5+** Published in French by ANTA, the French national ATV Association. There are frequent microwave articles using DRO and Gunnplexor technology plus measuring equipment and antennas/feeds. Available from ANTA at 1, rue de Boulogne-37100, Tours, France. Cost is 15 Euros per year.
- **Cheesebits** Published by the Mt Airy VHF Club, the Packrats, of the Philadelphia area.. There are twelve editions per year at a cost of $16 per year. Contact Bob Fischer, W2SJ. The editor is Rick, K1DS. It is devoted to 50 MHz and above…good tech articles are common.
- **CQ-TV** Published 4 times per year by the BATC, the British ATV association. The cost is about 15 Pounds Sterling per year and it is available from the BATC Membership Secretary Dave Lawton at memsec@batc.org.uk. There are frequent articles on microwave ATV and related equipment and circuits.
- **DUBUS** Published in Germany in English/German 4 times per year. Cost is 30.00 per year. It is available in the US from Kyle Britian, KB5UBE. It is devoted to SHF. There are many worthwhile articles and it is the main source of DB6NT equipment articles. Articles archived are available at http://www.marsport.demon.co.uk/archive.htm
- **Feedpoint** Published quarterly by the North Texas Microwave Society, NTMS, at a cost of $20 per year available from Wes Atchinson, WA5TKU at EMAIL wes.atchinson@na.marconicomms.com. It covers microwaves exclusively and there are many fine technical articles.
- **HYPER** Published in French by a group of French microwavers in a voluntary cooperative. The editor is Alain, F5LWX. There are 12 editions per year. Subscriptions are available from Andre Esnault, F1PYR at andre.esnault@infodip.com at a cost of about US $25.00 per year, payable in Euros and mailed via surface mail. A really first rate magazine with lots of fine circuits and information from active very microwavers.
- **MICROWAVE NEWS** Published in England by RSGB and edited by Peter Day G3PHOs . Ten issues per year and the cost is about $16/year. Contact RSGB at sales@rsgb.org.uk. It is excellent for MW news in UK, Europe, and US. More and more tech articles/ circuits are appearing.
- **NEWSLetter** Published by the New England Weak Signal Group quarterly at a cost of $10.00 per year. The editor is the well-know microwaver Paul Wade, W1GHZ. Subscriptions are available from Fred Stefanik, N1DPM. NEWS is a small pub with usually one excellent article per edition often by Paul Wade.
- **QEX** Published in .4 editions per year by ARRL. Cost is about $20 per year from ARRL. Some microwave articles….often excellent notes/ideas/circuits from Zack Lau, W1VT.
- **REPEATER** Published in English/Dutch in Holland 4 times per year. The cost is about US$ 25. Editor is PE1LBP. Web site is http://www/cchmedia.nl. Covers mostly ATV…some mw articles.
- **Swiss ATV News** French language magazine. .There are four editions per year published by the "Swiss ATV" society, Casse postale 301, Ecublens, CH-1024, Switzerland. The cost is 25 CHF or US$20.00 per year. There are excellent technical articles on

- **VHF Communications** Published in England from translations of an excellent German magazine. , UKW-Berichte. The cost is 20 Pounds Sterling per year from KM Publications, EMAIL andy@vhfcomm.co.uk or in the USA from Gene Harlan of ATVQ at 1-800-557-9469. It has had excellent articles in the past but fewer and fewer microwave articles are now appearing.

…W3HMS

FCC DELAYS ONE 700-MHZ AUCTION, OK's ANOTHER

Here's how the RF bands get chopped up. This is not necessarily ATV relevant but interesting nevertheless…WA8RMC

WASHINGTON — Bowing to congressional pressure, the Federal Communications Commission is delaying auctions of upper-band 700-MHz broadcast spectrum until next January. However, the agency also decided to proceed with a lower 700-MHz band auction of channels 52-59 scheduled to begin on June 19. Both bands are occupied by analog TV broadcasters who have until 2006 to vacate the channels as part of the digital TV transition.

The delay of some spectrum auctions until Jan. 14, 2003 — a move sought by the wireless industry — gives Congress more time to work out the timing of the auctions, and gives wireless companies more time to raise funds for them, FCC officials said. The auction has already been delayed several times.

In deciding to proceed with the lower-band auction, FCC commissioners rejected a wireless industry effort to delay that auction indefinitely. "I do not support an open-ended, indefinite delay of our 700-MHz auctions scheduled for June 19, 2002," FCC chairman Michael Powell said in a separate statement. "I do believe that there are compelling reasons to invoke a short delay, until Jan. 14, 2003, of the upper 700-MHz band auction. I do not find any compelling reasons to delay the lower 700-MHz band auction."

Legislation proposed by the House of Representatives would have delayed both auctions indefinitely. Wireless companies and other technology developers are seeking more time to attract investors to bid on what is expected to be prime spectrum. Others in the broadcast industry wanted both auctions to begin on June 19.

One company, New York-based Viacel Corp., which is developing a competing digital broadcast service based on the alternative modulation scheme, coded orthogonal frequency-division multiplexing (Cofdm), hailed the FCC's decision to proceed with the channel 52-59 auction. "We expected that this auction was going to be delayed indefinitely, but now it has been confirmed. There is no way to stop it," said Viacel president Bob Miller. "We believe there is a major national market for our service using Cofdm" in the United States. The scheme is widely used by European broadcasters.

Miller said Microsoft Corp. has expressed interest in its broadcast technology. Viacel is one of 72 eligible bidders in the June 19 auction.

Congressional reaction to the FCC ruling was muted. A spokesman for Rep. Billy Tauzin, R-La., chairman of the House Commerce Committee and chief backer of an auction delay, called the ruling a "split decision."

…Source unknown

POSSIBLE THREAT TO AMATEUR DIGITAL TELEVISION FUTURE

ATNA has been approached by the Electronic Frontier Foundation to endorse their comments concerning the "Consumer Broadband and Digital Television Promotion Act" (CBDTPA). This act could potentially prevent the sale and manufacture of digital television transmitting equipment (broadcast compatible) to anyone who is not a "Professional Broadcaster" ... It also requires future recording/receiving equipment to have controls to prevent copying of encrypted materials.

Here is a review by Seth Schoen of the EFF:

Hi,

I'm writing from the Electronic Frontier Foundation, a non-profit civil liberties organization based in San Francisco. We wanted to let you know about a legislative proposal to regulate ATSC modulators and demodulators, and to seek ATNA's help in opposing it. As you may be aware, legislation supported by some entertainment companies was introduced in the Senate by Sen. Ernest "Fritz" Hollings, by the name of the Consumer Broadband and Digital Television Promotion Act (CBDTPA). This is a revision of an earlier piece of Hollings legislation called the Security Systems Standards and Certification Act (SSSCA). Both bills impose broad government mandates requiring manufacturers of digital media devices to incorporate copy-restriction technologies.

Although the CBDTPA (in its current form) has been relatively unpopular, the major Hollywood studios have been using the threat of Legislation with considerable success to force major electronics manufacturers to negotiate with them on a series of "compromise" Standards that would incorporate particular rules sought by the movie studios. Law on a broad range of manufacturers would then mandate these standards; since they are narrower than the CBDTPA, electronics industries would not oppose these bills as vigorously as they opposed the original legislation.

The first of these compromises, a set of rules on "broadcast protection", is nearing completion. The Broadcast Protection Discussion Group (BPDG), convened by the studios, expects to issue its report on Friday, May 17. The BPDG's work is of concern to us, and we believe that it should also be of concern for amateur television.

The studios expressed the view that the new digital television standard, ATSC, was insufficiently "secure" for their purposes, because it contained no encryption or restrictions on recording. (Of course, NTSC does not have either of these things, either, but recently the entertainment industries have been arguing that the availability of works in digital form entitles them to more control over technology, because it's easier to copy digital works accurately.)

To be precise, encryption of ATSC is permitted when it is carried over satellite or cable, but not when ATSC is transmitted in a terrestrial broadcast. The studios have already reached arrangements, which satisfied them (for the most part), for encryption of cable and satellite transmission, and corresponding restrictions on home recording. But traditionally terrestrial broadcasts have not been encrypted at all, and there's a widespread belief that there are strong public policy principles forbidding the encryption of terrestrial broadcast. Certainly the FCC has long prohibited the use of encryption for terrestrial broadcast.

> Since the ATSC standard has already been established, and many ATSC receivers and transmitters have been sold, and many terrestrial stations have begun their ATSC broadcasts, it would be difficult to replace or modify ATSC. Therefore, the studios suggested that their purposes could be achieved by leaving ATSC as it is, but imposing government regulations on all manufacturers of ATSC modulators and demodulators, other than those meant for and sold to "professionals". The idea is that the government could require manufacturers of ATSC receivers to incorporate the restrictions the studios seek, so that, even though the broadcasts will be unencrypted, all consumer equipment will still implement restrictions on the ability to use or record them.

There are parallels to the 1991 cell phone scanner ban here: the proposal would limit the ability to make receivers for a certain kind of signal, even where that signal is not encrypted. In that case, the goal was to protect privacy (or perhaps the economic interests of cell phone companies); in this case, the goal is to protect copyrights (or perhaps the economic interests of movie studios).

The particular restrictions contemplated include a rule that an ATSC demodulator (or any product which contains one, including associated software) must be "robust" against end-user modifications, so tamper-resistant and not user-serviceable. In addition, the demodulator must not allow the end-user to access the ATSC signal directly. And it may not provide a digital output of a signal with a copyright bit set except using "Approved Output" or "Approved Recording Method" technologies, which are to be approved using criteria written by Hollywood studios, and include only proprietary technologies with encryption and copy restrictions.

For somewhat obscure reasons, the group is also proposing corresponding rules for ATSC modulators. Both of these rules would mean that a variety of existing ATSC equipment would become illegal. However, no incompatible changes to ATSC itself are contemplated, so that all existing HDTV equipment would continue to work. There is no technical enforcement measure in this proposal; the enforcement is purely legislative. It is a prohibition of the manufacture of any ATSC device (other than for TV professionals) which does not incorporate certain restrictions in its function or which is not tamper-resistant.

For more information, including the draft itself, please see http://bpdg.blogs.eff.org/
We expect that Philips will be writing a dissenting report within BPDG, which we will sign and which we will encourage others to sign. (A draft of that dissent should be available tomorrow.) We think radio amateurs should be concerned about restrictions on receivers, about the attempt to impose proprietary rules on all uses of an open standard, and about the limitation of the ability to build or modify one's own receiving equipment. We should be clear that this is not yet introduced in Congress but is an "inter-industry negotiation" "with a view to legislation". It's distinct from but importantly related to the CBDTPA, which is legislation introduced in, but not passed by, the Senate.

I don't know whether amateurs are using VSB or QAM today or whether that will require additional licenses. I do know that the MPAA Studios do not want DTV modulation and demodulation equipment to be available to the public without a variety of technical restrictions, described in the documents above.

We are also in touch with the people who are writing GNU Radio, a free software-defined radio. Here the idea is that an arbitrary radio signal is tuned and downconverted in hardware, but not demodulated. Instead, it is fed into a high-speed analog-to-digital converter, which digitizes it and provides about 40 million samples per second to an ordinary PC. That PC can then run software which will demodulate (or record, or both) the raw input signal. The neat part is that adding the ability to demodulate some new kind of signal only requires writing new software and not building new hardware. In fact, the equipment they are using was not even designed for receiving radio signals at all.

Because they're writing digital TV demodulation software, their project could run afoul of the proposed legislation. (It is intentionally meant to be modifiable by end-users, so it isn't "robust".) We would like to tell all radio amateurs, not just amateur television operators, that interesting and innovative things like software-defined radio are at risk.

…Seth Schoen Staff Technologist schoen@eff.org Electronic Frontier Foundation http://www.eff.org

SOLID-STATE DEVICES MAY PUT VACUUM TUBES OUT TO PASTURE

By Joanne Aslett
EE Times June 6, 2002 Reprinted by permission.
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The use of vacuum tubes as power amplifiers in microwave systems may be on their way out following the development by researchers from Agere Systems Inc. of a solid-state microtriode that can be combined with conventional silicon ICs.

At very high frequencies, conventional transistors are limited by the speed at which charge carriers move through their semiconducting materials. That is not the case for vacuum tubes, leading to their continued use in microwave frequency systems.

The Agere device promises to combine the high frequency and power characteristics of vacuum tubes with the reliability and ease of production of silicon transistors.

Traditional vacuum tubes rely on thermionic electron emission from hot emitters. This limits their operational lifetimes and makes them difficult to miniaturize.

Some researchers have looked at smaller scale devices where the electron supply comes from 'Spindt tips,' arrays of metallic or silicon needle-like structures that emit electrons through geometric field enhancement as a result of their small tip radius.

But these devices have poor long-term emission stability because the tips spoil after long periods of use. To overcome these problems, the Agere team used carbon nanotube emitters, which offer high electron emission currents with stability superior to Spindt tip emitters.

These microtriodes are three-terminal devices with a similar design to three-terminal vacuum tubes, but they are created on a silicon substrate using micro-electromechanical systems (MEMS) techniques. The lateral arrangement of the gates results in a simpler and more flexible design than previous vertical structures.

Although the initial results are modest, the team believes its work represents a first step in the integration of modern MEMS fabrication techniques, new nanotube growth processes and mature silicon processing technologies. They expect improvements in device characteristics and stability to enable these devices to move into high-frequency, high-power electronics.

SONY DROPS PLAN TO INVEST IN PLASMA DISPLAY VENTURE

From EE Times June 6, 2002 Reprinted by permission.
June 6, 2002 (1:05 p.m. EST) <http://img.cmpnet.com/eet/v2/print_button.gif> <http://img.cmpnet.com/eet/v2/send_button.gif>

TOKYO (Reuters) - Sony Corp said on Thursday it had scrapped plans announced more than two years ago to take an equity stake in a joint venture that makes plasma display panels (PDPs) for the fast-growing flat-screen TV market.

The pull-out had long been a subject of media speculation after Sony repeatedly said it had not yet followed through on a plan announced in April 2000 to pay $40 million for a 15 percent stake in Fujitsu Hitachi Plasma Display, a joint venture between Fujitsu Ltd (6702.T) and Hitachi Ltd (6501.T), the world's largest PDP producer.

A Sony spokesman said the company would continue making plasma TVs and would purchase plasma displays from the Fujitsu-Hitachi venture as well as NEC Corp (6701.T) and other suppliers.

Plasma displays are considered the most promising technology for flat-screen TVs of 40 inches or more.

Research firm DisplaySearch estimates that global demand for plasma TVs will rise to nearly four million units in 2005 from less than half a million this year.

Competition has been heating up among plasma display manufacturers, with Matsushita Electric Industrial Co Ltd (6752.T) announcing last month it would spend 60 billion yen on a new plasma display plant, aiming to become the industry's leading supplier.

The Sony spokesman added that his company had no plans to develop PDP technology on its own.

Sony has been focusing much of its R&D effort in flat-screen TV technologies on organic light-emitting diodes (OLEDs), although mass-production of TV-sized OLED screens is not expected until well into 2003, at the earliest.

SLOW SCAN ATV…A local club is active!

I included the reference below because some of you may be also interested in slow scan ATV. If so, here is a local club that is actively involved in this. Enjoy! They've got a web site at http://www.qsl.net/n8tut/sstv/index.html. WA8RMC

Welcome to Central OhioSlow Scan Television Net Page (SSTV)
N8TUT: Doug Net Control
The net meets on the first Sunday of each month at 7:00 PM local time on the W8CMH repeater 145.49(-) 179.9 PL in Columbus, Ohio
Thanks to Trigg for the use of his machine. NEXT NET June 7th
[Click to Email Us!] E-Mail List [Click to view Schedule and previous pictures from our net] Schedule & Past Net Pics
[Click to view links to other SSTV Sites] IZ8BLY Hellschreiber
[Click to see comparison of SSTV programs.] Compare SSTV Pgms by WB8DQT [Cick to find out how to join e-mail list.] [Cick to find out how to join e-mail list.] W8BAP Chillicothe SSTV [Cick to find out how to join e-mail list.] IVCA Newsletters
There will be a new SSTV Net on the Chillicothe repeater 146.850 - (pl 74.4) the 1st Monday of each month at 8:30 pm
Web author AA8YY

MORE INFO ABOUT COLOR ON A B/W TV…Is there a way?

*As you may remember, Frank Amore, WA8HAK, brought attention to a strange phenomenon he discovered where it was reported that color information could be observed on a B/W TV set. The gentleman below read the article in the ATCO Newsletter last year and he too says it happens .He writes to Frank to report his findings. Read his comments below. Perhaps there **IS** something to it after all. You be the judge! WA8RMC*

Hi Frank!
As I may have said on the phone, your posting on the web put a valuable piece in the puzzle...Thanks. And as you might expect, the reaction was a bit strange, but as I described an experiment done by channel 13 in Huntington, I found myself getting more interested in finding out how it was done. However, after looking for more details on how the human eye end of all this works, it turns out there may be a practical use for this technique, too. More shows were in color every day; the incentive for such an alternate system quickly faded, and was even more quickly forgotten. I can't help but think that if Butterfield had today's technology available then, the system could have been improved considerably...and this is exactly what I am going to attempt. Not only is it fun reviving a lost bit of technology, but recent evidence shows that color-blind people can see subjective colors that they can't see through the eyes, so maybe, just maybe, the old Butterfield idea has some modern day merit after all. Whether I succeed or not isn't earth-shaking important...I'm gonna have fun either way! If I left out anything you are curious about, let me know I'll get right back to you...and as soon as I have any demonstration on tape, I'll share it with anyone seriously interested. Well, they are here to re-model the office, and are threatening to carry the computer and me out of here, so I better sign off. Keep in touch!
…George Russell wlx1430@yahoo.com

DAYTON HAMVENTION RESULTS…Are we loosing it?

Dayton Hamvention attendance dips again in 2002: Dayton Hamvention reports that attendance for this year's 50th anniversary event was 24,832--down about 5 percent from 2001's crowd of 26,151. The 2002 number marks the second year in a row that Hamvention attendance has dipped. Over the past five years, attendance numbers had climbed to 28,804 in 2000, the year of the ARRL National Convention at Dayton. Hamvention attendance peaked in 1993 at 33,669--before the event date changed from April to May.

NEW MEMBERS

Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are our group's lifeblood. It's important that we actively recruit new faces aggressively.
N8SNG Terry Rankin Findlay Ohio
KB8FLY Rod Shaner Columbus
W8CQT Jim McDonnell Columbus
…WA8RMC

CHANNEL 10 TOUR IS SCHEDULED

We asked Jay, KB8YMQ, if he could schedule another tour of WBNS Channel 10 like the one he helped to conduct about three years ago. He and the folks at Channel 10 agreed so the tour will be on Thursday July 25 at 7:00 PM. Meet in the parking lot in front of the studio. Refreshments supplied by Channel 10 will be served so a head count is needed. Let us know via the Tuesday night net if you plan to go. All members, spouses and friends are invited (how about the Dayton guys…are you interested?). We did this about 3 years ago and was a big hit so with the introduction of HDTV, it should be real interesting. See you then.
…WA8RMC

RED-WHITE-BOOM SECURITY

Again this year we helped the Columbus police by providing crowd observation video for the Columbus police. Since 911, security has become a major issue so it was a pleasure to be able to able to help out in our small way. Everything went according to plan with no significant equipment problems. This year we had 6 cameras from two separate locations trained at various portions of the fireworks crowd automatically switched by video switchers every 5 seconds or so. The remote camera location link was done on 2.4 GHz this year replacing the 1280 MHz link last year. (The 1280 unit was still available as a back up). I was surprised that my 50 milliwatt Wavecom was able to keep an interference free link about 2 miles distant in the face of high wireless Ethernet signals also present in the downtown Columbus area. It was a hot day and at times was difficult on the roof but was worth it. There were no reported incidents, which is what we strive for. Think about it for next year guys! We can always use more help. Now that I think about it, the only thing that didn't work up to expectations was the police helicopter 2.4 GHz downlink. The signal was better 15 miles away than it was within visual sight of the helicopter. We'll work on that one for next year.

In the picture above, Ed, KB8TCF, is watching the others go downstairs for a break. In the right background is the building to which we were sending the video.

That's me watching the monitor and sipping pop. The link antennas are in the background on top of an exhaust duct.

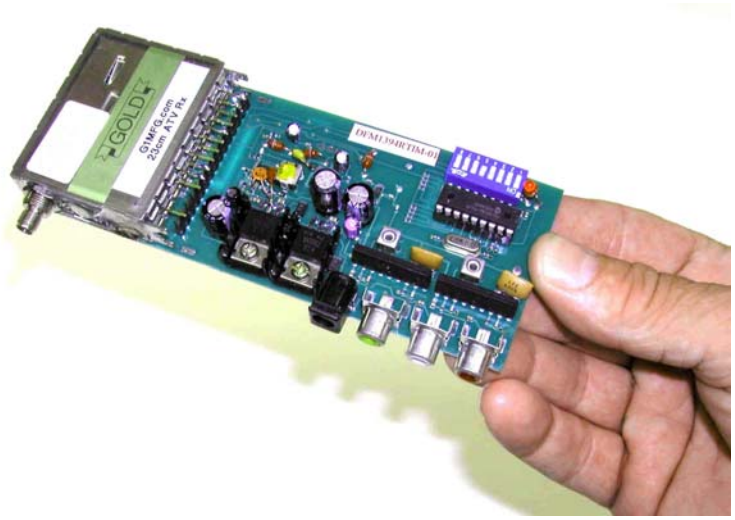
Below right is a shot of the crowd from our vantage point. The guys at police headquarters had the opposite view. Finally below right is some of the fireworks we all came to see. The display was better this year but the crowd was diminished. My guess is about 250,000. I suppose 911 and the hot day kept the rest at home.
…WA8RMC

23 AND 13 CM FM MODULES… A great way to get started in ATV!

I have had the great fortune of testing the modules for sale on the Internet at www.tvham.com. At that web site, Giles Read, G1MFG has 1200MHz and 2400 MHz modules for both transmit and receive. He even has LCD controllers that work with either the transmit or receive module for extended tuning of 800-1800 MHz receive and 1240-1320 MHz transmit for the 23 cm modules and 2200-2700 MHz receive and 2310-2450 MHz transmit for the 13 cm modules. Note that the transmit modules are capable of operating outside the USA Ham band so care must be exercised when working with these in the United States. PLEASE KNOW WHERE THE BAND LIMITS ARE. DO NOT OPERATE CLOSER THAN 8 MHz TO THE BAND EDGE. I don't intend to commercially endorse his products, only evaluate them as described. However, I personally purchased the 13 cm transmitter module previously and am completely happy with both the product and the speed with which it arrived…only 4 days which is quicker than most items coming direct from the USA.

The basic specifications of each module will not be covered here because they are adequately covered in the correspondence available on the web page. I will only cover the results of my testing along with operational notes worth mentioning. OK, with that said, let's get down to the individual module specifics.

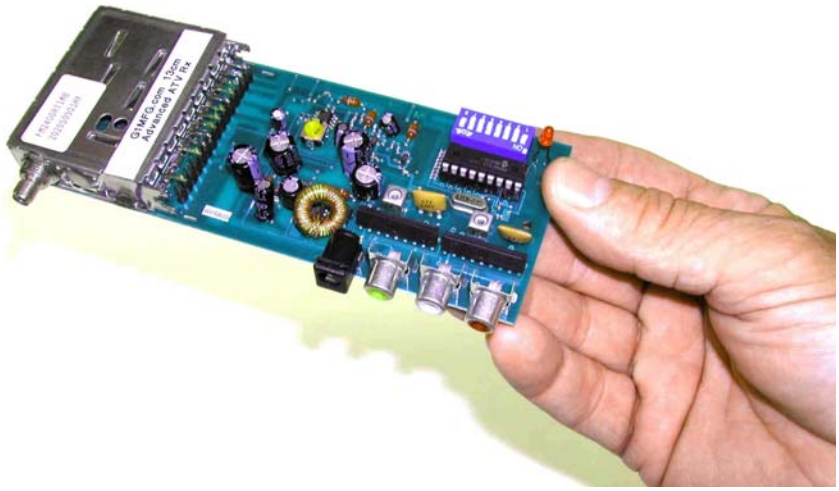
23 CM RECEIVER



The first module I tested was the 23 cm receiver. As stated, the module did in fact tune the range of 1240 to 1367.5 MHz in ½ MHz steps via an 8 bit DIPswitch. Since the tuning selectivity is very broad, a signal within 4 MHz of the center frequency is received almost as well as being directly on frequency as long as there is sufficient signal strength. So, the tuning steps of ½ MHz are nice but probably much finer than they need to be for most ham ATV use. If the signal is very weak however, the finer steps **will** help. If tuning in the "US Ham band only" is desired, I'd recommend a 4 bit 16 position binary rotary switch in place of SW3 to SW6 (or a decimal switch wired as binary – another subject) to cover 1240 to 1304 in 4 MHz steps. Locally, only 1250 MHz is needed to receive the ATCO repeater so the DIPswitch set to that position is just fine. If one wanted to look at 1280 MHz also (the repeater input frequency) only 2 switch positions change so that task could be handled with a single pole double throw toggle switch. I'm not trying to talk against the use of the LCD controller for it has its use and convenience but in some cases, it is not needed. A simple switch or none at all will do just fine.

The sensitivity of the "Gold" unit is nothing short of amazing. For testing, I have NOT added the needed de-emphasis network for good video so my observations will tend to make the signal appear slightly worse than it really is. (The Platinum receiver has the de-emphasis built in but I didn't test that one. I expect it has the same input sensitivity). To keep the test simple and easy to understand, I will not refer to microvolts or dBm in the details. (Reading between the lines, I don't have the professional equipment needed). Instead, I'll compare it to another receiver in the shack. The "Gold" receiver has about 10 dB more sensitivity than my best LNB downconverter. That is, I inserted an attenuator in the antenna line to my LNB receiver and adjusted it until I got a barely recognizable picture (P0 level). Then I swapped the LNB for the Gold receiver and had to add 10 more dB to get it down to the same point. Many of you are familiar with the PC Electronics 33/23 FMR receiver. The Gold receiver is 6 dB better than that one. I don't know what's inside of this little gem but it's got my vote.

13 CM RECEIVER

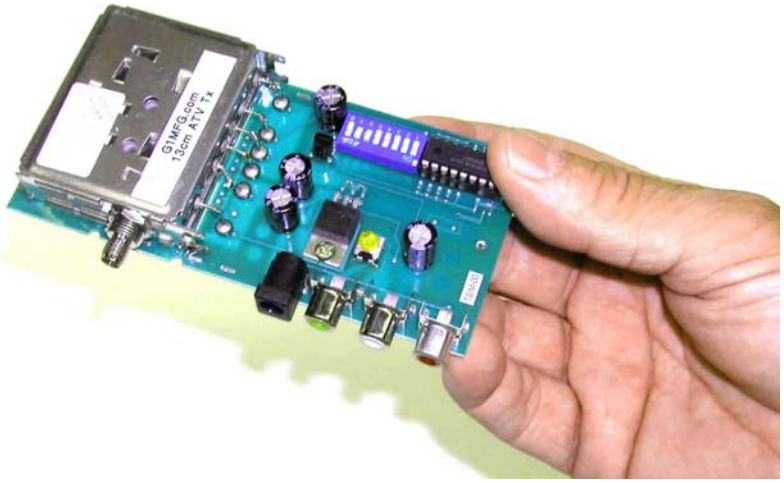


This module is very similar to the 23 cm unit described above except for frequency range. The DIPswitches cover 2304 to 2559 in 1 MHz steps, which can be extended with the LCD controller. It also incorporates a jumper feature to allow ½ MHz stepping but, as mentioned above, I see no real practical ATV use for this. This band presents some real adventure "snooping" however, for many commercial downlinks operate just below and above this Ham band. Many of the race car cameras as well as major sporting events use the 2450 to 2500 MHz portion so external tuning here may be desirable in a manner similar to that described above.

Again, the sensitivity really stands out. Most of you are familiar with the Wavecoms and Radio Shack units available. I have two Wavecoms and a Radio Shack unit which all have very similar sensitivity and this unit outperforms them by 10 dB. It's very impressive.

An overall note on the power requirements for both receivers is well worth considering. First, the acceptable supply to these units is 10 to 15 vdc. The 13 cm power circuit employs a switching regulator which is more efficient so the current is about 220 ma @10 v and about 165 ma @15 vdc. (Switching regulators draw near constant power) The 23 cm receiver on the other hand, has 9 and 5 volt linear regulators so a current of about 330 ma is nearly constant throughout the 10 to 15 volt range.

23 CM TRANSMITTER

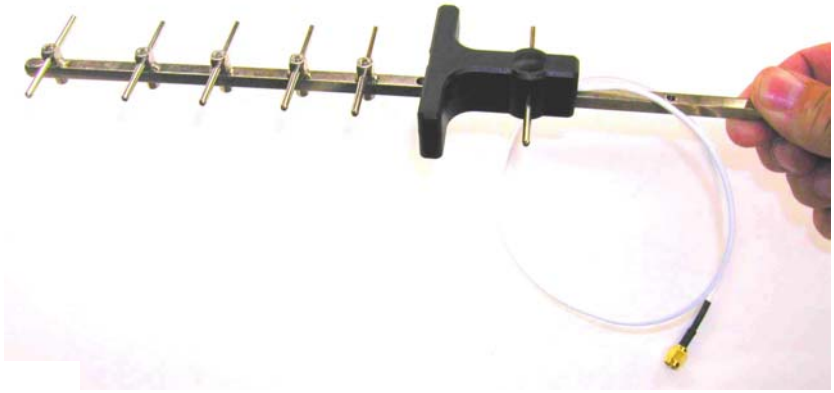


This module is smaller than the receivers and draws less current. It employs a linear 12 volt regulator so the minimum input voltage to maintain regulation should be no less than 14.5 vdc. Below that the regulator stops working so the voltage to the module will drop and power output will go down accordingly. The literature supplied says 12 vdc is minimum, and it works OK there, but you should stay above 14.5 vdc for a good stable output. A maximum of 18 vdc is OK however. At 15 vdc, it draws 140 ma making it very attractive for portable and RC applications and if a switching regulator was designed to replace the linear 7812 regulator, additional current savings could be realized. The unit tested has an RF output of 75 milliwatts @ 1250 MHz but I'm advised it could vary from 40 to 80 between units. (A second unit I have outputs 60 milliwatts). The output is very clean and has 6 and 6.5 MHz sound subcarrier. A pre-emphasis circuit is not included in this unit but a schematic is available on their web page.

13 CM TRANSMITTER

This module looks almost exactly like the 23 cm unit and draws approximately the same current of 140 ma. The RF output is 22 milliwatts @ 2400 MHz for the unit I had but can be between 20 to 30 milliwatts. The output variation from 2390 to 2450 is less than 5 milliwatts. As above, this unit has no pre-emphasis circuitry.

13 CM ANTENNA



The small yagi antenna I tested was very cute indeed and for its size, it performs well. However, my coffee can antenna shown below has the same gain and with a wider beamwidth. My outside range testing indicates 12 dBd gain. The description on the web page claims 13 dBi so I wasn't far off. The yagi beamwidth seemed to be less than 15 degrees whereas the coffee can maintained its gain for at least twice that. It's hard to get exact measurements with the short range test setup I had so if anyone tests these and finds them different, I'd like to hear about it. The coffee can antenna is easy to build in about 30 minutes and costs virtually nothing if you drink coffee. In addition, it comes with a ready made plastic radome if the re-sealable plastic lid is used. (I'm told that Folgers cans produce about 3 dB more gain than Maxwell House cans but have not been able to prove it!).

That's about it, folks! In summary, I feel that these units are well worth the investment and perform better than anything else I've seen on the market so far, including commercial equipment. A shortly to be completed project is to use the 23 CM module driving a Mitsubishi M67715 brick for about 2 watts output. A M68719 brick could be used instead for over 15 watts but costs more. Two watts should be plenty to access the ATCO repeater within the metropolitan area. When complete, I'll share the results.

For details about possible modifications and improvements to the boards described here visit G1MFG's web site www.g1mfg.com/website/mods.html. For parts orders in the USA use www.tvham.com.
…WA8RMC

INDUSTRY'S FIRST SINGLE CHIP MPEG-4 DVD DECODER LAUNCHED BY SIGMA DESIGNS…Watch for devices like this in ATV equipment!

By Paul O'Shea
From ChipCenter. Reprinted by permission.
http://www.chipcenter.com/analog/products_700-799/prod795.htm)

Sigma enters the consumer DVD decoder market and continues to set the mark for MPEG-4 firsts

The manufacturer says . . .

Sigma Designs, Inc., a leader in IP video streaming solutions, announced the industry's first single chip MPEG-2/MPEG-4 DVD decoder, and the company's entry into the consumer DVD player market. Sigma's new decoder chip, the EM8500, is the industry's first complete DVD decoder chip that provides decoding of full resolution MPEG-4 content and high definition progressive output, as well as a host of premium features designed to propel next generation progressive DVD players. Sigma Designs will showcase its EM8500-based DVD player this week at the Computex show in Taiwan.

With the proliferation of new standards, file formats and downloaded media from the Internet, users are now demanding more from their DVD players. Originally DVD players needed only to support standard MPEG-2 DVD video and CD audio, whereas next generation DVD players will provide more universal media support for video, audio and images, including:

- Playing MPEG-4 based movies and video libraries downloaded or encoded from a user's own sources-stored on a CD.
- Watching movies and images in progressive format, scaled to high definition for a premium entertainment experience on HDTV-ready televisions.
- Listening to MP3 or Windows Media Audio (WMA) based music and audio libraries.
- Viewing PictureCD-based digital photographs, stored on a CD in high definition format.

"MPEG-4 technology is currently finding widespread usage within many types of consumer devices, including DVD players," stated Dr. Masao Sugimoto, Executive Corporate Engineering Advisor of Pioneer Corporation and President of e-Box Corporation. "High Definition DVD playback is an excellent application for MPEG-4 and will be considered for standardization by the DVD Forum."

About MPEG-4

MPEG-4 is the next-generation digital video compression standard, enabling content developers to create sophisticated programs containing audio, video, text, graphics and interactivity. The object-oriented environment of MPEG-4 provides for complex scene compression at low bit rates or correspondingly small file sizes, making it ideal for either lower cost or higher resolution storage. Based on these advantages, MPEG-4 is beginning to make its way into all forms of set-top appliances, including media gateways, video endpoints, digital cable systems and now DVD players. Furthermore, through new authoring tools and services, MPEG-4 will enable a new class of interactive video to be utilized for broadcast, on-demand or published media usage.

Utilizing MPEG-4's compression efficiency for DVD or CD stored media, consumers will be able to enjoy high quality video content, stored in less than half the space currently required. Price-driven consumers are poised to embrace this advantage and record full-length two-hour movies on low cost CDs. This segment may include downloaded content available through DivXNetworks or user-created content such as the output from Panasonic's new MPEG-4 Digital Palmcorder (superscript: ®) MultiCam(superscript: (tm)) Camcorders. The premium user, seeking the benefits of high resolution viewing, is set to move on the likely adoption by the DVD Forum of an MPEG-4 based standard for high definition DVD. Both segments will also benefit from future content that employs the rich, object-based interactive capabilities.

The EM8500 Single-Chip Solution

The EM8500 series is a premium solution for DVD players, enabling manufacturers to easily incorporate support of MPEG-4, MP3, WMA and PictureCD content on top of progressive DVD-Video and audio CD playback. The convergence of these applications into a single cost-effective appliance represents a substantial benefit to the consumer.

Video decoding capabilities include MPEG-4, MPEG-2 and MPEG-1 compressed video formats. The MPEG-2 support includes high quality DVD decoding with CSS decryption and Macrovision protection. The MPEG-4 support is based on the Advanced Simple Profile and supports DVD resolution content. Any form of decoded content can be output in either progressive or interlaced format.

Beyond the normal decoding of content, the EM8500 offers a sophisticated scaling and scan conversion of standard video to various HDTV resolutions, which recreates many elements of cinema picture quality. Also supported is Kodak's PictureCD (JPEG) format for viewing digital photo content, which provides a substantially enhanced image when utilizing the high definition scaled output.

Audio capabilities also include Dolby(superscript: ®) Digital, Windows Media Audio (WMA), MPEG-1 Layers 1, 2 and 3 (MP3). Additional features include a flexible 8-bit full screen on-screen-display (OSD) capability with alpha blending and flicker filtering, composite and S-video TV outputs, interlaced or progressive analog component video outputs (YPbPr or RGB) scalable up to HDTV resolution, S/PDIF digital audio output and 5.1-channel audio analog outputs.

The EM8500 is designed around the system-on-chip concept with internal 150 mips RISC CPU, system interfaces, busses and control ports to implement a complete DVD player. Supporting a range of DVD drives, the EM8500 offers both IDE and DVD loader interfaces for use of either standard or lower cost proprietary devices. A built-in memory controller provides a direct interface of up to 16MB of SDRAM and 4MB of Flash. Additional interfaces include I2S, I2C, UART, 16 GPIO pins and front panel control.

"The inherent advantages of MPEG-4 technology are driving the emergence of new 'MPEG-4 Ready' products, which include a wide range of new set-top appliances," stated Ken Lowe, Sigma Designs' vice president of business development. "Sigma's introduction of the EM8500 DVD decoder supports this trend with a fully-integrated, feature-rich solution for next generation DVD players."

New DVD Player Reference Design

Along with the introduction of the EM8500 decoder chip, Sigma has announced the availability of its DVD-8500 DVD player reference design. The reference design represents a complete solution for enabling the rapid development of next-generation, MPEG-4 enabled, progressive DVD players that support playback of DVD-Video, Superbit(superscript: TM) DVD, VCD, SVCD, Kodak PictureCD, CD/CD-R/CD-RW (for audio, WMA, DivXTM Video, MP3 and MPEG-4 AVI files).

In addition to various supported formats, the DVD-8500 provides S-video or composite video (NTSC or PAL), interlaced or progressive analog YpbPr outputs with optional scaling up to HDTV resolution, dual stereo analog audio outputs and optical and coaxial S/PDIF digital audio outputs. It also offers an HTML-based user interface with 8-bit full-screen OSD with alpha blending and flicker-filtering. The reference design comes with the system board, software tools, schematics, layout files and documentation.
…Sigma Designs, Inc.: www.sigmadesigns.com

ChipCenter's Paul O'Shea says . . .

The back drop for this product is the increased demand for MPEG-4 products. Set top box (STB) and DVD manufacturers are now looking to make products with these Sigma Design-type next generation MPEG-4 chips. Sigma Designs recently introduced an integrated DVD player chip that has MPEG-4. The chip also has progressive scan (non-interlaced for you who speak computer monitor lingo), support for MP3, WMA, and picture CD, so it offers new media support. In the last year or so there have been a lot of higher-end DVD players coming out that support progressive scan, so now if you have an HDTV you won't have the flicker that is inherent in standard interlaced-type TVs.

The new EM8500 is aimed at the mid-range to premium type DVD players that will support all the new media, including MPEG-4. Having the MPEG-4 support means that you can download content or convert your VHS library to a digital video format or even convert your camcorder tapes to digital format. If you're like me you want to store it on a CD that can be played on a DVD player so you can take your home movie and watch it on the TV. You probably want to use your PC to burn the movie into a CD but unfortunately, none of the CD players support MPEG-4 - yet.

Before we go down the road to describe the technical merits of the product let's take a little detour and look at some of the issues revolving around standards and technology. Right now the DVD manufacturers are looking seriously at using MPEG-4 for the HD DVD standard. However, there is a contentious battle brewing between the next generation blue laser technology, which puts a lot finer detail on the disk and can support more resolution, but is a lot more expensive. One push in the DVD forum is to use the more expensive, higher technology route for high definition and using the HD MPEG-2 compression. The other faction wants to use the presently available red laser and the same technique to write on the disk. However, they want a more efficient compression format, which would be MPEG-4 or something of that ilk. Many smaller companies as well as big players like Apple, who announced support of MPEG-4 for their QuickTime 6 product, believe that MPEG-4 has a very probable function in the next generation DVD for high definition. But the votes haven't been tallied.

Sigma announced recently that they joined a seven-member joint venture, including Pioneer and Sharp, called e-BOX, to compete with the cable industry. ComCast, the number 3 cable company in the US sees MPEG-4 as viable, and has jumped onboard as the technical advisor for the group's first field trial. You might wonder why ComCast would be interested. It's simple, they are looking for a better compression scheme that gives them a 2:1 advantage in the number of channels they can put out in the same bandwidth. They can use either the available bandwidth to offer more channels or offer a similar number of channels at high definition. Additionally, the cable companies are being pushed to offer high definition by the FCC. They want the industry to offer HD format transmitted on cable and terrestrial, and then reallocate the bandwidth on the terrestrial. So cable companies are looking at whatever will give them a long term return on their investment, something like STBs with MPEG-4 would cost more initially but be in place longer. MPEG-4 also will be able to provide more interactivity than MPEG-2, as well better compression. For example, on TV you can dial up an information service and press different numbers for different information, which is what the current MPEG-2 is like for selecting a movie. MPEG-4 is more like a Website - you go to a Website and many of the objects are interactive, so as you interact with one it changes what you interact with next. This may be interesting for users but the ramifications for the advertisers are equally enticing because they could get interaction with potential customers during a movie.

The EM8500 is similar to the company's EM8470 but it also has an MPEG decoder chip that supports MPEG-2, and MPEG-4, and then has a RISC CPU, memory, controller interface, the IDE port to control the drive, and various I/O ports to control the various subsystems on a DVD player.

The EM8500 decoder chip does not require external chips. The biggest thing on the motherboard is the set of connections on the back. The board is about 6" by 6" and about one-third of the board is taken up by these chips, plus memory, and many connectors. About one-half of the board is consumed by connectors, the rest contains capacitors and other discrete chips. All you have on the board is the Sigma chip and two RAM chips, one ROM chip the EM8500 chip, and all the I/Os. So, when the standards finally settle down this chip will be there ready to offer the more enhanced features provided by MPEG-4.

The EM8500 decoder chip and DVD-8500 reference design will be sold through Sigma's direct sales force. EM8500 samples are available immediately with production scheduled for August. The DVD-8500 reference design is also available immediately.

Product brochure and product brief: www.sigmadesigns.com/products/em8500.htm

HAMVENTION ATV ACTIVITIES…Saturday session was a blast!

This year at Dayton was great. The generally smaller crowds, although a disappointment to some, made it easier to get around without bumping into someone. And, yes, we had some rain on Friday but it didn't dampen (pun intended) things too much. Saturday was sunny.

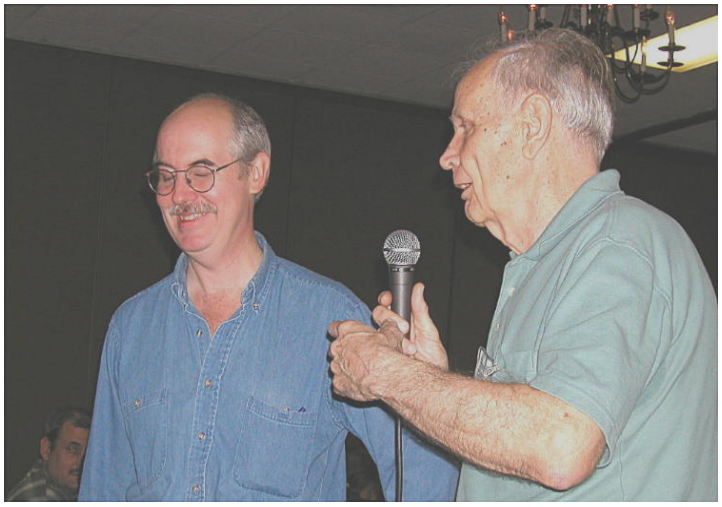
Our ATV flea market space was located great and those who had goodies there were able to sell most of it. With everyone's support, we'll do it again next year. If you review the financial statement toward the end of this Newsletter, you'll also find that financially it was a success. Because there is now added funds in the treasury, we need suggestions as how to spend it.

The Friday night session sponsored by ATNA was a mild success. The participation at dinner was much less than last year but that was partially due to the rain. The subject matter was interesting which kept us there until about 10:00 PM. I haven't heard how the Saturday night dinner went, as I was not there.

The Saturday afternoon session at the Hamvention hosted by Bill Parker, W8DMR as usual was very interesting and informative. Bill always keeps the audience's attention. Of special interest was a guy that showed up with his "rooster cam". Yes, you heard it right, he had a remote camera strapped to a live rooster which he proudly demonstrated. No one was expecting that so it was a very funny item.

Our Dayton flea market spaces on the left on Friday during rain and on the right on Saturday in the sun!

Below on the left is our host Bill Parker introducing Bill Brown WA8ELK about to talk about his balloon launch experiences. Below on the right is the guy (I can't remember his name) with his rooster Ramone equipped with his "rooster cam" . I wonder what he'll bring next year? He did promise to return with something special.



INTERNET ATV HOME PAGES (list verified 01/18/02)

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).
Note: The listings below without URL's have disappeared! If any of you know otherwise, let me know.

Domestic homepages

http://psycho.psy.ohio-state.edu/atco	Ohio, Columbus, homepage (ATCO)
http://www.activedayton.com/community/groups/rmeeksjr/index.html	Ohio, Dayton ATV group (DARA)
http://users.erinet.com/38141/atv.htm	Ohio, Xenia KB8GRJ
http://www.qsl.net/ka8mid	Ohio, Chilicothe area, KA8MID homepage
	Alabama - Gulf Coast Amateur Television Society
http://www.hayden.edu/Guests/AATV	Arizona, Phoenix Amateurs (AATV) Carl Hayden High School
http://www.w7atv.com	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://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
	Kentucky, Lexington Bluegrass ATV Society (BATS)
	Kansas, Kansas City Amateur TV Group (KCATVG)
http://www.bratsatv.org	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.icircuits.com/dats	Michigan, Detroit Amateur Television System (DATS)
http://come.to/amateurtv.mn	Minnesota Fast Scan Amateur Television (MNFAT)
	Missouri, St Louis Amateur Television
http://www.qsl.net/kd2bd/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.no3y.com/radio.html	New Mexico, Farmingham
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm	Oregon, Southern Oregon ATV
http://www.nettekservices.com/ATV/	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat	Pennsylvania, Phila. Area ATV
http://www.geocities.com/Hollywood/5842	Tennessee, East ATV
http://www.hats.stevens.com	Texas, Houston ATV (HATS)
	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
	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://lea.hamradio.si/~s51kq/	Slovenia ATV **(BEST OF FOREIGN ATV 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
	British Columbia, Canada VE7RTV repeater
	Auckland, New Zealand ATV
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
http://oh3tr.ele.tut.fi/english/atvindex.html	Finland ATV, OH3TR repeater.

INTERNET MISC HAM RELATED HOME PAGES (list verified 01/18/02)

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

http://www.hampubs.com/	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.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 call sign or name.
http://hamradio-online.com	Ham Radio Online "newsletter" Lot of Ham related info.
http://www.qsl.net/atna/	ATNA homepage
http://www.ham-links.org	Ham Radio collection database
http://fly.hiwaay.net/~bbrown/index.htm	Tennessee Valley Balloon launch info (Bill Brown WB8ELK)
http://www.ipass.net/~teara/atv4.html	Arizona ATV 2.4Ghz Wavecom page (Wavecom mod. info)
	Space Shuttle Launch Info Service & Ham TV System (LISATS)
http://www.svs.net/wyman/	Wyman Research Inc. W9NTP Don Miller ATV equipment
http://www.m2inc.com /	M2 Antenna Systems Inc.
http://www.dci.ca/amateur_radio.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.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.
http://gullfoss.fcc.gov:8080/cgi-bin/ws.exe/beta/genmen/frequency.hts	look up any frequency on the FCC data base.
http://www.fcc.gov/wtb/	Starting point from which all radio license holders can be found
http://www.labguysworld.com	Lab Guy Antique TV camera listing
http:\\www.earlytelevision.org	Antique television museum in Hilliard, Ohio
http://radioscanning.wox.org/Scanner/scanner.htm	Radio scanner info for all frequencies in Columbus, Ohio area.
http://www.labguysworld.com/	Television recorder history web page. Lots of tv info.

HAMFEST CALENDAR

This section is reserved for upcoming hamfests. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here, notify me so it can be corrected This list will be amended, as further information becomes available.

27 Jul 2002+OH-KY-IN ARS http://www.ohkyin.org Contact: Mr. Lynn Ernst, WD8JAW 10650 Aspen Place Union, KY 41091-7665 Phone: 859-657-6161 Email: wd8jaw@arrl.net Cincinnati, OH
28 Jul 2002+Portage ARC http://parc.portage.oh.us Contact: Joanne Solak, KJ3O 9971 Diagonal Road Mantua, OH 44255 Phone: 330-274-8240 Email: ljs@config.com Randolph, OH
3 Aug 2002+Voice of Aladdin ARC http://www.qsl.net/w8fez Contact: James Morton, KB8KPJ 6070 Northgap Drive Columbus, OH 43229-1945 Phone: 614-846-7790 Email: kb8kpj@cs.com Columbus, OH
4 Aug 2002*Kentucky State Convention Bluegrass ARS http://www.bluegrassars.org/ Contact: John Barnes, KS4GL 216 Hillsboro Avenue Lexington, KY 40511-2105 Phone: 859-253-1178
4 Aug 2002+Northwest Ohio ARC Contact: Mike Nichols, W6MDN 6237 Ottawa Road Cairo, OH 45820 Phone: 419-641-5623 Email: w6mdn@hotmail.com Cairo, OH
17 Aug 2002xPortsmouth Radio Club Contact: Kim Lozier, KJ8WW 2400 Woods Ridge Road Portsmouth, OH 45662 Phone: 740-456-1616 Email: kj8ww@zoomnet.net Friendship, OH
18 Aug 2002+Warren ARA http://hamgallery.com/warren Contact: Renee McCaman, KB8SVF 317 Raymond Avenue NW Warren, OH 44483 Phone: 330-847-8478 Email: mccaman@cboss.com Warren, OH
8 Sep 2002+Findlay Radio Club http://www.findlayradioclub.org Contact: Bill Kelsey, N8ET PO Box 587 Findlay, OH 45839 Phone: 419-423-4604 Email: kanga@bright.net Findlay, OH
22 Sep 2002+Greater Cincinnati ARA http://CincinnatiAmateurRadio.com Contact: Jim Weaver, K8JE 5065 Bethany Road Mason, OH 45040-9660 Phone: 513-459-0142 Email: k8je@arrl.net Cincinnati, OH
22 Sep 2002+Hamfest Association of Cleveland http://www.hac.org Contact: Hamfest Assn. of Cleveland PO Box 81252 Cleveland, OH 44181-0252 Phone: 1-800-CLE-FEST Email: info@hac.org Cleveland, OH
6 Oct 2002+Medina Two Meter Group http://www.qsl.net/m2m Contact: Michael Rubaszewski, N8TZY 4264 Alpine Hill Court Brunswick, OH 44212 Phone: 330-273-1519 Email: n8tzy@m3net.net Medina, OH
27 Oct 2002+Massillon ARC http://www.qsl.net/w8np Contact: Terry Russ, N8ATZ 3420 Briardale Circle NW Massillon, OH 44646 Phone: 330-837-3091 Email: w8np@qsl.net Canton, OH

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 30 minutes showing ATCO & W8RUT on four different screens
Transmit antennas:	427.25 MHz - Dual slot horizontally polarized "omni" 7 dBd gain major lobe east/west, 5dBd gain north/south
	1250 MHz - Diamond vertically polarized 12 dBd gain omni
	2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
Receivers:	147.45 MHz - F1 audio input control of touch tones
	439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
	915 MHz - F5 video link data from remote sites
	1280 MHz - F5 video input
	2398 MHz - 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
	2398 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

	Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
Input control:	00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
	00*	turn transmitters **on** (enter manual mode -keeps transmitters on till 00# sequence is pressed)
	264	Select Channel 4 doppler radar. (Stays up for 5 minutes) Select # to shut down before then.
	697	Select Time Warner radar. (Stays up till turned off). Select # to shut down.
Manual mode functions:	00* then 1 Ch. 1	Select 439.25 receiver - manual mode (hit 00* then 1 to view 439.25 signal only)
	00* then 2 Ch. 2	Select 915 receiver - manual mode
	00* then 3 Ch. 3	Select 1280 receiver - manual mode
	00* then 4 Ch. 4	Select 2411 receiver - manual mode
	00* then 5 Ch. 5	Select video ID - manual mode (the 4 identification screens)
	01* or 01#	Channel 1 439.25 MHz scan enable (hit 01* to scan this receive channel & 01# to disable it)
	02* or 02#	Channel 2 915 MHz scan enable
	03* or 03#	Channel 3 1280 MHz scan enable
	04* or 04#	Channel 4 2411 MHz & camera video scan enable
	A1* or A1#	Manual mode select of 439.25 receiver audio
	A2* or A2#	Manual mode select of 915 receiver audio
	A3* or A3#	Manual mode select of 1280 receiver audio
	A4* or A4#	Manual mode select of 2411 receiver audio
	C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
	C1* or C1#	427.25 transmitter power output select (C1* = 40W output power or C1# = 1.5W output)
	C2* or C2#	2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)
Auto scan mode functions:	001	2411 receiver (normal mode - returns to auto scan)
	002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
	003	Equipt. room camera (select 001 when finished viewing camera so repeater will shut down**)**

CAMERA CONTROLLER KEYPAD FUNCTIONS

002 = ENABLE CAMERA Note: sometimes enter 003 for room cam then 002 for roof cam is better.

001 = RETURN TO NORMAL

FOCUS 1	ZOOM 2	APER-ATURE 3	DISABLE AAA A
FILTER (4 STEPS) 4	TILT 5	PAN 6	ENABLE B
IN/RT/DN 7	8	INC SPEED (PAN/TILT) 9	C
OUT/LF/UP *	0	DEC SPEED (PAN/TILT) #	D

OK, that's it folks. Play with it to your heart's content. Oh, one more thing. Use the camera in the repeater automatic mode only. If you access it in repeater manual mode, the first time you hit a function button, the controller thinks you want another input and shuts it down. In auto mode hit "002" to enable the roof camera and "001" when finished to return the controller to the 2400 MHz input. Since there will be no 2400 MHz signal, the repeater will then shut down. Use the keypad diagram at left as a function reference. Cut it out and paste it beside your keypad if you prefer. Thanks to Dale, WB8CJW, for the handy work.

ATCO MEMBERS AS OF 18 July 2002

Call	Name	Address	City	St	Zip	Phone	URL
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	Oh	43224-3011		sdiggs4590@aol.com
K8AEH	Wilbur Wollerman	1672 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	kc8asd1@aol.com
W8CQT	Jim McConnell	350 N. State Road	Deleware	Oh	43015-9644	740-363-1008	w8cqt@arrl.net
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	Oh	43065	614-210-0551	delshoff@columbus.rr.com
WA8DNI	John Busic	2700 Bixby Road	Groveport	Oh	43125	614-491-8198	jbusic@copper.net
W8DLB	Denny Beardmore	PO Box 313	Bethesda	Oh	43719-0313	740-484-4822	dlb@1st.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	Oh	42616	419-691-1625	
WA3DTO	Rick White	5314 Grosbeak Glen	Orient	Oh	43146	614-877-0652	wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	Oh	43026	614-876-6033	wb8dzw@aol.com
KB8FLY	Rod Shaner	124 West Walnut St.	Lancaster	Oh	43130-4344	740-654-5694	rshaner@copper.net
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	Ky	40511	606-253-1178	jrbarnes@iglou.com
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	Oh	43147		
KA8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Oh	44305		
KC8HCE	Adam Porr	6825 Ridgeway Ct.	Pickerington	Oh	43147	614-837-6489	Kc8hce@arrl.net
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	Oh	43026	614-777-4621	
W3HMS	John Jaminet	912 Roberts St	Mechanicsburg	Pa	17055-3451		w3hms@aol.com
N8IJ (ex w8jnd)	Richard Knowles	2318 Britt Ave	Lima	Oh	45806		
WD8ITF	Larry Fields	953 W. Hopocan Ave	Barberton	Oh	44203-7007	330-825-7148	lfields@neo.rr.com
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	Oh	43221-5207	614-771-7259	mjgilbert@wcom.net
K4KLT, KD4ODQ	Bob & JoAnnSchmauss	P.O. Box 1547	Land O' Lakes	Fl	34639-1547	813-996-2744	schmauss@att.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	Oh	43223	614-276-1820	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		deverterhf@dejazzo.con
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	Oh	43123	614-871-0751	phumphries@columbus.rr.com
WB2LTS	Manny Diaz	8 Pearl Ave	Holtsville	Ny	11742-1711		wb2lts@worldnet.att.net
KC8LZC	Tom Walter	15704 St Rt 161 West	Plain City	Oh	43064	614-733-0722	kc8lzc@go.com
W8MA(ex wa8tte)	Phil Morrison	154 Llewellyn Ave	Westerville	Oh	43081		
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	Oh	45660		ka8mid@qsl.net
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	Oh	43026	614-876-2127	rtournou@columbus.rr.com
WD8OBT,KB8ESR	Tom Camm & sons	1634 Dundee Court	Columbus	Oh	43227	614-860-9807	
N8OCQ	Robert Hodge	PO Box 23473	Columbus	Oh	43223	614-875-7067	
N8OPB	Chris Huhn	146 South Hague Ave	Columbus	Oh	43204	614-279-7577	
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	Ca	91007-8537	626-447-4565	tom@hamtv.com
W2OTA,WA2DTZ	Michael Chirillo	942 Bruce Drive	Wantagh	Ny	11793	516-785-8045	
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	Oh	43228	614-274-7261	kilowatt@biundo.org
WB8PJZ	Dave Morris	2323 Allentown Road	Lima	Oh	45805	419-226-6997	dave@towercomminc.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	Oh	43201	614-421-1492	jeasley11@hotmail.com
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	Oh	43154	614-474-3884	rgburggraf@juno.com
K4PRS	Peter R. Sinkowski	4532 W Kennedy Bl #114	Tampa	Fl	33609-2042		k4prs@yahoo.com
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	Oh	43081	614-891-9273	towslee1@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	Oh	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	Oh	43081	614-882-6527	
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	Oh	43224	614-261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	Oh	45334	937-964-1185	w8rvh@glasscity.net
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	Oh	43617		zehrw@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	Oh	43119	614-878-0575	kb8rvi@hotmail.com
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	Oh	43204-1904	614-276-1689	rrector677@aol.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		
W8SJV	John Beal & family	5001 State Rt. 37 East	Deleware	Oh	43015	740-369-5856	w8sjv@midohio.net
N8SNG	Terry Rankin	414 Walnut Street	Findlay	Oh	45840		
W3SST	John Shaffer	2596 Church Road	York	Pa	17404		w3sst@juno.com
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	Oh	45040		
KB8TRP,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	Oh	43223	614-272-5784	ed@fastpc1.com
W8TZ	Ross Hatfield	47 Wildflower Lane	Chillicothe	Oh	45601	740-774-2777	w8tz@qsl.net
KB8UGH	Steve Caruso	6463Blacks Rd SW	Pataskala	Oh	43062-7756	740-927-1196	mixter.1@osu.edu
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	Oh	43338	419-947-1121	
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	Oh	43162	614-879-7482	
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	Oh	43212	614-297-1328	wa8uzp@qsl.net
WB8VJD	Rick Morris	203 Merton Street	Holland	Oh	43528		wb8vjd@glasscity.net
KB8VUQ	Jack Wolff	2682 Hiawatha Ave	Columbus	Oh	43212	614-263-4816	kb8vuq@arrl.net
W2WIA,KA2EVC	Ed & John Kuligowski	63 Connecticut Ave	Massapequa	Ny	11758	516-541-3172	w2wia@netscape.net
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	Oh	43062	740-927-3883	hiramhunter@aol.com
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	Oh	43223	614-272-8266	mmgriggs@aol.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	Oh	43064		
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	Oh	43229	614-882-0771	
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	614-836-3519	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. As an option for those joining after mid July, they can elect to receive a complementary October issue with the membership commencing the following year Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT
Secretary: Frank Amore WA8HFK
Corporate trustees: Same as officers

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: (open)
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. Or, if you prefer, pay dues via the Internet with your credit card. Go to www.tournoux.com/~atco and fill out the form. Payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no PayPal involvement.

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

OPENING BALANCE (01/18/02)..... $1203.28
RECEIPTS(dues)..... $ 250.00
OTHER INCOME (bank interest)..... $ 9.94
Flea market sales at Dayton..... $ 145.00
Donations from KC8LZC, KB8YMQ, KA8ZNY,K8AEH for items sold at Dayton..... $ 110.00
January and April Newsletter postage..... $ (79.80)
Hamvention space rental..... $(285.00)

Pay Pal
charges……..…….$(1.18)
Spring Event food ……..……..…$(113.74)
Check cashing
charges……...….$(1.00)
CLOSING BALANCE (07/18/02).....….…..….....….....……...……...$1237.50

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

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK MAILING LABEL FOR THE EXPIRATION DATE AND SEND N8NT A CHECK IF EXPIRED.