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

Our featured Ham this time is Tom, KC8WRI. Tom and Jeff, K8TPY, seem to be running neck and neck as to how much ATV stuff they can accumulate in the shortest amount of time. After seeing Tom's shack, I'm not sure just who is ahead at this point. Let's see…Tom's got 10 GHz up and running and Jeff doesn't. But Jeff *almost* has 2.4 GHz working and Tom doesn't. Hmmm, we'll see what happens.

Tom's ham shack is quite impressive. In reality, it's the entire back of a four car sized extra deep garage fitted with a carpeted bench for the ham gear. This is definitely not a "garage" type of atmosphere. Even though cars reside there, it's insulated, heated and air conditioned to make the Ham experience a pleasure. Nice job, Tom.

ACTIVITIES ... from my "workbench"

OK, another three months has gone by since the last time I sat here and it only seems like 3 weeks. I just don't know where the time has gone. It seems that the older I get, the less time is available to get things done. I can't figure it out. Back in my "hot rod" days (see, I'm dating myself already) I had plenty of time to work on cars, do schoolwork, date girls and still have time left over for Ham activities. Well, maybe after I'm retired, I'll have plenty of spare time to do the things I want! (I'm told it doesn't work that way). So much for the dreaming part…now to the Ham stuff.

I don't want to dwell too much on the ATCO-DARA repeater link as I've covered it well in previous publications. Work is going slowly because of other things that got in the way but I did get a 900 MHz antenna purchased at Dayton for use at the South Vienna site. DARA also bought one for use on their repeater site pointing toward South Vienna. Jessie, KB8OFF, Dick, W8RVH and I plan to meet someplace between here and Dayton to discuss progress. More news will follow.

The digital ATV transmitter is almost ready to install. I've got it mounted in a rack chassis but lacking some wiring details, it's not complete. We're trying to get more information about the PCB so we set it up for the correct format but until the supplier furnishes us with the details, we'll have to move on to other tasks. More later.

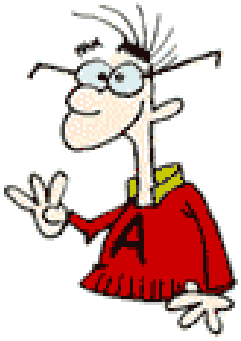
A significant problem surfaced at the repeater lately. It seems that the 146.76 receive link located in the cabinet next to ours is picking up our 446.350 signal but only when our 427.25 ATV signal is on the air at the same time. Since the 446.350 1 watt transmitter is located in the same shielded box that houses the Mirage D1010 amp, I suspect some sort of mixing between the two signals to produce a spur on 449.985 which is their link frequency. I know the Mirage amp is not the cleanest amp in the world (actually it probably is one of the poorest) so I intentionally installed it in an RF tight box from its inception in 1994. The problem did not start overnight but continually got worse till it could not be tolerated. I was going to re-work the link transmitter anyway so it was a good opportunity to finish something I started. I redesigned the link transmitter and put it in it's own rack chassis and increased the output power to 5 watts from the original 1 watt. We still have some minor audio problems but it's a vast improvement both in signal strength and non-interference with our neighbor. I have incorporated a 449.350 receive input also but that portion is disabled due to reception interference problems at this time. When we can isolate the source of the interference, we'll be better equipped to deal with it.

Another issue that took a significant amount of time was preparing for and participating in our security video coverage of the Fourth of July fireworks "Red-White-Boom" display on July second. I spent some time with the Columbus police installing and testing a digital video RF link from their helicopter to our system, which was then linked to police headquarters. The video link was a success but the police were less than impressed because they didn't understand some of the difficulties. For instance, they thought the link wasn't working when they saw a blank screen but they didn't realize that the helicopter with the TV transmitter had to land once in a while to re-fuel. Also they said the video looked washed out. Well, the day was very hazy and the helicopter was usually a mile away from the crowd so shooting video through haze would yield a low contrast picture. We explained this later, which they then understood. All other aspects of our adventure went quite well. See pictures of the event further into this Newsletter.

Finally, nestled into my backlog is to repair some of the antenna measuring equipment for the upcoming Antenna Party at Ted's house on Sunday July 25th. We hope to be able to get the antenna plotter working but if not, we will still gather, have pizza, drink pop and tell stories about the ones not present. (Isn't that the way it is supposed to work?) At the very least, we will have equipment to measure forward gain for antennas on 439, 1280, 2400 and possibly 10 GHz. Don't forget, Antenna Party, N8KQN QTH, July 25 @ 1:00PM. See you there.

One last thing. I have the feeling I messed up somewhere and incorrectly logged someone's dues record. It's probably my fault and the bucks stops here but please check your mailing label expiration date in the upper right corner. If you feel it is incorrect, inform me for a correction. To everyone else, if the label shows 12/03, you need to send us your dues for 2004. Thanks.

That's all for now, guys. Hope to have more to report next time.
…WA8RMC



SYNCHING LUCY'S LIPS WITH TV SOUND

Junko Yoshida **EE Times** April 19, 2004 (2:08 PM EDT)

PARIS — In movie theaters of yesteryear, it was not uncommon for the audio and picture to be out of synch, with the silver-screened actors' mouths moving and sound coming a half-second or more later. It was amusing until it became annoying, and patrons invariably yelled out to the projectionist, who restarted the film. Technology eventually solved that problem, but in a bizarre piece of irony, the technology has gotten so sophisticated that the problem has resurfaced.

TV makers have only recently begun to recognize the problem of audio information being asynchronous with lip movement on flat-panel TVs, realizing that it could become a bigger issue as sales of flat-panel displays start to take off on the consumer market. Average CRTs do not have audio and video synchronization problems because the time needed to process video and audio — thousandths of a second — is about the same, said Stefan Hepp, director of marketing of consumer audio at Micronas GmbH (Freiburg, Germany). But when advanced TVs, LCDs and plasma displays add enhanced picture-improvement functions like deinterlacing, motion-adaptive conversion and scaling, the result is video processing that takes more time than audio processing, he said. So audio processing time must be adjusted to match the video.

Observers estimate that two-thirds of flat panels — except for low-end versions — will need a lip-synching device. Some display vendors are said to be unaware of the potential problem and some simply prefer to deny it. Others, forced to look more closely, have just started, reluctantly, to acknowledge the lip-voice lag. That could blow into a bigger issue among consumers, Hepp cautioned, after "consumer test magazines begin to make measurements on the audio and video asynchronous problem." Paul Martin, marketing manager for digital TV systems at Philips Semiconductors, agreed. Video-processing delays "started to become a problem on LCD displays recently," he said. While LCD displays could introduce video delays with 15- to 20-millisecond response times, memory-based video-processing algorithms, often used in mid-to high-end displays, could also add visible video delays, he explained. Combine the two and, "You could have a considerable delay in video — more than 100 milliseconds in some cases. "While the large high-end PDP or LCD panel markets can certainly afford an additional chip or high-end SoC with audio delay functions, the real emerging battleground is the midrange LCD or PDP market, where the cost adder for a 30- or 40-inch flat panel is not trivial and where the technological problem (or cost of the solution) could stall a promising market.

Micronas' Hepp cited "motion-adaptive conversion," "scaling" and "deinterlacing" as three main sources of video delays built into TV electronics. He also said that some plasma displays, which need to put data into internal memory before lighting the panel, could introduce 20 to 60 milliseconds of delay. Overall system-level video delay can vary among flat-panel displays, because system vendors often mix different types of scalers or deinterlacers. The industry does not agree, however, on the threshold at which audio/video asynchronization becomes a problem. How many milliseconds will it take a consumer to notice that Lucy's lips aren't catching up to her words? And how long before the consumer gets irked?

A test by a German university late last year found viewers began to notice things were "a little strange" at 20 ms, said Hepp. A 30-ms delay began to irritate them. Beyond 30 ms, they said, "I don't want to have this on my TV. "Meanwhile, Philips' Martin believes the delay only becomes noticeable at 100 ms. While no objective data is available, Philips, reportedly in consultation with customers, has decided a 50-ms delay is the threshold. "When the delay is below 50 ms, nobody will be able to see it," Martin said. Meanwhile, iSuppli Corp.'s principal analyst, Shyam Nagrani, cited a far lower number. "It can be a big problem if the deinterlacing delay is greater than one field, i.e., 16.6 ms," Shyam said. "Different deinterlacers use two, three, four or five fields. Most of the deinterlacers use only two fields. It means that the delay is little more than one field."

Micronas will introduce two devices, both leveraging on-chip RAM to delay audio information to keep lip movements in synch. One is a programmable delay function integrated onto the company's Multistandard Sound Processor family. The other, a standalone audio delay chip, integrates a controller and RAM. Micronas targets the fast-growing, mainstream flat-panel TV market segment with its Multistandard Sound Processor chip, called MSP 44/46xyK, featuring the new on-chip delay functionality. Delay time can be programmed to up to 80 ms (mono) or 40 ms (stereo), the company said. If longer delays are needed, Micronas' Hepp said, OEMs can use a new standalone audio delay IC, called MAD 4868A. It can function as a companion chip to Micronas' sound processor or anyone's audio DSP. The configurable delay time in such a setup is between 680 ms (mono) and 85 ms (eight channels). To optimize cost, there is no active component on the MAD 4868A, Hepp said.

Alternatively, OEMs can address lip sync with separate chips — an external RAM and a RAM controller. "That would require as many as 40 connecting wires to connect the two. There are also significant EMC issues," Hepp said. Both chips are available in samples today with volumes scheduled for early summer. While Micronas has taken the on-chip RAM approach to delay the audio and solve the lip-synching problem, there are different approaches.

Philips, for one, "fixed the problem," said Martin, via a system-level design by tweaking video enhancement software to minimize delay while adding a new feature — which automatically delays audio to match video — to its high-end Nexperia Home Entertainment Engine: the PNX8550. The IC, unveiled last year, is a system-on-chip TV that supports all digital and analog TV standards; CRT, LCD and plasma displays; 100-Hz progressive-scan video; high-definition video decode and display and many picture-enhancing features. Because audio/video processing is on the same chip, sharing the same memory, Philips did not have to

integrate more memory for audio delay, Martin said. "Although we haven't heavily advertised it, lip-synching is one of the features on PNX8550." Digital TVs using PNX8550 are expected to reach the consumer market later this year. Meanwhile, there's an even simpler solution, said iSuppli's Shyam. That is "to use two-field deinterlacing where the video quality is almost as good as three- or four-field processing." Most customers could not tell the difference between two- or three-field processing, Shyam said. "So in the interests of costs and complexity we stuck with two-field deinterlacing."

INTERMITTENT RELAY CONTACTS…food for thought!

*As many of you know, I was searching for the elusive intermittent with our 70 cm repeater a while ago. As I recall, the problem turned out to be an intermittent crystal socket pin, but Tom O'Hara points out that the crystal **relay** contacts in old equipment become intermittent and deserve attention. He has some good advice with his explanation below. ED.*

Tom explains:
"Art, you talk about an intermittent problem with a PC Electronics 427 transmitter. From what you wrote, it sounds to me like a crystal relay with dirty contacts. Not unusual for one that old since the relay is dry switched between the crystals and especially in your application where it never gets switched. I suggest soldering in a short buss wire jumper from the selected crystals relay pin to ground. Don't put it on the crystal socket, it might fall out and you will never find it. I might suggest you run my "Dirty Relay" app note (see below) in the next ATCO Newsletter in case others in the group experience the same problem".
…Tom O'Hara W6ORG P. C. Electronics www.hamtv.com 626-447-4565 m-th 8 AM to 5:30 PM

As equipment age, relay contacts that do not switch much current, may become oxidized and increase in resistance. These include the two frequency crystal relay on the transmitter board and the receive side of the DC power relay on the T/R relay boards.
Crystal Relay:
If the transmitter becomes intermittent after a number of years and you can bring it back to life by tapping on it, it is most likely a dirty relay contact. You can check it with an Ohmmeter and if it is more than a few Ohms, you need to clean it off. This is easy to do. Get a 10 Ohm 10 Watt resistor from Radio Shack - 271-132. Unplug the crystals. Plug one end of the resistor into the relay side of the crystal socket you are cleaning - careful not to connect to the oscillator transistor base side. Turn on the transmitter. Clip lead the other side of the power resistor to the +13.8V and quickly flip the F1/F2 switch back and forth a few dozen times and disconnect before your fingers get too hot to handle the resistor. Repeat with the relay side of the other crystal socket. This will put about an amp of DC current through the relay and as it makes and breaks, will burn off the oxide layer that has built up. If this does not solve the problem, the oscillator trimmer cap, C1 may need to be re-peaked. Aging, especially if the user is a smoker, can cause the trimmer cap plates to be come coated with foreign matter and change capacity. Just re-peak C1 with a DC voltmeter at the oscillator test point as specified in the manual.

Power Relay:
If your downconverter receive frequency drifts more than one number on the tuning knob, it maybe due to low DC voltage applied to the board. Check with a DC voltmeter on the trace where the red lead enters the TVC-2G down converter board or the top of the zener diode connected to that same trace. The DC voltage should be the same as measured on the switch side of the fuse with in 1/2 volt.
If the voltage is less than 11 V dc and there is more than 11.5 V on each side of the fuse, then it is most likely that the power relay on the DMTR board has dirty contacts. Most of the time the contacts can be burned off by putting at least 1 amp thru them while switching back and forth a dozen times. Take a 10 ohm 10 watt resistor and with the power off touch one lead of the resistor to ground and the other to the trace with the red wire and zener diode on the down converter board. Then turn the power on switch to on and quickly switch the transmit toggle switch on and off a dozen times before the resistor heats up too quickly to hold on to.
To put more current through the relay contact in order to keep them clean in the future, cut the lead from the green power on lamp that connects to the power on toggle switch, strip it 1/4 inch and solder to the red wire/zener trace on the down converter board.
…Tom O'Hara W6ORG P. C. Electronics www.hamtv.com

ANTENNA PARTY…come one, come all!

Attention! We will have our 5th??? Annual antenna party at Ted's place, N8KQN, on Sunday July 25 starting at 1:00PM. Check the ATCO bulletin board for directions if you have never been there. Bring your 439, 1280, 2400 or possibly your 10GHz antenna for a quality check. Bill Parker, W8DMR, is working on the antenna position controls so we could have the pattern plotter working by then. Also, Bill plans to attend so we can get some real good design advice. Even if you have no antenna to check, come and join the various discussions. (Be cautioned that we talk about the ones who don't show up so be there and minimize the gossip!)

We will have a few pizzas to chew on and pop to drink while we talk but if you'd like to bring some "munchies that would be great. See you there.

PS: Can someone validate the 5th annual part? I'm not sure if it's 5 or 6.
…WA8RMC

S-VIDEO TO COMPOSITE VIDEO ADAPTER

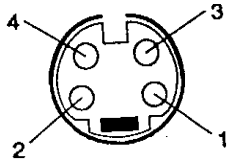
This simple adapter can be used to convert Y/C video (S-video) to a composite video. It is useful in cases where your video output device has only S-video output but your signal source accepts only composite video input. This circuit works with both PAL and NTSC video standards.

Y-ground----------+
+---------- RCA/composite ground
C-ground----------+

Y----------+
+--------- RCA/composite video
C----------||----------+
470pF

This circuit can be quite easily build inside the S-video connector case if a physically small size 470 pF (ceramic) capacitor is used. Larger capacitor values will also work, but cause picture to become "softer". The voltage rating of capacitor can be 10V or more. This circuit works in practice quite well even though the circuit operation is not ideal. This means that impedances and signal levels not matched exactly right, but near enough to work acceptably. The picture quality you get from this circuit is good, but not as good as with best possible composite video output circuitry. Here is the pin out of the S-video connector shown from the end with the FEMALE PINS (picture is a view on the equipment back/front panel):

1 Y ground
2 C ground
3 Y (luminance+sync)
4 C (chrominance)



What if my PC graphics card has a 7-pin S-video connector instead of 4-pin?

The four pin S-video connector as shown above is the standard connector for carrying S-video. Those seven pin connectors seen on some PC graphics cards are non-standard connectors for carrying S-video. The use of the pins on those seven pin connectors is not standardized and can vary from manufacturer to manufacturer. (For some strange reasons some manufacturers in PC industry just keep constantly breaking the industry standards and create lots of confusion to users when doing so).

Generally the four pins on those 7-pin connectors on the same places as the standard four pin S-video connector have practically always the same functionality as those pins in S-video connector. The other three pins can have then some extra signals, which are not part of S-video (usually some pins of those carry composite video and some control signals, but the use of those three extra pins vary quite much). So if you encounter 7 pin connector for S-video, then forget the three center pins... just use the four on the standard positions. The circuit should work with those connectors as well.

Can the circuit used the other way?

If you try to connect the circuit in opposite way so that you have a composite video signal that you want to feed to S-video input then you might wonder would this circuit work also in that way. The answer is that the circuit sort of work also in this way. If you connect a composite video source to a S-video input of your TV using this circuit, you will get a full color picture on your TV screen. The downside of this is that the picture quality will be worse than if you were using the real composite video input of your TV. The reason for this is that after the circuit the color information is still in the brightness signal, you see some interference on the screen caused by color subcarrier which gets to the screen. This all means that you can use this circuit as last change in situations where you don't have a composite video input. The picture quality is degraded, but probably still usable for some not so demanding applications. A real well working solution would be much more complicated than this circuit.

…Author unknown

HAM RADIO-CARRYING ROCKET HOPES TO REACH SPACE

An amateur rocket team this month will attempt to send a 21-foot-tall rocket carrying a ham radio avionics package into the fringes of space. The launch by the Civilian Space Xploration Team (CSXT) could occur as early as Monday, May 17, from Black Rock Desert in Nevada. A CSXT try to reach space in 2002 ended some 3 seconds after launch when the rocket's engine exploded. Avionics Team Leader Eric Knight, KB1EHE, says CSXT has since rebounded from that devastating blow with a newer, bigger vehicle.

"We are very pumped," the Connecticut amateur told ARRL. "Our confidence level grows with each launch. All the ingredients are there for success." Knight's avionics team includes eight Amateur Radio licensees, most of who also were involved in the 2002 launch attempt. The entire CSXT team, headed by CSXT founder and Program Director--and former Hollywood stunt man--Ky Michaelson of Minnesota, has 18 members.

In terms of Amateur Radio, the GoFast rocket, named for a corporate sponsor, will transmit telemetry on the 33-cm amateur band and Amateur TV at 2.4 GHz using a high-quality color camera. The avionics also incorporate multiple global positioning system (GPS) units for the vehicle's precise location and flight path, redundant data acquisition and storage systems & a variety of data sensors.

Once the rocket goes up, appropriately equipped amateurs may be able to receive signals from the approximately 2 W transmitters onboard, even at some distance from the launch site, Knight says. Specific frequencies have not yet been selected, however. In addition, the team may set up an HF station at the launch site.

Knight says the avionics crew even salvaged a few electronic components for the 2004 launch from the 2002 avionics package, which continued to function flawlessly until the rocket crashed into the desert.

Plans call for the solid-fuel rocket to zip upward from the desert floor and reach a speed of more than 4000 MPH in about 9 seconds Assuming all goes well, the sub orbital vehicle will, on its own momentum, attain an altitude of 100 km or 62 statute miles—high enough to be considered "space"--linger there for a couple of minutes then arc back to Earth some 26 miles down range. The whole thing will take somewhat less than a half-hour, Knight says. If successful it would mark the first amateur rocket launch into space.

Knight is optimistic that the team has gained valuable knowledge from its past failures. "We've learned a lot that you can't get from a textbook," he said. "We feel we have a chance to make history." There's more information on the CSXT Web site,
…Space Bulletin 007 ARLS007 From ARRL Headquarters Newington, CT May 12, 2004
www.civilianspace.com .

IT MADE IT!!!

Following its May 17 launch from Nevada's Black Rock Desert, a solid-fuel amateur rocket carrying a ham radio avionics package easily exceeded its primary goal of attaining an altitude of 100 km--62 miles--considered the boundary between Earth's atmosphere and space, its sponsors say. An Amateur Radio direction finding team later recovered the rocket's avionics package intact. Avionics Team Leader Eric Knight, KB1EHE, told ARRL that the 21-foot, 10-inch diameter Civilian Space Xploration Team (CSXT) <http://www.civilianspace.com/> GoFast vehicle reached an altitude of 77 miles according to its onboard instruments, making it the first civilian rocket to do so.

"We well shattered any definition of space, and everybody's jubilant here," Knight told ARRL from Nevada. "Within two seconds into the flight we were already supersonic." An ARRL member, Knight said 75 to 100 people--many of them radio amateurs--witnessed the launch, and some asked how they could become licensed. The launch itself, Knight reported, "went like clockwork."

During the vehicle's descent to Earth, a ballistic parachute deployed to keep it from tumbling, slow its velocity and make it hit the ground nose first. "The avionics package looks pristine," Knight said. "It could fly again." That's not likely however, since the CSXT team is hoping the avionics will end up in the Smithsonian Air and Space Museum.

A volunteer aerospace tracking and recovery team of Silicon Valley Amateur Radio operators calling itself Stratofox <http://www.stratofox.org> zeroed in on signals from the fallen rocket, which came down in rugged, mountainous terrain some 25 miles from the launch site. Tiny bird-tracking transmitters operating in the 224-MHz range were embedded into the parachute shroud lines solely for tracking purposes.

The avionics team's homebuilt patch-type antennas served the 33-cm telemetry downlink and 2.4 GHz Amateur TV transmitters as well as the onboard GPS units. The color ATV system was able to provide some photos during the first several seconds of the flight, but Knight said the rocket's spin--about nine cycles per second--caused the video to blur after that.

The avionics team includes eight Amateur Radio licensees, most of whom also were involved in an unsuccessful 2002 CSXT launch attempt. The entire 18-member CSXT team is headed by CSXT founder and Program Director Ky Michaelson, a retired Hollywood stunt man. The United Kingdom Rocketry Association this week conveyed congratulations to the US team. "It's certainly a major achievement," said John Bonsor, a UKRA founder.

SUNTRACKER X BALLOON LAUNCH IS COMING

Many of you remember the fun we had last December following the Suntracker IX from Findlay, Ohio over Columbus and landing near Latholopis, Ohio (close to W8RRF). Well, Suntracker X is scheduled for launch on July 17 but could be delayed because of weather as it was last year. Stay posted for an update as it happens. ED.

The Suntracker Project at Wayne State University in Detroit, MI is funded under NASA Glenn Research Center Grant NAG3-2801. The purpose of the project is to develop technology for calibrating solar cells in the stratosphere under near air mass zero (NAM0) conditions using low-cost helium balloons and state-of-the-art communication technologies. NAM0 characterization is currently carried out by NASA with systems on aircraft and large balloons, which are expensive and may be employed only at certain times of the year.

The need for NAM0 characterization is becoming increasingly important for space-power applications as solar-cell fabrication technologies develop. The technological drive for higher efficiency cells leads to increasing the number of p-n junctions in solar cells in order to optimize the optoelectronic response of solar cells under AM0 spectral irradiance. Solar cells with four junctions are available commercially and solar cells with five junctions are under development. While laboratory-based solar simulator technology has improved over the past ten years, it is still very important to be able to characterize cells under NAM0 conditions in order to advance solar cell fabrication technologies and produce solar-cell standards

Launch date and time:
Saturday, July 17, 2004
Rain date Sunday, July 18, 2004
10:30 a.m. local time (EDST)

Volunteers are needed to:
1. record downlinked video on 439.25 Mhz,
2. record downlinked packet data on 144.340 Mhz,
3. communicate GPS data and signal strength during the flight via telephone (313.610.3038), and
4. assist with the launch,
5. assist with the chase and retrieval,
6. assist with local communications, and
7. place GPS data on the Internet.

Contact Jim if you are interested in volunteering.

Launch location:
The launch is hosted by George WA8HDX and will be launched from his farm located at 13133 Township Road 180, Findlay, Ohio, latitude=N40d58.39m and longitude=W83d36.84m.

Contact and project Information:
On the day of the launch contact Jim KC8MSY, 313.610.3038.
Prior to the launch, contact woodyard@wayne.edu, 313.577.3758 (9:00 a.m.-6:00 p.m.) or 313.563.3186 (8:00-11:00 p.m.).
A description of the Suntracker Project, photographs and publications are available at www.suntracker.eng.wayne.edu.

NOTAM:
A NOTAM was filed with the Cleveland FAA Office at 3:00 p.m. on Wednesday, July 14, 2004.

Downlink FM frequencies, polarization and power:
Packet data: 144.340 Mhz, vertical polarization (5" rubber duck) and 900 mW.
ATV: 439.25 Mhz, vertical polarization (4" rubber duck with 11" circular reflector) and 1.3 W.
Five MIM channels will be used for downlinking AX.25 data on 144.34 MHz. Experimental data are sent once a second; GPS data is sent every 10 seconds. A sample experimental data string is shown below:
KC8MSY>APRTLM:T#049,217,230,216,204,239,11111111, MIM v1.07
Following T#049 is the byte data and may be converted to measured quantities using the equations below:

Byte Value (BV)	Quantity	Equation
217	TI, temperature inside package	TI(Celsius)=0.368*BV-57.7
230	IS, solar cell short-circuit current	IS(ma)=0.676*BV+0.714
216	TS, temperature of solar cell	TS(Celsius)=0.368*BV-57.7
204	VR, reference voltage	VR(v)=0.00196*BV
239	PA, atmospheric pressure	PA(mbar)=4.21*BV

“EAGLE EYE” ROD SPOTS “ATCO” SIGN… a Fall Event location?

While in West Virginia, I encountered this, and am now posting it to your attention. The Picture may make a better booth for Dayton next year, hi.

I wonder how much RF would be required to link West Virginia to Ohio? (Not much at the border, tee hee)

As to my activities? Extremely little ATV, Actually none. An 8.5' parabolic antenna was salvaged from a dumpster, an LNB was attached, a hand me down receiver attached, and voila! C Band! An added bonus is that channel 1 receives 1250 ATV! This was verified with help from 'DMR.

I still reside in Lancaster, OH. (pretty much WV, hi) and am presently seeking employment as a pilot for corporate/ charter/ airline ops.. Last company employed by.....downsized..... Bummer, just when I almost had the guts to run coax through the fuselage!!

There is rumor of W8LXC (Harry) from Logan: perhaps desiring for there to be fast scan ATV in Logan, OH. Wouldn't an ATV link be nice between Logan, Lancaster, and Columbus!

I've NEVER been to a radio night at the local ham club here in Lancaster. I'm thinking of going, seeing what interest there may be in ATV, perhaps offer an elementary demonstration, see what happens. Again, nice to hear from you.
…KB8FLY Rod.

ATCO SPRING EVENT…fun for all

We held our annual Spring Event on May 2, 2004 at the ABB shelter house. Great day, great food, great people! Even though it rained, that didn't stop 34 people from joining us for a great get-together. I brought the food with chicken from MCL and pulled pork from City Barbecue. This time we had a number of people from Dayton to join us.

We had a general informal discussion then lunch followed by a business meeting which we discussed the upcoming Franklin County Hamfest, Dayton and repeater improvements. A suggestion was made to make the Newsletter available in PDF form on line for those who would prefer it that way. We also decided to buy an antenna for the ATCO-DARA link. Afterward we had enough door prizes for everyone. Bob Tournoux, N8NT, won the big prize, which was a ticket to the Dayton Hamvention.
…WA8RMC/WA8HFK

DTV RECEIVER GUIDELINES APPROVED

WASHINGTON — The U.S. digital TV standards clearinghouse has issued manufacturers' guidelines for DTV receiver performance. The Advanced Television Systems Committee Inc., based here, said Tuesday (June 22) that the voluntary industry guidelines cover receiver sensitivity, multiple signal overload, phase noise, selectivity and multipath interference. The guidelines, known as "recommended practices," also suggest that DTV receiver manufacturers use an antenna control interface specified by the Consumer Electronics Association (Arlington, Va.) to automatically control antenna parameters.

ATSC President Mark Richer said the guidelines meet a commitment to the Federal Communications Commission, which has been urging receiver manufacturers, broadcasters and cable TV operators to forge voluntary industry standards. The slow deployment of digital TV broadcasts prompted Congress over the last several years to threaten action unless rival industries worked out their differences on DTV deployment issues, including whether cable operators are obligated to carry HDTV broadcasts. "The recommended practice provides guidance for the receiver manufacturers while allowing for product innovation," said Hitachi executive John Henderson, chairman of the ATSC specialist group on receivers that developed the guidelines.
… EE Times June 22, 2004 URL: http://eet.com/article/showArticle.jhtml?articleId=22101443

RED-WHITE-BOOM IN 2004… great fun, great public service

Here we are at the Red-White-Boom security position again this year assisting the Columbus, Ohio police with crowd control observation duties. Each year we volunteer our services to provide the police with ATV video of the crowd from various building rooftops so they can observe the proceedings from the police emergency operations center (EOC) at police headquarters.

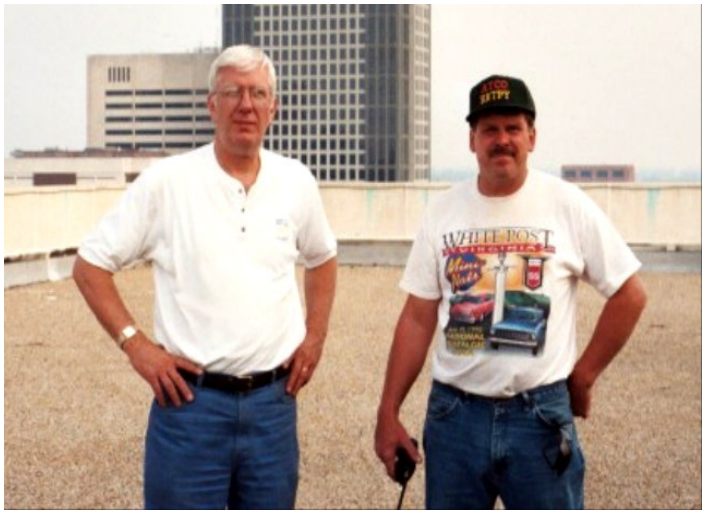
This year, in addition to the usual positions on the police headquarters roof, Columbia Gas Co roof and Nationwide Arena roof, was the relay of the police helicopter digital video pictures. The police enlisted the help of a microwave company to provide them with a digital TV transmitter in the helicopter and a digital receiver at our location on the Columbia Gas Co roof. Jeff, K8TPY and myself, WA8RMC, connected the video via a quad switcher with 3 other cameras and transmitted it to the EOC via 2.4 GHz ATV. Everything worked as expected.

Meanwhile, three cameras were set up on the police-building roof to monitor the crowds from another angle. Tom, KA8ZNY, and Bob, W8RWR maintained their positions there and positioned the cameras as directed by personnel in the EOC. Their video was sent downstairs via hard wired cable to a separate monitor in the EOC.

Finally, new this year, were two cameras set up on the Nationwide arena roof to monitor activity in the parking lot and crowds in the front of the arena. Bob, N8NT, and Milt, KC8UWI, operated those cameras that were fed into a switcher and sent to the EOC via 1280 MHz ATV.

All systems worked very well and were accomplished with no problems. My thanks to all people involved both directly and indirectly for their superb effort. If it wasn't for the equipment donation efforts, we couldn't have pulled it off. We can only hope to be as successful next year. Do I have any volunteers? Bob, W8RWR, already signed up!

Above is our setup on the Gas Co roof. The elevator shaft building is on the left with the helicopter digital video receiver inside. We set up our table on the much needed shady side of the building. Below is Milt, KB8UWI, operating the second camera on the Nationwide roof. Barely visible is the 1280 MHz loop yagi at the lower left.



I'm on the left and Jeff, K8TPY, is on the right where we stopped the activity for the above picture.
Below Bob, N8NT, is operating one of the two cameras on the Nationwide Arena roof.

HEARING CONSIDERS FCC PLANS FOR 2009 ANALOG TV SHUTDOWN

From RF Report 6/10/04

Based on testimony at the House Subcommittee on Telecommunications and the Internet hearing last week to examine the FCC Media Bureau proposal for advancing the DTV transition and the shutdown of analog TV broadcasting, there is a very good chance that five years from now if you turn on an analog TV set connected to an antenna you will see nothing but noise. There is also a good chance that if your analog TV set is hooked up to cable TV without a digital set-top box, some broadcast stations' channels may not be available, even though you will probably be able to pick up many other cable channels.

In his testimony to the Subcommittee, FCC Media Bureau Chief Kenneth Ferree outlined the Media Bureau's proposal. Under the proposal, on or before Jan. 1, 2009 broadcasters' must-carry rights on satellite and cable would switch from their analog to their digital signal. Cable operators would then have to make this signal available to all subscribers by one of two methods. They could downconvert a single digital broadcast stream from digital to analog at the cable headend so that all cable subscribers, including those without digital TVs or set-top boxes, would continue to see the broadcast signal. Alternatively, if the cable system has been converted to "all digital" transmission, they could pass through the digital signal to subscribers' homes where all subscribers would have the capability of receiving the signal either on a digital TV set or with a set-top box that converted it for viewing on an analog TV set. Satellite operators would be required to carry one stream from each broadcaster in the market, downconverting it from HDTV to standard definition if necessary or they could pass through the broadcasters' digital signals to subscribers if all subscribers had the ability to receive and display the broadcasters' programming. Broadcasters would be allowed to negotiate with the cable operators for passthrough of HDTV, multicasting or other "high-value" digital programming. However, once a broadcaster is transmitting in digital only, they may notify the cable company that they want to have the signal passed through to subscribers' homes rather than being downconverted. The cable operator would be required to notify subscribers that if they want to continue to receive the broadcaster's signal, they would have to obtain the "necessary equipment from the cable operator or at retail." Cable operators would not be required to provide the equipment for viewing digital programming.

Ferree testified that under this plan, the statutory 85 percent threshold for ending the transition could be met nationwide on Jan. 1, 2009 by counting all cable households and all satellite households in local-into-local markets that receive the local broadcast package in addition to counting the households that purchased a new TV set covered under the FCC's DTV tuner mandate and all households that purchased a "plug and play" DTV set. When will analog TV be shut down? According to Ferree's testimony, "As soon as possible after January 1, 2009, the FCC will make the appropriate findings that the 85 percent threshold is met in the relevant markets and reclaim the analog broadcast spectrum. There may be anomalous markets in which the 85 percent threshold is not met immediately, but it is expected that the proposal effectively will result in a nationwide transition on January 1, 2009."

The FCC Media Bureau Chief suggested that, "If true digital must-carry meant that broadcasters were entitled to carriage of all free broadcast streams, including free broadcast HDTV and/or "multicast" programming, it would give broadcasters additional incentive to return their analog licenses in a timely manner. From a policy perspective and in the context of this proposal, the Media Bureau would recommend that as part of this Bureau proposal, true digital carriage would mean carriage of all free content bits, including carriage of all multicast programming. This proposal combines moving more quickly and certainly to the end of the transition, which both hastens the broadcasters' spectrum return and provides them opportunities to offer more programming to viewers."

While recognizing cable operators' claim that carrying multiple broadcast streams would be a burden, Ferree said, "we believe the net result will be less cable capacity required to be devoted to broadcasters' programming as the transition moves more rapidly to all digital cable systems. The digital carriage obligations for satellite operators will be determined in a proceeding at the FCC examining alleged capacity constraints and potential technological solutions."

NAB President/CEO Eddie Fritts cautioned about numerous problems with the FCC Media Bureau plan in his testimony. He noted that if broadcasters chose the "digital pass through" option after analog broadcasting is shut down, in addition to the 15 percent of viewers without the ability to receive DTV broadcasts allowed under Congress' transition threshold "millions of more cable and satellite homes without DTV receivers or converters will lose local broadcast service unless their cable or satellite provider voluntarily provides either a converter or agrees to carry a down-converted signal in addition to the digital signal. These homes will lose access to local news, local political broadcasts, local emergency announcements, publicity for local charities and community groups and all the other services local stations provide."

If broadcasters do not choose the "digital pass through" option, then cable homes with digital sets would not be assured of access to HDTV or multicast services offered by the stations. NAB noted this proposal would "discourage the demand for digital sets and for new digital features" as consumers with analog sets would have little incentive to buy new sets if they would only receive analog versions of DTV signals.

Fritts pointed out another problem with the Media Bureau plan: "No television service of any kind for analog over-the-air households, including many rural and poor viewers: Over-the-air viewers with digital sets would continue to receive service after 2009, but over-the-air viewers with analog sets, unless they purchased set-top boxes, would lose service. Many rural viewers and the poor would be

disenfranchised, and broadcasting would lose its proud achievement of providing universal service." See Fritts' testimony for additional concerns about the plan.

At least one person testifying didn't seem to care about the fate of free over-the-air television. Mr. Thomas Lenard, Senior Fellow and Vice President for Research of the Progress and Freedom Foundation testified "In this Internet age, it is not too early to start thinking about freeing up all of the spectrum allocated to broadcast, because it may not be long before virtually all Americans will get their TV from another source. When that day comes, as Chairman Powell has said, 'what are we protecting?'" Powell's comment that "all Americans--perhaps in 10 years--will have pay-TV" was attributed to an Oct. 23, 2001 article "FCC's Powell Sees Big Change in Broadcast Environment" in Communications Daily. Read Lenard's testimony to see why his group feels there is value in reclaiming the entire 402 MHz allocated to broadcast TV and auctioning it off for other, higher-valued uses.

Gary Shapiro, President and CEO of the Consumer Electronics Association, generally supported the Media Bureau's plan, but like NAB felt that some modifications are needed to "ensure that it achieves both of the equally vital goals of recovering broadcast spectrum and completing the digital transition for the benefit of all consumers." Shapiro's testimony recommended that cable and DBS operators should be required to transmit broadcasters' signals digitally instead of downconverting them at the head-end by Jan. 2009.

Shapiro stated, "By 2009, cable operators will have had ample time to deploy digital-to-analog converters to customers with analog sets. Cable digital-to analog converters should be available in large volumes at low cost by that date. Most major cable systems will be almost completely digital by this time, given that more than 30 percent of cable customers are already subscribed to digital cable. In addition to carrying all DTV broadcast content digitally, cable operators, of course, may also choose to transmit the downconverted version of the signal as well. It is important that the FCC ensure all parties rely on the 'Plug and Play' standards for digital TV sets." Gary Shapiro recommended the FCC not allow cable operators to reduce the sound or picture quality. He echoed the Media Bureau and NAB recommendations that cable companies be required to carry "all free bits," including multicast programming. Broadcasters, however, were criticized for not delivering a full power DTV signal, noting, "Only 477 of the 1362 commercial broadcast stations are actually delivering a full power DTV signal." Shapiro said, "the FCC should require all broadcasters to be on their permanent digital channels and digitally transmit at their full authorized power by January 1, 2006." In addressing the consumers with analog only TV sets that would lose TV when analog TV broadcasting was shut down, he applauded the FCC's recent announcement (see last week's RF Report) that it would study how many viewers would be affected by this and provide guidance to Congress on how to help them, perhaps through subsidies or tax credits.

Robert Sachs, President and CEO of the National Cable and Telecom Association testified on behalf of his organization. Sach's testimony touted the efforts the cable industry has made to promote DTV and HDTV and generally supported the Media Bureau plan. There was disagreement, however, on some points. Sachs took issue with the broadcaster, not the cable company, determining "when and whether a cable operator can down-convert its digital signal to analog at the head-end." He felt it makes more sense to allow the cable operator to make this decision, noting, "Giving broadcasters control would limit cable operators' ability to serve cable customers in the least disruptive manner or effectively impose a dual must carry regime on cable operators." He also argued against expanding must-carry rights to include more than one program stream.

The debate on the details of the transition will continue, but the debate is no longer about whether analog TV broadcasting should be shut down in 2009, but the best way to do it with the least disruption to TV viewers. The U.S. Senate Committee on Commerce, Science and Transportation will hold a hearing on Completing the Digital Television Transition this Wednesday, June 9, starting at 9:30 a.m., EDT and will be Webcast live. To keep up with future House hearings, refer to the Subcommittee on Telecommunications the Internet web site.

SMALLER ANTENNA DESIGN SAID TO BOOST EFFICIENCY

OK, OK, it's not ATV related but interesting never the less. Enjoy! ED

PORTLAND, Ore. — A four-year skunk works effort at the University of Rhode Island in Kingston has cut the size of an antenna by as much as one-third for any frequency from the KHz to the GHz range. Using conventional components the four-part antenna design cancels out normal inductive loading, thereby linearizing the energy radiation along its mast and enabling the smaller size. "The DLM [distributed load monopole] antenna is based on a lot of things that currently exist," said the researcher who invented the smaller antenna, Robert Vincent of the university's physics department, "but I've been able to put a combination of them together to create a revolutionary way of building antennas. It uses basically a helix plus a load coil." The patent-pending design could transform every antenna-from the GHz models for cell phones to the giant, KHz AM antennas that stud the high ground of metropolitan areas-Vincent said.

For cell phones, for example, Vincent said he has a completely planar design that is less than a third the size of today's cell phone antennas. And those 300-foot tall antennas for the 900-KHz AM band that dominate skylines would have to be only 80 feet high, with no compromise in performance, using Vincent's design, he said. "With my technique, I reduce the inductive loading that is normally required to resonate the antenna by as much as 75 percent . . . by utilizing the distributed capacitance around the antenna," he explained. "I looked at all the different approaches used to make antennas smaller, and there seemed to be good and bad aspects" to each, Vincent said. "A helix antenna is normally known to be a core radiator, because the current profile drops off rapidly; they are just an inductor, and inductance does not like to see changes in current, so it's going to buck that.

"What I found was that for any smaller antenna, if you place a load coil in the middle you can normalize and make the current through the helix unity; that is, you can maximize it and linearize it," he added. Vincent has verified designs from 1.8 MHz to 200 MHz by measuring and characterizing the behavior of his DLM antenna compared with a normal quarter-wave antenna of the same frequency. He found that many of the disadvantages of traditional antennas were not problems for the much lighter inductive loading in a DLM. To check his theory, Vincent analyzed and compared the current profiles, output power and a score of other standard tests for measuring antenna performance. All measurements were in reference to comparative measurements made on a quarter-wave vertical antenna for the same frequency, on the same ground system and same power input.

"I was able to increase the current profile of the antenna over a quarter-wave by as much as two to 2.5 times," said Vincent. "The technology is completely scalable: Take the component values and divide them by two, and you get twice the frequency; take all the component values and multiply them by two, and you are at half the frequency," said Vincent. Vincent said he is moving up into the GHz bands for use with cell phones and radio frequency ID equipment. A problem in the past has been that as components are downsized, they become too small to utilize standard antenna materials. At 1 GHz, for example, the helix is only eight-thousandths of an inch in diameter and requires more than 100 turns of wire.

"So I came up with a new way of developing a helix for high frequencies that is a fully planar design; it's a two-dimensional helix," said Vincent. With the new helix design, Vincent has built a prototype 7-GHz antenna that he claims is indistinguishable from a quarter-wave antenna in all but its size. "Because the new design is completely planar, we could crank these out using thin-film technologies," Vincent said.
R. Colin Johnson EE Times June 07, 2004

UNRESOLVED ISSUES STILL STALL DTV TRANSITION

WASHINGTON — New regulatory maneuvers aimed at speeding the digital-television transition hint that time — and lawmakers' patience — may be running out as consumers look for cheaper, easier ways to get their digital video fix. The latest effort to revive DTV sales came earlier this month, when Federal Communications Commission chairman Michael Powell unveiled an initiative to break the stalemates over copy protection and cable compatibility. Both issues have stymied digital TV receiver sales as consumers wait for "value-added DTV programming" — HD, interactive or multicasting — that can also be delivered over cable systems. They could wait longer than they planned. "I have not written [DTV] off," said Gary Arlen, principal of market research firm Arlen Communications Inc. But he has "written off the timetable" for a full transition to digital broadcasts by 2006. "It's not going to happen for four or five years, and it's not going to happen the way they think," Arlen said.

Powell's proposals have earned compliments, but few concrete commitments, from the various industries with vested interests in seeing the DTV logjam broken. If Powell's gambit fails, Congress has hinted it may act to force the industries' hand. Meanwhile, one technology company said it is already addressing some of DTV's problems.

Stressing that his proposal is voluntary, Powell said he hopes to prod the four broadcast networks and the premium cable channels to boost digital programming to 50 percent of their prime-time schedules by the fall season. Broadcasters in the top 100 U.S. markets are also being urged to install equipment to "pass through" high-definition programming to viewers without degrading signal quality. The Powell plan further calls on cable operators with sufficient capacity to offer customers up to five broadcast or other digital programs during at least half the evening schedule. Satellite systems are being asked to provide comparable digital programming. At the same time, consumer electronics manufacturers have been urged to meet demand for digital set-top boxes by producing more sets with digital tuners. One possibility is the inclusion of a digital interface such as IEEE 1394 or DVI with accompanying digital copyright features on all new high-definition receivers and displays by January 2004.
It's questionable whether all sides in the copyright and compatibility debates can reach agreement within Powell's proposed schedule, especially since Powell is dangling no new carrots and seems allergic to using any available regulatory sticks. Nonetheless, key industries have praised Powell's plan and pledged to work toward a resolution that would speed the digital-TV transition.
"Our industry remains committed to working with the FCC, Congress and all other relevant parties to continue to drive the transition forward," said Gary Shapiro, head of the Consumer Electronics Association (CEA; Arlington, Va.). "To that end, we will discuss the chairman's proposal with our manufacturers as soon as possible and examine how we can support our mutual goal of expediting the transition to digital television."

The National Association of Broadcasters (NAB) was equally enthusiastic — and similarly vague. "NAB views chairman Powell's digital-television plan as a major step forward in breaking the DTV logjam," said the group's president, Edward Fritts. "While we have concerns over elements of the proposal . . . we stand ready to work with the FCC and Congress to bring consumers the next generation of television." And Robert Sachs, president of the National Cable and Telecommunications Association, said Powell's initiative contained some "thought-provoking proposals" that the group would discuss with the agency.

Cable compatibility
As the various camps continue to trade rhetoric, NxtWave Communications (Longhorne, Pa.) claims it is close to addressing one FCC demand with a product family that the company says is the first to combine digital terrestrial reception and cable compatibility on a single chip.

One nagging issue of the DTV transition has been the lack of compatibility between today's DTV receivers and current-generation cable set-top boxes. Broadcasters have said that it's difficult to justify investment in "value-added" DTV programming when the cable industry, which serves 75 percent of all U.S. households, has offered no assurances that its operators will carry the enhanced programming without signal degradation. Similarly, it has proved difficult to motivate consumers to purchase DTV receivers that don't talk to their set-tops, particularly since there's scant value-added programming to watch.

But broadcasters, cable operators and consumer electronics companies have already hammered out key interface specifications necessary to make DTV receivers "truly cable-ready," said Matt Miller, NxtWave's chief executive officer. Those issues include how the DTV receiver will handle encrypted information, how to deal with a return channel for cable and a standard form of communication between DTV receivers and OpenCable-compliant point-of-deployment (POD) modules. At the NAB conference in Las Vegas this past week, NxtWave unveiled three DTV receiver chips for both cable and broadcast customers. The ICs are configurable to work in either ATSC-compliant, 8VSB (vestigial sideband) reception mode for terrestrial broadcasting or in the OpenCable-compliant 64QAM (quadrature amplitude modulation) or 256QAM and QPSK (quad phase-shift keying) modes for digital-cable-ready downstream reception.

The most comprehensive of the three chips, the NXT2005, provides a return path modulator for interactivity. The chips offer a direct digital interface to OpenCable-compliant POD modules. According to CEA, consumer electronics manufacturers sold 1.4 million units of DTV products in 2001. However, according to NxtWave, only 10 percent of them integrated digital decoding and tuning functions.

Separate boxes needed
Most DTV sets sold today as a two-part system cannot receive on-air digital programming unless consumers add a separate set-top decoder box. Despite industry claims that digital TV is ubiquitous, over-the-air DTV broadcast reception appears almost irrelevant to purchasers of high-resolution, big-screen TVs. Consumer interest appears more focused on viewing digital video via DVD players or digital VCRs connected to a big-screen television.

Powell's proposal urges consumer electronics manufacturers to include over-the-air DTV tuners in 50 percent of new large-screen (36-inch and larger) broadcast TV receivers by Jan. 1, 2004, and 100 percent by Jan. 1, 2005. What is still unclear, however, is how forcefully the FCC plans to enforce certain provisions, such as retail availability of cable set-top boxes, originally required by the 1996 Telecommunications Act. The rules were intended to deregulate the cable set-top box just as home telephone equipment was deregulated more than two decades ago.

"The only consumer electronics box you can't buy in a retail shop today is a cable set-top box," said Mike Giddings, NxtWave's director of worldwide marketing. The cable industry has been hanging onto its monopoly by embedding proprietary security measures — locks and keys — directly into set-tops. Despite years of debate among the cable and consumer manufacturers over specifications for POD modules, which would decouple embedded security systems from cable boxes so the boxes could be sold retail, no cable boxes with POD modules are available. According to the FCC's initial plan, the cable industry was supposed to have made POD modules available by July 2000. After 2005, providers will no longer be allowed to sell boxes without POD modules.

Esoteric impediment
The quest for a retail cable set-top initiative may appear esoteric to most consumers, but that search is directly relevant to the transition to digital TV in the United States, according to Michael Petricone of the Home Recording Rights Coalition (HRCC). "Competition in this arena will speed the transition to digital television and give America's cable consumers the benefits of the increased innovation, wider choices and lower prices characteristic of a retail marketplace," Petricone said in a statement.
Although FCC rules require any manufacturer that wants to develop competitive devices to sign a license demanded by CableLabs, none of the consumer electronics companies have been able to do so, Petricone said That's because "CableLabs is insisting on anti-consumer constraints on any product that would be sold in competition with those of its cable industry owners," Petricone said.
The license specified by CableLabs, called the "POD-HOST Interface License Agreement," had been kept secret under a strict nondisclosure agreement for years but was recently posted on a public cable industry Web site. HRCC is seeking public debate about the policy issues raised by the agreement.

But the fate of current efforts to accelerate the digital TV transition will likely be determined in closed-door meetings between the key industry players as regulators and lawmakers grow more impatient and the promise of digital broadcasting fades.
…George Leopold and Junko Yoshida, EE Times April 12, 2002
URL: http://www.eetimes.com/article/showArticle.jhtml?articleId=18307099

HIGH-MAINTENANCE TV

THERE are people for whom getting something to work right is half the fun. For them, there's a new challenge: viewing the digital versions of free broadcast TV. At some point, cable and satellite services will offer many local digital stations. But until then, watching "The West Wing," the N.B.A. finals or "C.S.I." in HDTV, the digital format that offers gloriously sharp wide-screen images, usually involves getting the signals the old-fashioned way: by means of an antenna and a decoder box. And that can often make grown men cry.

While many users apparently have no problem receiving HDTV or other digital broadcasts, others have flooded online discussion groups like AVS Forum (avsforum .com) with tales of woe. These users report that decoder boxes may pull in some broadcast stations but not others, depending on the time of day, distance from the transmitter, proximity to other buildings and weather conditions. Boxes from every manufacturer are reported to freeze up and to require rebooting, usually by hitting a reset button or by unplugging the box and then plugging it back in.

Rebooting is not something you expect with a service meant to be as stable as plain old TV. Neither is constant fiddling with an antenna, something many consumers thought had ended years ago when they threw out their last rabbit-eared TV and hooked into cable or satellite service. But for a digital TV antenna to work properly, its aim must often be as precise as a sharpshooter's. "Installing an antenna is easy to do as long as you have a signal meter," said John C. Thomas, an HDTV aficionado in Canton, Ga. But signal problems occur if he rotates the antenna even slightly. When he first installed the antenna in his attic, Mr. Thomas used trial and error, moving it around until he found a sweet spot where reception was best. And it is very sweet indeed. "If I move it a few feet away, then I introduce signal problems that the HDTV decoder box can't deal with," he said.

Perhaps fortunately, a majority of digital TV owners are not even trying to watch digital broadcasts. Since the transition to digital broadcasting began in 1998, 8.3 million households have acquired digital TV's, according to Adams Media Research. But only 1.7 million of those have the built-in hardware or set-top box necessary to receive and decode HDTV broadcast signals. The owners of the other 6.6 million sets are using them to watch standard-definition TV and DVD's.

Under a Federal Communications Commission ruling, all TV's will eventually come with built-in digital broadcast tuners. And later this year, manufacturers will introduce cable-ready digital sets that can receive channels like ESPN-HD and HBO HDTV without a decoder box. According to the Leichtman Research Group, by the end of this year, 3.5 million viewers will be watching some broadcast and cable HDTV channels by cable or satellite. But today, those who want to watch digital broadcasts free still usually need to use an antenna and a set-top box. And that is where the fun starts.

Manufacturers of decoding equipment say that the problem is not with their hardware. "We've had no decoder boxes returned due to reception problems," said John Taylor, vice president for public affairs at LG Electronics USA, Zenith's parent company and a major decoder manufacturer, along with Samsung, Thomson (RCA's parent), Toshiba and others. Mark Richer, president of the Advanced Television Systems Committee, the industry group overseeing the transition to digital television, acknowledged that "like a cell phone or satellite TV, there will always be places where a digital broadcast set-top box won't work well."

Rick Roome, a software engineer in Simi Valley, Calif., knows this firsthand. With his equipment, he can receive the digital feed of almost every Los Angeles station. But even though he is using a 17-foot antenna on his roof and lives just 35 miles from the Mount Wilson transmitter, "some days, the ABC station breaks up, freezes and then disappears," Mr. Roome said. "It happens especially around sundown."

Such reception problems can arise from several factors. Digital set-top boxes are as complex as computers; when broadcasters send digital signals that do not exactly adhere to the official transmission standards, the box may be incapable of handling them. To cut power bills when digital viewers are few, most broadcast stations that transmit a digital signal are using less than full power to do so. This not only reduces the range that the signal can travel but also provides a weaker signal even when a customer lives well within the coverage area.

Living closer to a broadcast tower does not reduce the likelihood of reception problems. Urban residents can suffer from the effects of multipath transmissions, signals that bounce off buildings and hills and arrive at the TV from several directions. The earliest digital set-top decoder boxes dealt so poorly with multipath transmissions that the Sinclair Broadcast Group, owner of 62 TV stations in 39 markets, petitioned the F.C.C. to allow for the simultaneous adoption of the European digital broadcast standard, arguing that it was much easier to receive.

Both Thomson and LG say they will incorporate new technology into their next-generation digital TV decoders that should eliminate multipath reception problems. Most consumers will then be able to use just a small indoor antenna to watch digital TV. "LG's new technology is a giant leap toward addressing the multipath reception problems," said Nat Ostroff, Sinclair vice president for new technology. Now that consumers will easily be able to receive digital broadcasts, "the incentive is there for us to go to full power." Still, those advances will not solve all set-top-box problems. Tony Boyd, a retail store planner in Dallas, has no problem receiving digital broadcast channels with his decoder box and an antenna. But when he is watching some HDTV channels on DirecTV, the

audio or video drops out from time to time, and the box occasionally freezes. Mr. Boyd has gone through two units, but the symptoms persist. "DirecTV cannot solve the problem," he said.

In addition to technological improvements, Mr. Richer's group, the Advanced Television Systems Committee, is working on a set of "recommended practices," guidelines for minimum performance standards for digital receivers. And antennas are not being neglected, either: within months, versions that electronically tune themselves without being moved to receive the strongest signal will appear on the market.

Even when HDTV programming on cable and satellite services becomes ubiquitous, reliable reception of broadcast digital channels using an antenna will remain important, broadcasters say. There will always be people who do not subscribe to satellite or cable, or do not have it hooked up to a second or third set. In addition, some broadcasters have floated the idea of offering a mini-package of cable channels, delivered over the air as a digital broadcast signal.

That plan can only work if reliable reception is a given. "Digital converter boxes are getting better," said Ken Holsgrove, an HDTV consultant and an AVS Forum moderator. But for customers who expect current over-the-air digital TV to work like regular TV, he had some advice: "I'd steer clear of it. The technology will not support their expectations."
…Article published Jun 24, 2004 in Wilmingrton Star paper from Wilmington,Del.
http://www.wilmingtonstar.com/apps/pbcs.dll/article?AID=/20040624/ZNYT05/406240377/1002/BUSINESS&template=printart

DAYTON HAMVENTION…great time in the rain at the ATCO trailer.

Yes, the Dayton Hamvention was upon us again. And, as you would have expected, it rained. The rain held off on Friday so it was a very good day but it made up for it on Saturday, which rained off and on most of the day. All in all though, it wasn't bad. As you can see in the pictures Tom, KA8LZC, and his trailer were very much appreciated. It made the rainy portions very bearable. Thanks Tom for those wonderful facilities.

As for Dayton itself, I hear that they made some money and will be back at Hara Arena next year. Great news. The pictures below were taken as we passed by and stopped to chat.
…WA8RMC

FRANKLIN COUNTY HAMFEST…"best <u>little</u> hamfest in Ohio"

OK, call me crazy but I believe the Franklin County Hamfest is becoming the best of the small hamfests in this state. Look out HamO-Rama, you're being downsized. After all, I didn't even buy anything and STILL liked it. That's saying a lot. I can't put my finger on it as to just why it is great, maybe just the location. No, Ham-O-Rama is closer. That's not it. Oh well, don't try to figure it out…just enjoy it.

Now, on another note, did any of you guys notice something rather strange here this time? You guessed it. Check out the picture at the right and below! Even more dramatic than Jim, WA8UZP, **<u>buying</u>** something is Ken, W8RUT, **<u>selling</u>** something. OK Ken, you've kept us guessing long enough, what's up?

DAYTON FRIDAY NIGHT GATHERING

This year the Friday night gathering was more relaxing. The place was the same but the relaxed pace of the presentations made the rather tight quarters more bearable. There were about 30 participants that enjoyed the various presentations while we ate dinner at the Stockyards Inn. (Some of the guys in Dayton said they would work hard to make improvements next year possibly with a selection closer to Hara Arena). We'll have to work on that. In any case, below are pictures of some of the activities.

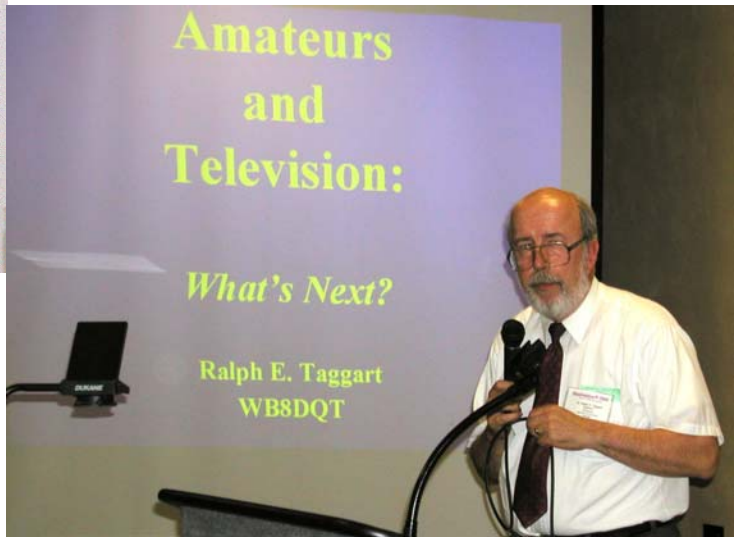
Above, the attendees prepare for supper and ATV presentations.

Above is Mike, WA6SVT, discussing the details of the ATN Network in California. He is holding a Wavecom that they use for link signals between repeaters.

DAYTON SATURDAY ATV FORUM

The Saturday ATV forum this year was very interesting. The mix of great speakers and a good attendance made for a very interesting and informative session. Oh yes, not to mention the great host we had to introduce the speakers. Thanks, Bill, W8DMR, for your superb performance. It keeps getting better every year!

On the left is Dr David Clingerman, W5OAL, owner of "The Ol' Antenna Labs". He is best known for his Wheel antenna designs for VHF and UHF. His presentation about antennas was truly amazing and entertaining.



At the right is Dr Ralph Taggert, WB8DQT, who talked about the evolution of television. He is a truly dynamic speaker that kept us totally engrossed in the discussion from beginning to end. The part about digital television was particularly interesting because of our involvement in this segment shortly.

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.

18 Jul 2004 Van Wert ARC **Contact:** Stephen Kouts, WA8WKF PO Box 347 Van Wert, OH 45891 Email: skouts@bright.net Van Wert, OH

24 Jul 2004 OH-KY-IN ARS http://www.ohkyin.org **Contact:** Bruce Vanselow, N8BV 4309 Skylark Drive Cincinnati, OH 45238-5535 Phone: 513-251-1555 Email: n8bv@juno.com Cincinnati, OH

25 Jul 2004 Portage ARC http://www.parc.portage.oh.us **Contact:** Joanne Solak, KJ3O 9971 Diagonal Road Mantua, OH 44255 Phone: 330-274-8240 Email: ljs@config.com Randolph, OH

14th Annual HAM "OH" RAMA

Sponsored by the **VOICE OF ALADDIN** Amateur Radio Club

ARRL affiliated club

When: Saturday, August 7, 2004 **8:00 a.m. - 2:00 p.m.**

Free Parking on site **(vendor setup at 6:30 a.m.)**

Located in the Air Conditioned Aladdin Shrine Complex at 3850 Stelzer Road

TALK IN: 147.24 (+600 MHz input)

DIRECTIONS: Exit I-270 at the EASTON exit. Proceed West to the first light then turn North (right). The Aladdin Complex is located about 1/10 of a mile up the road on the right. Entrance to the HAMFEST is near the rear of the building.

Commercial Exhibits, Flea Market, Free Seminars, Refreshments, Prizes and VE Sessions. Exams begin at 9:30 a.m. Please be on site to register no later than 9:00 a.m. if you are planning to take an exam.

Admission tickets are $5.00 at the door, $4.00 presale. Children under 10 are free. Advance sales available at Universal Radio and Hall Electronics in Columbus, Ohio, the Aladdin Shrine Complex or with a SASE sent to: Jim Morton KB8KPJ, 6070 Northgap Drive, Columbus, OH 43229-1945. Telephone (614) 846-7790 evenings for further information or kb8kpj@arrl.net. (Tickets will be available after June 10, 2004.)

Indoor Display Tables (6 ft.) are $8.00 each at the door, $6.00 presale. Outdoor flea market is $5.00 per marked parking space, the day of the HAMFEST.

Presale requests must be received no later than **July 20, 2004.**

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15 Aug 2004 Warren ARA http://www.w8vtd.org/ **Contact:** Renee McCaman, KB8SVF 317 Raymond Avenue NW Warren, OH 44483 Phone: 330-847-8478 Email: rnrmccaman@earthlink.net Warren, OH

12 Sep 2004 Findlay Radio Club http://www.findlayradioclub.org **Contact:** Bill Kelsey, N8ET 3521 Spring Lake Drive Findlay, OH 45840 Phone: 419-423-5643 Email: kanga@bright.net Findlay, OH

26 Sep 2004 Hamfest Association of Cleveland http://www.hac.org **Contact:** William Beckman, N8LXY 4360 Metropolitan Drive Cleveland, OH 44135 Phone: 800-CLE-FEST or 216-999-7388 Email: info@hac.org Cleveland, OH

10 Oct 2004 Medina 2 Meter Group http://www.qsl.net/m2m **Contact:** Ed Eyerdom, K8NVR 3312 State Road Medina, OH 44256 Phone: 330-239-1686 Email: k8nvr@arrl.net Medina, OH

31 Oct 2004 Massillon ARC http://www.marcradio.org **Contact:** Terry Russ, N8ATZ 3420 Briardale Circle NW Massillon, OH 44646 Phone: 330-837-3091 Email: truss@sssnet.com Canton, OH

6 Nov 2004 Grant ARC http://www.geocities.com/garcohio/ **Contact:** Rodney Crawford, WD8CTX PO Box 76 Buford, OH 45110 Phone: 937-446-2338 Email: wd8ctx@juno.com Georgetown, OH

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, Phoenix 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.oregonatv.org	Oregon, Portland OATVA Oregon Amateur TV Association
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.

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, 2433 MHz FM modulation and 10.350 GHz 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
10.350 GHz 1 watt continuous
Link transmitter - 446.350 MHz 5 watts NBFM 5 kHz audio
Identification: 427, 1250, 2433 & 10.35 GHz transmitters video identify every 30 minutes showing ATCO & WR8ATV 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
10.350 GHz - Commercial 40 slot waveguide horizontally polarized 16 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
10.350 GHz - F5 video input (future – not installed yet)
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 7 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
10.450 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni (future – not installed yet)

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

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 July 17, 2004

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@comcast.net
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	OH	43026	614-876-6135	kc8asd1@netzero.com
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224	614-268-4873	
W8CQT	Jim McConnell	350 N. State Road	Delaware	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	jabusic@yahoo.com
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WA3DTO	Rick White	133 Concord Way	Cranberry Twp.	PA	16066	724-776-2436	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
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147		w8fz@arrl.net
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026	614-777-4621	famore@wowway.com
WG8I	Chris Vojsak Sr,	3536 W Henderson Rd	Columbus	OH	43220-2232		
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	k8kdr@arrl.net
W8KHW	Kevin Walsh	2396 Anson St	Columbus	OH	43220		
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.com
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	OH	43123	614-871-0751	phumphries@columbus.rr.com
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334		cbeener@columbus.rr.com
WB2LTS	Manny Diaz	74 Lincoln Rd	Medford	NY	11763		mvdiaz@suffolk.lib.ny.us
KC8LZC	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064	614-733-0722	twalter@emec.us
W8MA(ex wa8tte)	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081		
WD8MDI	Dave Mathews	2404 Hoose Drive	Grove City	OH	43123		wd8mdi@qsl.net
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660		ka8mid@qsl.net
WB8MMR	Mike Knies	1715 Winding Hollow Dr.	Columbus	OH	43223	614-875-4236	
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127	n8nt@atco.tv
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068	740-964-6881	firefoxtom11@netzero.com
N8OCQ	Bob Hodge	PO Box 23473	Columbus	OH	43223	614-875-7067	
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410		kb8off@prosurvisp.com
N8OPB	Chris Huhn	2720 Wood Leaf Lane	Reynoldsburg	OH	43068	614-866-2632	cjhuhn@aep.com
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565	Tom6ORG@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
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	w8rwr@sbcglobal.net
W8RXX,KA8IWB	John Perone	3477 Africa Road	Galena	OH	43021	740-548-7707	
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	OH	43119		
W8SJV, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015	740-369-5856	w8sjv@bright.net
W8SMK	Ken Bird	244 N Parkway Dr	Delaware	OH	43015	740-548-4669	ken@midohio.net
N8SNG	Terry Rankin	414 Walnut Street	Findlay	OH	45840		
W3SST	John Shaffer	1635 Haft Dr.	Reynoldsburg	OH	43068		w3sst@juno.com
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	OH	45040		me@jamescarpenter.com
K8TPY, K8FRB	Jeff & Dianna Patton	3886 Agler Road	Columbus	OH	43219		cqcqk8tpy@juno.com
KB8TRP, KB8TCF	Tom & Ed Flanagan	1751 N. Eastfield Dr	Columbus	OH	43223	614-272-5784	ed48@columbus.rr.com
KB8UGH	Steve Caruso	6463Blacks Rd SW	Pataskala	OH	43062-7756	740-927-1196	dae14@copper.net
KC8UQS	David Dominy	7017 Taway Road	Radnor	OH	43066		
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	
KB8UWI	Milton McFarland	8287 Creekstone Lane	Blacklick	OH	43004	614-751-0476	
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328	wa8uzp@qsl.net
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062	740-927-3883	hiramhunter@aol.com
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123		Ohiomec@aol.com
N8XYZ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230		dbaughma@insight.rr.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	Bricks@dragonbbs.com
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125	614-202-9042	ka8zny@copper.net

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: Frank Amore WA8HFK
Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL ○ NEW MEMBER ○ DATE _____
CALL _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES ○ NO ○
HOME PHONE _____
NAME_____
INTERNET Email ADDRESS_____
ADDRESS _____
CITY _____ STATE _____ ZIP _____-_____
FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY
_____
COMMENTS_____
_____
_____
_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK ○ MONEY ORDER ○
Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, pay dues via the Internet with your credit card. Go to **www.atco.tv/paydues** 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 (04/24/04).....	$2424.10
RECEIPTS(dues).....	$ 130.00
Comtek module profit.....	$ 100.00
Member donations.....	$ 15.00
January and April Newsletter postage.....	$ (72.00)
Internet domain name charge.....	$ (50.00)
Pay Pal charges.....	$ (0.59)
Spring Event food and pop.....	$ (189.25)
Purchase 900MHz loop yagi antenna for ATCO/DARA link.....	$ (120.00)
Dayton Hamvention flea market spaces.....	$ (270.00)
CLOSING BALANCE (07/19/04).....	$ 1967.26

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.