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

This time we honor Milton, KB8UWI. Milton is new to ATV but seems very excited about the ATV portion of the Ham Radio hobby. Although he has no ATV transmitting capabilities at this time he is eagerly awaiting the time when he finds that PC Electronics ATV bargain at a hamfest. Although his present “shack” is located in the dining area of his house, the workbench and assorted shelves are under construction in the basement and soon to be relocated there. Because he lives in a very high elevation area, the need for outdoor antennas is not an immediate concern. However, he’s already eyeing prospective locations outside. Come summer, he may have that new transmitter AND antenna. Good luck Milton, we’re rooting for you!

ACTIVITIES ... from my "workbench"

WOW! The activity is really beginning to pick up. Now that the Christmas holidays are behind me, many unfinished things are surfacing. I need to settle down and concentrate on one thing at a time, which, incidentally, is one of my new year's resolutions. We'll see how it works out.

The number one item on the agenda was the ATCO/DARA link controls. However, since Ken got all of the 10 GHz transmitter parts ready, it seemed better to concentrate on that in the hopes of getting it in place before it got too cold late last year. Success! I installed the transmitter in a temporary location at the repeater site until it gets warm enough to permanently locate it in its final location. (A picture along with a more detailed description is located later in this Newsletter). The transmitter is operating as intended at this time on 10.350 GHz. Later it is planned to install a receiver operating on 10.450 GHz for full repeat operation on 10 GHz. I have not checked, but I do not know of any other repeater in the USA that has in band repeat capabilities on 10 GHz. If anyone knows of one let me know. Otherwise, we're first again as we were first to put one on 2.4 GHz also!!!

The 10 GHz receiver components are now being assembled and tested. A waveguide bandpass filter for 10.450 GHz is purchased, tuned up and ready to go when the receiver itself is ready. It turned out to be a larger chore than I expected to re-tune the filter from 10.5225 GHz to 10.450 GHz. It seemed such a small change but there are 14 tuning screws on the waveguide section and turning any one of them as little as a quarter of a turn threw the whole filter completely out of tune where it would pass NO signal. It took 3 hours with a network analyzer to get it right. Word of wisdom, DON'T TRY TO TUNE ONE OF THESE WITHOUT THE PROPER EQUIPMENT!

Another item required attention while installing the 10 GHz controls. I apparently connected a static charged cable to the 1250 MHz transmitter during the process. The 1250 transmitter worked OK but no video. I traced it to a bad video op amp at the input. This circuit worked perfectly for over 5 years and with my cable fiddling it became a silent key. Since it was difficult to fix there, I carted it home, found another op amp, installed it and took it back downtown the next day so 1250 wasn't down for too long. During that time we saw how much we depended upon the good quality and long range of that transmitter. (I believe it's our best band!)

Now with all of those things done, I turned my attention to the link controls. I have ordered two RF bricks for that system, one for the 1250 MHz signal from South Vienna to us and another one for the 915 MHz signal to Dayton. These are relatively new bricks from Mitshibishi and promise greater than 20 watts output for 50 mw input for the 915 brick and 100 mw input for the 1250 MHz brick. Tests have been going on between South Vienna and W8RVH's QTH on 915 MHz with an almost P5 signal. We feel that if we boost the now 10 watt signal to 20 watts and change the antenna from a 15 element loop yagi to a 33 element one we'll have enough signal to make it all of the time. Also, if we can find another piece of 7/8 Heliax at least 100 feet long, we can get the antenna up 20 feet higher and have less loss than we have now. I'm using a 75 ft piece of Cablewave 7/8 coax, which has about 3 dB loss. There must be something wrong with it as Andrews 7/8 is only about 1.5 dB/ 100 ft. I'll continue to work on the RF amplifiers and when done Dick, W8RVH, and I will install them and conduct tests during the remainder of the winter.

The channel 4 radar signal needs improvement but I haven't done anything about it yet. I have reason to believe that it is being transmitted from Channel 4 OK. I feel the 915 receive antenna at the repeater has something wrong with it. When it gets warmer, I plan to replace the omni antenna there with a small loop yagi and horizontally polarize it. Desense may be playing a factor here so cross polarization with respect to interference as well as some directivity may help. After all, the transmitter and receiver are only 6 miles apart under line of sight conditions.

The next upcoming piece of gear to be installed is a 434 MHz digital ATV transmitter. The parts are on order and are expected to be here sometime this January. When that happens we'll probably divert our attention to that.

That's all for now. More later. Look for the date for our next pizza party in mid February.
73
…WA8RMC

HAMVENTION SIGNS CONTRACT FOR 2004 SHOW AT HARA ARENA

Hamvention <http://www.hamvention.org> will be at Hara Arena near Dayton, Ohio, at least for another year. General Chairman Gary Des Combes, N8EMO, announced the one-show contract this week. The last Hamvention contract with Hara Arena was for five years. Des Combes also expressed confidence that behind-the-scenes management changes he's instituted since taking over July 1 will translate into success for "the world's largest Amateur Radio gathering and trade show."

"Overall, I think things are going very well," Des Combes said of progress toward pulling together Hamvention's 53rd show, which will take place May 14-16. "I'm confident we're going to be successful." The always popular annual gathering attracted slightly more than 22,100 visitors in 2003. That figure was down by more than 10 percent from the 2002 crowd, and it marked the third year in a row of declining Hamvention attendance.

Des Combes is banking that the management team and "best business practices" approach he's put into place for next spring's show will turn things around. One significant change is a shift away from jobbing out Hamvention's production to paid professionals and returning to the strong reliance on volunteers that was a hallmark of past Hamventions.

"Some of the volunteers, quite frankly, felt they were not welcome," said Des Combes, who believes that moving away from an all-volunteer Hamvention was a mistake and created some unease within the organization. Under his regime, some volunteer staffers from the past now have returned to the fold, Des Combes said. Most of the volunteers for the 2004 show are from the sponsoring Dayton Amateur Radio Association (DARA) <http://www.ceitron.com/dara/>.

The new order at Hamvention means that Garry Matthews, KB8GOL, is out as the show's paid production manager (See "How Hamvention Happens" <http://www.arrl.org/news/stories/2003/03/06/4/0004053.pdf>, by Rick Lindquist, N1RL, QST, Apr 2000). Matthews had served as the backstage impresario for more than three decades of Hamventions. Des Combes said he intends to spread out Matthews' former duties among several volunteers, saving money in the process. He's also establishing--and in some cases re-establishing--a set of committees responsible for various aspects of Hamvention. The Hamvention assistant chairman is Jim Nies, WX8F.

"We have to just work smarter and tougher," he said, adding that the management change will be invisible to those attending. "I don't think John Q. Ham will see anything much different." While the show is still in the planning stages, Des Combes said one possible change would be to have the award winners' recognition ceremony during Hamvention itself. The recognition event has replaced the traditional Saturday evening banquet, done away with this year because of slack attendance.

A project management professional, Des Combes says he anticipates the all-volunteer approach will make it possible for Hamvention to more economically mount a show that's of the same quality or better than those of past years.

"I can tell you I am leading sweeping changes in how we operate Hamvention," he said. All of them, he says, will better serve the vendors, DARA and the amateurs who attend Hamvention. "I think it's going to be good for everybody."

Ticket prices for the 2004 Hamvention will remain at the prices established prior to Des Combes' taking over the reins. Advance tickets for all three days are $20 ($23 park-n-ride bus transportation). Tickets at the gate will cost $25. All under 12 years of age are admitted free. Des Combes says arrangements are under way to enable on-line ticket purchases.
…From ARRL Newsletter.

APPEALS COURT UPHOLDS DTV TUNER MANDATE ARENA

WASHINGTON; An FCC rule requiring TV receiver makers to ensure that all but the smallest TVs are able to receive digital broadcast signals by 2007 was upheld by a federal appeals panel on Tuesday (Oct. 28).

The U.S. Court of Appeals for the District of Columbia rejected a bid by consumer electronics manufacturers to block the digital TV tuner mandate. They had argued that installing digital tuners would make sets more expensive.

"We obviously are disappointed by the D.C. Circuit Court of Appeals ruling, which we are still studying," Gary Shapiro, president of the Consumer Electronics Association (Arlington, Va.), said in a statement.

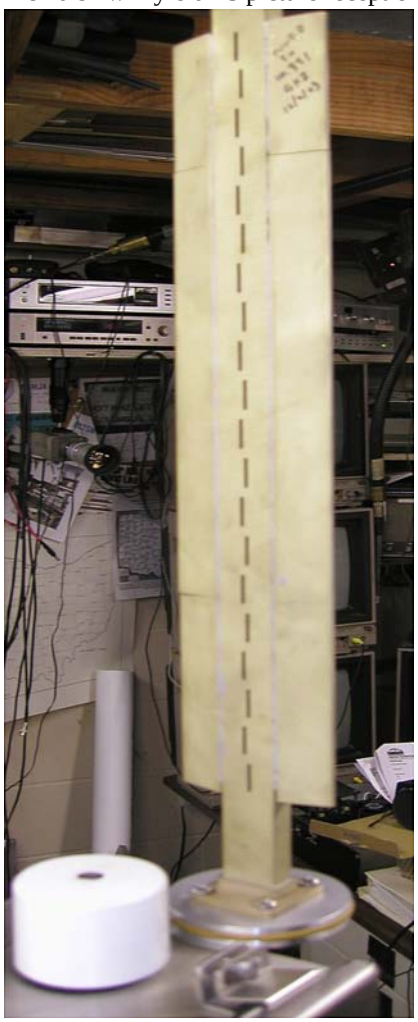
"We certainly reached a critical tipping point a few weeks ago with the FCC's adoption of the historic cable plug-and-play agreement. From here, the Commission needs to be vigilant in ensuring that this well-crafted plug-and-play agreement is dutifully implemented and enforced."

In a statement, FCC Chairman Michael Power said: "We're on track to have most television sets digital-ready by 2007. This will ensure that consumers are able to enjoy high-quality digital broadcast programming without the hassle and expense of hooking up a separate set-top box". This article is sponsored by Motorola, click here to visit their site:
www.motorola.com/webapp/sps/site/overview.jsp?nodeId=02XPgQZ7FrsBSlMNPr4vqn&tid=WBSGAD1
…From EE Times Friday Oct 31, 2003 Reprinted by permission.

10 GHz TRANSMITTER NOW OPERATIONAL

Hold on to your hats folks! We now have another repeater output to look at. During the Christmas holiday I was blessed with good weather and the spare time to install our latest addition to the ATCO repeater. It went operational on December 18 with a special character overlay in the video and the announcement that the first one to see it and identify the overlay video would receive a special prize. Well, through no fault of his, Bill Parker, W8DMR, was the first to see the signal but unable to identify the video. When I installed it, I used a bad video cable so no information was visible. The next day I corrected it and John Beal, W8SJV was then able to see the correct video while Bill was busy doing something else. (Sneaky wasn't it?) Never the less, will you allow me to declare a "tie"? OK, now for the prizes. Let's see…

The new output is 10.350 GHz (yes, that's gigahertz), which may seem like something not easily received but NOT SO. Even though the output is only 1 watt, the antenna gain boosts that signal by 16 dB to give it an ERP (effective radiated power) of about 40 watts. It's a horizontally polarized signal dictated by the waveguide fed slot antenna used. I was surprised to find that with little effort, a "Direct TV" 18 inch dish will yield P5 picture reception from as far away as 20 miles (W8SJV's house).



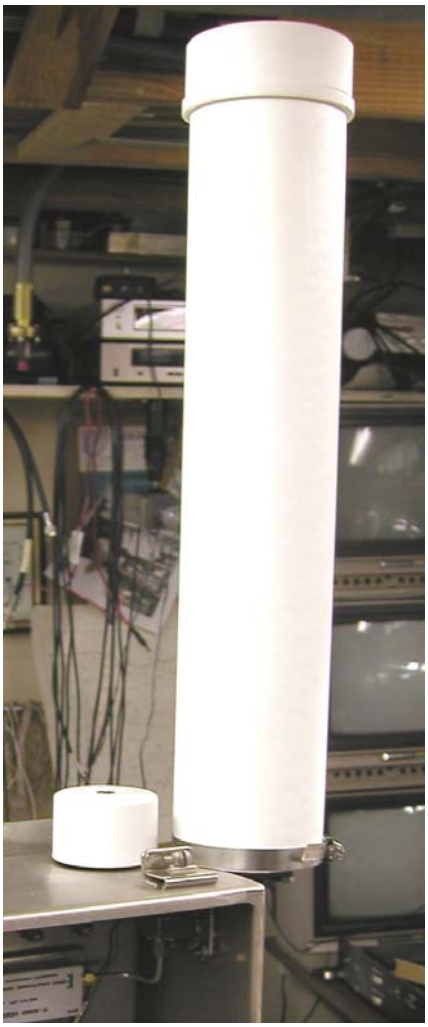
The pictures show what the transmitter unit and antenna looks like as well as a glimpse of the installed location.

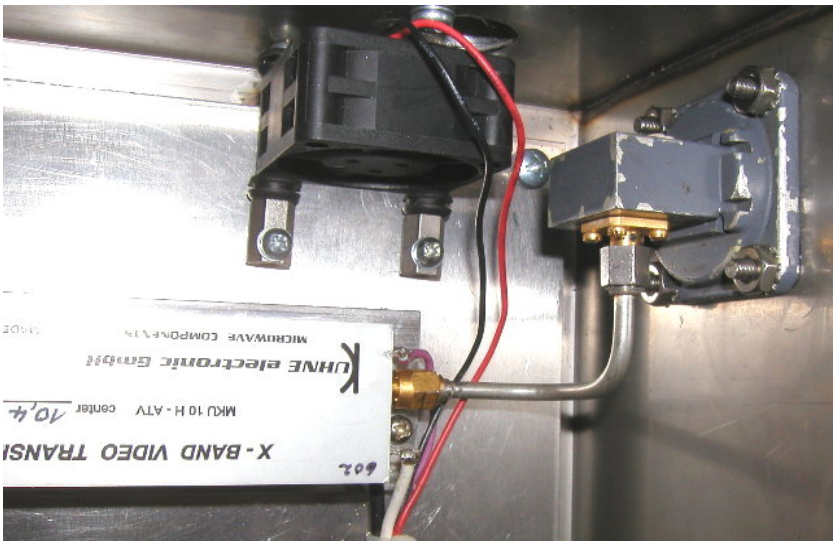
The photo on the left is the slot antenna mounted on the top corner of the enclosure with the radome removed. Below and to the left of the antenna is a partial view of the cabinet vent device. Notice the "wings" attached to the antenna sides. That, I am told, is to re-direct some of the RF for a true omni directional antenna pattern. I'll take their word for it for I've never seen any documentation to prove it either way. The basic antenna is just a piece of rectangular WR90 waveguide with vertical slots on both opposing sides and a shorting bar at the top.

The right photo shows the antenna with the radome installed and clamped in place. (Please ignore the junk in the background.)

The below left photo is a close up view of the bottom portion showing the slots and "wings" in more detail. I mounted a circular aluminum plate attached to the waveguide feed portion with "O" ring to clamp the plastic radome in place. Below the plate (not seen) is a waveguide 90 degree elbow entering the cabinet.

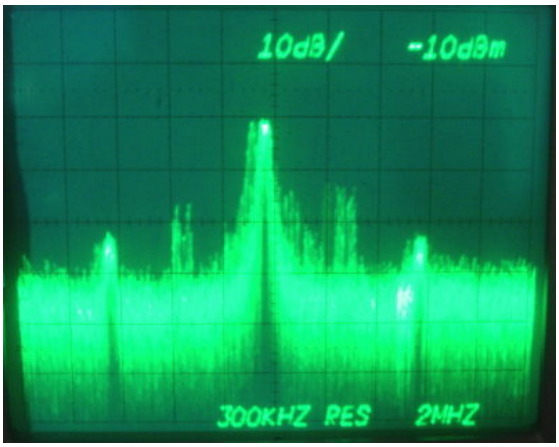
The below right photo shows the cabinet inside where the waveguide enters and is converted to rigid coax via an SMA connector. The actual 1 watt transmitter is shown to the left of the coax. Above it is the vent fan for those warmer days ahead.



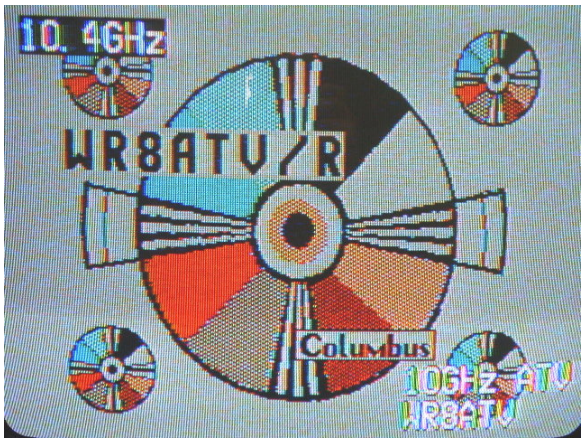


Below is a picture I took of the antenna and transmitter enclosure in position among the antenna "farm" on top of the repeater building. It's hard to see but visible in the distance is the Columbus skyline looking east 650 feet above street level. It looks like a mess…well, I guess it really is, but there's a lot of other stuff there also. I temporarily mounted the enclosure to one of the vertical Unistruts holding the other coax runs. The coil of wire is on the enclosure and ready to be extended to a new location about 30 feet higher when the weather gets better in the spring.

So what are you waiting for? Pick up a "Direct TV" dish at the next Hamfest (going price is $5), order a special LNA unit from W8RUT (he gets them from Europe for about $50), mount the combo on your tower or other line-of-sight location to downtown, plug the cable into your LNB converter used for 1250 MHz repeater reception and you're in business. Even some not quite line-of-sight locations also yield good results so if you can't "see" downtown, don't let that stop you.



To the right is an actual picture received at John's QTH, W8SJV. As you can plainly see, it is P5 in Delaware, Ohio, about 20 miles north of the repeater. On the left is the spectrum plot of his received signal. Notice the equal audio and video subcarrier sidebands.
…WA8RMC



WB8INY IS NEW OHIO SECTION EMERGENCY COORDINATOR

The 1974 tornado destruction of Xenia, Ohio made such an impact on John Chapman, WB8INY, that he knew ARES emergency communications would be in his life for good. And he will put that dedication in his new task - Ohio Section Emergency Coordinator.

Ohio ARRL Section Manager, Joe Phillips, K8QOE, has appointed John to be Ohio SEC to succeed Larry Rain, WD8IHP (SK) who became a silent key Sept. 9, 2003. "This was the most difficult decision I've had in five years as SM because three outstanding DECs had applied." Said Phillips, "John Chapman is committed to continuing the great direction of Ohio ARES program which Larry Rain began."

John, a Worthington native, was graduated from Ohio State in 1978 with a degree in Computer and Information Sciences. He began his lifelong fascination with amateur radio while operating in the radio shack of W8LT (the OSU ham radio station). He holds an extra class license, is a mentor on all three ARRL Emergency Courses and a Red Cross Instructor. He worked his way up the ARES ladder - first as EC of Franklin County and District Emergency Coordinator for District 7. John has served the last seven weeks as Interim SEC.

He and His wife, Judi, reside in Gahanna (Franklin County) with son, Austin and enjoys chasing DX (particularly QRP on camping trips), and SCUBA diving. But the 1974 tornado, where he was assigned in emergency communications had a permanent impact on him. "I couldn't believe the destruction once I saw Xenia - the full impact of that damage I'll never forget."

(John has helped ATCO with the Red-White-Boom activities for a number of years. His participation is very much appreciated. WA8RMC)

SHARPER CMOS IMAGERS SHARE TRANSISTORS AMONG PIXELS

TOKYO; With more mobile devices equipped with cameras, CMOS imaging technology developed for embedded applications is showing marked improvement in terms of smaller pixel size and picture quality, according to papers to be presented at ISSCC 2004 conference scheduled for February.

Three papers on CMOS imagers will be presented at ISSCC by Canon, Matsushita and Sony. All said they are pursuing smaller pixel sizes and improved picture quality through new architectures that share transistors among pixels.

While conventional CMOS image sensors employ three to four transistors per pixel, new CMOS imagers would employ less than two transistors but reportedly achieve picture quality comparable to CCDs.

Matsushita will report sharing seven transistors between four pixels, with each pixel measuring 2.25 micron and based on 0.25-micron process technology. The pixel size is the smallest recorded; including CCD image sensors, said Hirofumi Sumi, senior distinguished engineer at Sony's image sensor unit and ISSCC program committee member.

Canon's imager also uses a shared scheme to form a pixel with 1.5 transistors. Conventional CMOS sensors suffer from readout noise and dark current problems, but Canon will report that it has lowered the dark current to 50pA/cm2 at 45 degrees C.

Sony researchers will report on a two-transistor-per-pixel imager that focuses on low power consumption. It operates at 60 frames per second with 49 mW dissipation.

Like CCDs, all three sensors employ pinned photodiodes to improve image quality without increasing the number of transistors.
…From EE Times 11/14/03 This article from http://www.eet.com Reprinted by permission.

TOWER CAM CONSIDERATIONS

Dave, KC3AM, asks about a tower cam focus problem and gets some other helpful advice that is well worth considering:

Hi,
I have a Sony Handicam CCD-TR64 that I would like to use for a tower cam at my ATV repeater. This camera has an automatic focus feature that I need to turn off. It does not have a manual / automatic focus switch. Does anyone have any suggestions on how to defeat this function? My only thought has been to open up the camera, point it at a distant object and disable the focus motor.
Dave KC3AM

N5MBM answers with the following:
I don't have your answer but I do have a caution. Through the years I have gone through more than a half dozen tower cameras as well as several other outdoor security cameras. None of them lasted much more than 18 months in an outdoor enclosure, with a fan running and turned on 24 hrs a day. This is not to say that some of them did not last longer than 18 months it is just the performance takes a dive and as time goes on they get worse and worse. Of course this experience has all been had in South Texas, no several months below zero, but lots of months in the 90's and above and strong sun.

My best tower cam was a .02 lux B&W camera with a C-mount lens. It literally saw in the dark, was zoomable and mounted on an az/el mount at 60 ft. – easy to keep out of the sun! Color cameras were nice but very short lived in the outdoor enclosure, the colors went "off" and it turned to "gray" as soon as it got dark. The CCD lost it's sensitivity quickly and was good for nothing more than full sunlight after a few months in the summer heat. Lightning plays havoc with surface mount components too, keep this in mind!

The moral of this story.....For an outside camera, only put up something cheap and readily replaceable, expect it to fail, build it to be serviced and repaired on the tower, especially after a big lightning storm and understand it's performance limitations.

Good luck with your project! And I hope you find your answer....
…N5MBM Bill Potter Chappell Hill Tx.

Clint, KA7OEI, also has some experience in this area…
Other than disconnect the motor, I don't have any great ideas as to how to kill the manual/auto focus. If you are able to kill the focus (e.g. add a switch) make certain that you do your "manual" focus at night - with a wide-open iris!!! Some cameras also have a LANC port that offers more control than is "officially" available - but you'd have to do your own research. (Sony is well-known for doing this...)

Several years ago, at work, we put together a bunch of remote-controlled tower cameras for local TV station for traffic monitoring, tied back to the studio on 23 GHz microwave. We used Sony camera modules (EVI series - the 310, 330 and 370 series) that are single-CCD, with serial control, etc. (These cameras were also used for in-car video for law enforcement and if you have watched the "Cops" show, you have very likely seen one of the systems we put together...) Having had quite a bit of experience with outdoor devices (cameras, radios, etc.) and knowing what to expect, we did the following:

All power supplies were isolated. At the base of the tower, there is an AC power supply and 15 VAC is sent to the camera. In the enclosure, this is rectified, filtered, and then regulated for the camera. This supply is not used (at the base) for anything else. There were also some series resistors (a few ohms) and caps across the AC line at the camera for additional transient absorption.

All camera controls were via opto isolators. Again, there is no continuity between the camera controls (focus, zoom, auto focus on/off, etc.) to the camera.

We used outdoor-rated camera enclosures with fans and sun shields (Pelco, actually...) The fans are nice, but it's *really* the sun shield that keeps things from cooking. The sun shield is another piece of metal between the top of the enclosure and the sky. It's spaced 1/2 inch or so from the "real" top of the enclosure, so that heat won't directly transfer from the shield to the lid. (These enclosures are powder-coated white.)

Another thing that can help is a video buffer amplifier. In some cases (such as our) this can take the form of a simple emitter-follower - but the precise circuit configuration may depend on your camera's output configuration. The entire point of this device is to put one layer between the real world and the camera: A transient coming along the video line has to get through the emitter-follower circuit before it can blow up the output of the camera.

Often, "hum buckers" were added. These are the coaxial chokes used to break ground loops in video lines to prevent 60 Hz hum. All these are RG-174-sized 75 ohm coax wrapped on a toroid or transformer core, providing typically 10-30 mH of common-mode inductance (depending on brand) and, thus, a few ohms at powerline frequencies. These also did a good job of keeping RF currents from AM broadcast stations and transients from getting on the video line.

We put perhaps 8 of these cameras together and the only failure that we had was when the tower (most were on cell towers) on which one of them was mounted took a direct lightning hit: The composite video output was blown up, but the S-video output was OK. - It was then that we decided to add the emitter-follower to the cameras when they were next serviced (usually using a crane and a "man-basket.) The biggest problem, of course, is a dirty lens: Every so-often someone has to climb the tower and clean the stupid thing - Especially after bird migration...

These camera/enclosures were mounted directly in the weather (in 1997) and have survived several record-breaking summers where the daily temperature was >100 F for many days at a time. The only problem that has started creeping up is that one or two of them get sticky zoom/focus on very cold days. Most of them have been removed from traffic monitoring service and are now mounted outside at the studio or on the mountaintop transmitter site and used for "beauty shots" and/or do time-lapse weather. (They still look *really* good...)

As for using a consumer camcorder, I don't know how well those hold up. Many of them run pretty hot in normal use, being confined in their plastic cases, and perhaps that might be why they might not hold up in a sun-baked enclosure. Some of the older ones (late 80's, early 90's) *will* die on their own owing to longevity problems with the electrolytic capacitors that were used - and a warm environment will certainly hasten this problem. We put our camera blocks in a well-ventilated aluminum sub-enclosure within the main enclosure.
…Clint KA7OEI

DECEMBER PIZZA PARTY

Well, here we are again. It's pizza party time at Donato's in the Easton complex, which seems to be the place of choice. The first part of December each year usually seems to be a good time for it's after Thanksgiving and before we get too involved in Christmas. But, just perhaps, it's because Ted, N8KQN, reminds us. No, I don't think so. If we left it up to him, it seems, we'd have one each week! (I'm just kidding you, Ted. We all need to get together frequently. We enjoy it very much.)

Now that I've said that, let's plan to get together again about mid February. We'll discuss the date and place on the Tuesday night net but lets shoot for February 21.

Below are the people that joined us last time. I didn't count but I believe there were about 15 of us present. Good showing!

ATV LOOSES A GREAT PIONEER

Robert S. Bennett, W3WCQ, SK: Bob Bennett, W3WCQ, of Baltimore, Maryland, died December 6. He was 67. Bennett was an ARRL Atlantic Division Assistant Director and, as president of the Baltimore Radio Amateur Television Society (BRATS), was well known within the Amateur TV community. "W3WCQ was our expert on ATV," said Atlantic Division Director Bernie Fuller, N3EFN. "He will be missed." Bennett also was an acknowledged expert on weak-signal VHF work and once served as the Atlantic Division representative of the now-defunct VHF-UHF Advisory Committee (VUAC). ARRL Vice President Kay Craigie, N3KN, was among Bennett's many friends. "I respected him not only for his technical knowledge and willingness to share it with others, but also for his good humor, common sense, candor, and ability to speak and write extremely well," Craigie said. "He was a valued advisor to several Atlantic Division directors, myself most definitely included." An ARRL member, Bennett also belonged to the Quarter Century Wireless Association and served as a local chapter president. A service was held December 10.
…The ARRL Letter Vol. 22, No. 49 December 12, 2003

CHINA UNVEILS ITS OWN VIDEO FORMAT

PARIS In a move calculated to separate itself from new consumer electronics standards emerging elsewhere, China on Tuesday (Nov. 18) announced a new digital video format called Enhanced Versatile Disc (EVD), a high-definition consumer optical disk system targeted for use in much of Asia.

The EVD system, designed to record and playback digital video, audio and data, will use proprietary video codecs called VP5 and VP6 developed by On2 Technologies (New York). As part of the EVD announcement, LSI Logic also claimed to be the first semiconductor supplier to deliver high-definition EVD technology. LSI Logic said it would provide encoding and decoding technologies based on its media processor architecture called DoMiNo.

China's EVD system can store a two-hour movie in high definition resolution on a single disk without using a blue laser pick up.

The Chinese initiative flies in the face of industry forums, such as the DVD Forum and Blu-ray group, who are competing to define next-generation high-definition optical disk specifications that effectively cover the rest of the world.

Seeking to control its own destiny, China developed its first optical-based format to support high-definition playback for videodisk players, home terminals and HDTV devices; tossing a wild card into the worldwide standards debate.

Among the uncertainties posed by the EVD spec is the payment of royalties. When EVD players become capable of playing current generation DVD disks, the EVD system does not necessarily abrogate any Chinese companies' obligation to pay the royalties prescribed in the DVD standard.

However, in moving on to the new high-definition system, it would be more advantageous for China to adopt On2's VP5 and VP6 rather than using MPEG-2 or emerging H.264 standards-based video codecs, said Douglas A. McIntyre, chairman, On2's president and chief executive. “It's a matter of cost and higher compression,” he said.

According to McIntyre, On2 has agreed with Chinese officials to provide its proprietary codecs at $2 per player. The company will charge no fees for disks that use On2's codecs for compression. “When you consider hundreds and thousands of disks to be sold, our scheme for no royalty fee per disk is a big advantage,” he added.

It remains unclear whether China's EVD spec will get any support from Hollywood studios. Michelle Abraham, senior analyst at In-Stat, said, “Studios are sitting on the fence about releasing any high-resolution DVD content. No one seems inclined to move.”

Chinese consumer electronics manufacturers unveiled the first EVD content and EVD optical disk players in an event held at the Great, Hall of the People in Beijing on Tuesday. The event was co hosted by several government ministries.
For more technology news, visit http://www.eet.com
…Junko Yoshida EE Times November 18, 2003 Reprinted by permission.

COOPERATION IS THE BEST APPROACH AT 2390-2395 MHZ

The ARRL has told the FCC that it can support Amateur Radio sharing of 2390 to 2395 MHz on a co-primary basis with flight test telemetry stations. The Amateur Service has 2390 to 2400 MHz on a primary basis. Earlier this year, in a Fourth Notice of Proposed Rule Making (NPRM) in ET Docket 00-258, the FCC proposed permitting federal government aeronautical mobile and non-government aeronautical flight test telemetry to operate in the first 5 megahertz of the band. In reply comments in the proceeding filed December 1, the League told the FCC that it's agreed in principle with the Aerospace and Flight Test Radio Coordinating Council (AFTRCC) <http://www.aftrcc.org/> to develop coordination procedures.

"ARRL believes and continues to believe that this will result in a harmonious arrangement that will not significantly disrupt ongoing and developing amateur operations," the League's reply comments said. The allocation shift is part of the FCC's efforts to accommodate users displaced from other bands reallocated for Advanced Wireless Systems. AFTRCC initially had called on the FCC to preclude "any new amateur use" of the 2390 to 2395 MHz segment and grandfather any existing usage on a secondary basis. At the time it commented, however, AFTRCC was acting on the presumption that amateur use consisted only of ATV. The ARRL noted that amateurs also are developing wideband data systems for the spectrum.

In its comments filed November 3, the ARRL expressed confidence that the co-primary allocations envisioned for 2390-2395 MHz would, in the end, prove compatible, provided the FCC affirms the need for cooperative frequency coordination. The ARRL reiterated that position in this week's reply comments.

"The need for active frequency coordination is especially compelling with respect to non-government flight test telemetry," the League said. The ARRL asserted, however, that 2395 to 2400 MHz "must remain an exclusive amateur primary allocation.
…The ARRL Letter Vol. 22, No. 48 December 5, 2003

ATCO FALL EVENT…A great time for all.

We held our annual ATCO Fall Event on October 20, 2003 at the ABB shelter house with about 25 of our friends. Fun for one and all. We had great weather and the food was sufficient. After the usual rag chewing and mini flea market purchases (swapped items) we settled down to a general meeting about past present and future items on the agenda.

Some of the items discussed were the ATCO/DARA link progress, digital ATV, the roof cam, the 900,1200 and 2400 MHz modules, the 10 GHz transmitter, and our Franklin County EMA affiliation. On the affiliation topic, Tom Taft, KA8ZNY, was appointed the primary contact with Ken Morris, W8RUT, identified as the backup. Frank Amore was officially identified as the statutory agent as he officially re-certified us as a non-profit corporation for another 5 years. Below are pictures of some participants.

Here's Bob N8NT, John W8SJV and Ken W8SMK. Note Ken's hat. (I think that's what they're talking about).

Here we caught Jessie KB8OFF eyeing the food. Watch it Jess. I haven't said "GO" yet!

Below are the door prizes missed by those that did not attend. Remember, "No one went home without a door prize".

Wilbur K8AEH (far left) , Dale WB8CJW, Paul W8RRF and Ken W8RUT discuss some agenda items. Do you think Paul and Ken (above left pix) should exchange hats?

OUR REPEATER IS RUNNING OUT OF SPACE

Yep! Space is becoming a premium issue these days. Throughout our occupational history, things have grown and taken up most of the available rack space. There is still room to compact things a bit but it's becoming increasingly apparent that we need to clean things up a bit. It's quite messy too for we have not had the luxury of being able to re-arrange things "on line". As you can see from the rear view on the right, the required filters take up much of the room. The cables also dictate their own place in the cabinet so it's difficult to do too much clean up work around them. However, some items DO need to be fixed and the 439 receiver is among them. I'm embarrassed to point it out but the box dangling from cables toward the bottom of the cabinet is the 439 receiver. I haven't moved it because it works best in that location. Any other placement seems to invite external interference soooo….

FRONT VIEW

REAR VIEW

QUESTIONS SWIRL AROUND INDIA'S DIGITAL ROAD MAP

BANGALORE, India " The Indian government's decision two years ago to allow the uplink of satellite television broadcasts from within the country is one of many factors driving India toward greater use of digital TV, but opposing factors standing in the way are equally strong and numerous. That's put a good deal of uncertainty, and guesswork, into this country's conversion to DTV broadcasts.

India has not specified a date by which all TV transmissions must be made in digital format. Nonetheless, the government is "encouraging broadcasters to go digital," said V. Srinivasan, director of South Asia marketing and sales at Tektronix (India) Ltd. Tektronix is the dominant supplier of analog broadcast equipment in India and is also looking to supply digital broadcast equipment here.

As in China and the United States, analog and digital TV transmissions coexist in India, though most transmitters and almost all televisions in use here are analog.

How soon the changeover to digital transmission occurs will depend largely on Prasar Bharati, the statutory body that operates India's radio and television channels. Doordarshan, the board's television arm, was India's only broadcaster for years; with 1,421 transmitters and 23 channels that collectively reach nearly 90 percent of the country's population, it still leaves private broadcasters in the dust. Most of the transmitters used to reach Doordarshan's 360 million subscribers are analog, though the operator is upgrading its systems for digital transmission and simulcast mode.

"Digital transmission has already been active in India, though on a small scale," said Alex G. Manappurathu, general manager for consumer electronics at Wipro Technologies. "For it to fully take off, we would need set-top boxes that could convert the digital broadcast signals to analog displays, since almost all of the current television sets in the country are analog."

Second, Manappurathu said, the conditional-access system (CAS) "that is already in place from the digital broadcaster to the local cable operator needs to be further extended to the end consumer." The technologies for the transition are already accessible in India, he said, "but ultimately it would be the government's decision to take this initiative forward."

Policy flip-flops about getting CAS television to the viewer have created confusion that makes it hard to predict when all transmissions will be digital or when viewers might scrap their analog televisions for digital ones. The latter change is even harder to predict because consumers here are not known for their quick acceptance of new electronics technologies.

In some regions where CAS has been introduced, viewers are unable to watch many of their favorite free broadcast channels, casting doubts over CAS.

While broadcasting technology has only started to go digital in the last two years or so, content production is moving to the digital format, with only a few channels still sticking to analog. Most of the bigger private broadcasters, including the Rupert Murdoch-owned Star Television and regional language channels, have adopted the digital format for both transmissions and content.

Equipment that supports digital transmissions is not made in India, which is struggling to establish an electronics-manufacturing base, and therefore must be imported. Currently, import duties for much digital transmission equipment are 51 percent, an amount that seems tolerable only when compared with the 80 percent charges of three years ago. "The lack of electronics manufacturing in the country is the biggest problem," said Srinivasan of Tektronix, which imports equipment from its U.S. and U.K. factories.

Wipro's Manappurathu, however, thinks that "digital television should become prevalent in a couple of years" as set-top prices decline.

visit http://www.eet.com

…K.C. Krishnadas, EE Times PlanetAnalog November 24, 2003 Reprinted by permission

ATCO PLANNED EVENTS FOR 2004

I'm going to try and set a trend for the future! Each January I'll attempt to set dates for our Spring and Fall events, antenna party and tentative dates for the pizza parties. Keep in mind that the following are tentative and subject to change. Without more fanfare, here goes.

February 21, Saturday, 7:00PM Pizza party. Place to be announced.
May 2, Sunday 1:00PM Spring Event at ABB shelter house
May 14, 15, 16 Friday, Sat & Sun: Dayton Hamvention. I've reserved our same three spaces 3037, 3038 & 3039 and ordered 12 vendors tickets. First come first serve.
July 3, Saturday Red White Boom TV surveillance. Volunteers are needed.
July 25 Sunday Antenna party at Ted's house (if he'll have us – how about it Ted?)
October 31, Sunday Fall Event. Place to be announced.
December 11, Saturday 7:00 PM Pizza Party. Place to be announced.
…WA8RMC

"SUNTRACKER" BALOON LAUNCHES FROM FINDALAY OHIO

Suntracker IX was launched at about 11:40 a.m. EST on Saturday, December 6th, from George WA8HDX's farm outside Findlay, OH. We were prepared for an 11:00 .a.m. launch. As we moved the balloon from the barn at 10:50 a.m. and worked our way around the barn to the field, a gust of wind pushed the balloon into a pole and it ruptured. We successfully moved the second balloon from the barn to the field and tethered it to insure it cleared the trees, power lines etc. During the tethering of the balloon, the package descended and crashed in the field. Inspection showed the 70 cm antenna support broken. We used duct tape to repair the support, tethered the balloon and successfully launched it about 11:40 a.m. (plus or minus 5 minutes).

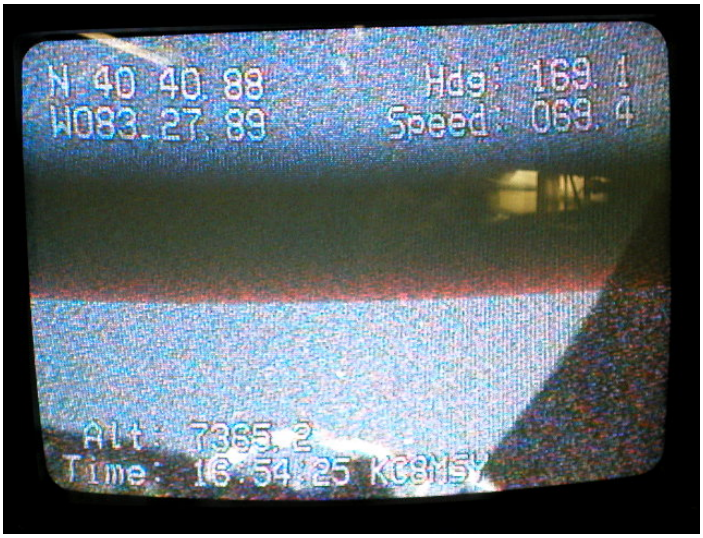
Within 15 minutes of launch, the signals in the mobile unit were in the noise, however, George WA8HDX reported strong signals on 144.34 MHz but they appeared to be decreasing faster than noted on prior flights. Bill WB8ELK's balloon trajectory forecast predicted landing in Groveport, OH. We left for Groveport and received telephone reports on the 144.34 and 439.25 MHz signal levels while in transit. Reports were that good video was being received on 439.25 MHz but that the 144.34 MHz signal quality was poor. Bill updated the landing site to within five miles of the intersection of routes 674 and 752, about 5 miles south of Lithopolis, OH, with an estimated landing time of 2:20 p.m. We met Larry KB8VUM and Fred KE8SS at the predicted landing site and DF'ed the area until dark; no signals were detected. We left for Detroit around 6:30 p.m. without the scientific package. There are signs on the package with contact information.

We have independent reports that the balloon ruptured between 1:35 and 1:36 p.m. EST; altitude between 33,808 and 33,900 meters; lat between 40 degrees 08.91 minutes and 40 degrees 09.00 minutes; lon between 82 degrees 59.76 minutes and 83 degrees 00.00 minutes.

Bill used flight data and antenna bearings to update the landing site to 6 miles south of the intersection of routes 674 and 752 near Cedar Hill, OH.

A more detailed Suntracker IX report will be issued when we receive and analyze data.
…James R. Woodyard Wayne State University Department of Electrical & Computer Engineering
5050 Anthony Wayne Detroit, MI 48202-3902 woodyard@wayne.edu

The following pictures are all that I have that are worth printing. The actual video was better than these pictures suggest. A number of us had a lot of fun tracking the balloon as it traveled over the Columbus area. In fact, it touched down within 2 miles from Paul's house, W8RRF, in Lithopolis. (Paul, your "city" is now famous)!
…WA8RMC



LATE NEWS BULLETIN!

An announcement was made in December following the Suntracker IX flight that the Suntracker X flight was tentatively scheduled for January 24th. The flight is canceled until sometime in February. We are still post-flight testing the system to determine failure mechanisms as well as awaiting delivery of new motors. A report on the Suntracker IX flight will be issued before scheduling the Suntracker X flight.

Thank you for your interest.
… Jim Woodyard, KC8MSY
Suntracker Web Site: www.suntracker.eng.wayne.edu (under development)

W8RWR BUILDS "COMBOX"… Bob finds new way to house his "goodies"

Yes, I know this departs from the usual ATV activity but is noteworthy none-the-less. Bob has gone to the trouble to package his Ham equipment to make it ready in case of an emergency. His novel approach involves putting the equipment inside a plastic tool cabinet, the one usually found in the back of small pickup trucks. He reports that he has about $20 invested in it. Nice job, Bob.

The big COMBOX Has A 2 meter / 70cm dual band ICOM 2710 radio in it with two speakers, 1 For 2 meters and 1 for 70cm. It also has an SWR meter in it.
I am also going to put a 12 volt battery system monitor and 1 or 2 fans in it to keep the radio cool in the summer.
It was fun thinking about how to mount the radio & speakers.
…Bob, W8RWR

WI-FI WORLD RECORD - 110 km ON 2.4 GHz

INTERLINE company, a leading Polish microwave antenna producer, set itself a goal to check possibility of establishing a wireless link in 2.4 GHz band with direct sequence spread spectrum DSSS (802.11 b standard) at a range currently being only a subject theoretical dispute. The aim of the enterprise was a practical assessment of possibilities and study of phenomna concerning such a link.

It should be stressed that the link built is typical ground link and that diversifies it from the one built at the end of 2002 by Swedish company Alvarion and Swedish Space Corporation, which used a stratospheric balloon.

What is equally important, all elements used in the INTERLINE experiment are off-the-shelf, unmodified equipment available commercially (1.1 meter parabolic antenna and a 500 mW amplifier). Swedish experimenters used 2.4 m parabolic antenna and a 6W amplifier.

NEW WORLD RECORD ON 2.4 GHz

The 2.4 GHz IEEE 802.11b distance record of 110 km set by "http://www.interline.pl/interline.php?s=czytelnia/110km_en" earlier this year has been broken by a team from Weber State University's College of Applied Science and Technology Telecommunication and Business Education department in Ogden, Utah. The new record, 82 miles or 132 km, was over a line of sight path from ATK Thiokol at Promontory, west of Ogden, to a parking lot at Draper, Utah.

The precise locations, setup, test procedures and equipment are described "http://classes.weber.edu/wireless/Project%20Information.htm" . The antennas were two Primestar 2.4 dishes with biquad feeds. Information on building the feed is posted on Trevor Marshall's "http://www.trevormarshall.com/biquad.htm" Biquad feed for Primestar dish page. The radios were "http://classes.weber.edu/wireless/Specs.htm" Cisco AIR-LMC352 PCMCIA cards in laptops with 1.5 watt bidirectional amplifiers from "http://www.fab-corp.com/index.htm" Fleeman, Anderson & Bird. Link speed was 1 Mbps.

In addition to the project information, photos and lessons learned (including "Unsure of FCC regulations" -- legal for Amateur Radio use, may not be legal for commercial use) are linked to from the Weber State University "http://classes.weber.edu/wireless/Default.htm" Wireless Home Page.

……

OK ATCO! Those guys were using "wireless Ethernet" devices to establish their record. ATV propagation characteristics should be similar so let's see what can be done. I don't know what the world record is for ATV on 2.4 GHz but it probably is not that far. With the above information, at least you can see what is possible. Is there anyone out there with more details? Is it possible in this part of the country with our "flat" terrain without mountain tops? Maybe!!!
…WA8RMC

RACK CABINET FOR SALE

Winstead 36” Wide X 34” Deep X 84” High Steel Rack enclosure on casters. Has sloping shelves & 2 sliding shelves. Cost new over $2,000. Perfect for ATV & radios. Excellent condition. $ 300.00. …W8RXX John 740-548-7707

ATCO AT NELSONVILLE HAMFEST

Again, we had a great time at the Nelsonville hamfest and, as usual, ATCO had a major showing. This is a small hamfest by all standards with probably less than 300 people in attendance but, for some reason, it’s just a great place to be. This year is definitely larger than last year with tables out of the cafeteria and down the hall. The ATCO regulars had 3 tables this year with various items for sale.

The weather was miserable but even so, I’m glad I went. It helps break up the winter. Below is a picture of some of our group. From left to right are Ted N8KQN, Jay KB8YMQ, Paul W8RRF, Roger WB8DZW and Ken W8RUT. There were a few others also but I couldn’t round them up for this picture. …WA8RMC

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.

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

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

http://www.hampubs.com/	ATVQ Magazine home page. ATV equipment & article references.
http://www.hamtv.com	PC Electronics Inc. Lots of proven ATV equipment for sale.
http://downeastmicrowave.com	Down East Microwave Inc. Lots of uhf/microwave parts & modules.
http://www.arrl.org/hamfests.html	Current yearly hamfest directory.
http://amsat.org	AMSAT satellite directory/home page.
http://www.arrl.org	ARRL home page
http://www.arrl.org/fcc/fcclook.php3	ARRL/FCC revised CALLSIGN database. Search call sign or name.
http://hamradio-online.com	Ham Radio Online "newsletter" Lot of Ham related info.
http://www.qsl.net/atna/	ATNA homepage
http://www.ham-links.org	Ham Radio collection database
http://fly.hiwaay.net/~bbrown/index.htm	Tennessee Valley Balloon launch info (Bill Brown WB8ELK)
http://www.ipass.net/~teara/atv4.html	Arizona ATV 2.4Ghz Wavecom page (Wavecom mod. info)
	Space Shuttle Launch Info Service & Ham TV System (LISATS)
http://www.svs.net/wyman/	Wyman Research Inc. W9NTP Don Miller ATV equipment
http://www.m2inc.com /	M2 Antenna Systems Inc.
http://www.dci.ca/amateur_radio.htm	DCI Digital Communications Inc. Bandpass filters
http://scott-inc.com/wb9neq.htm	Kentucky, Airborn ATV from WB9NEQ in Bowling Green
http://www.icircuits.com/	Intuitive Circuits Inc
http://www.qsl.net/kd4dla/ATV.html	KD4DLA ATV web page index
http://www.severe-weather.org	Columbus, Ohio severe weather net at Columbus airport
http://www.mods.dk	Ham radio modification lists.
http://gullfoss.fcc.gov:8080/cgi-bin/ws.exe/beta/genmen/frequency.hts	look up any frequency on the FCC data base.
http://www.fcc.gov/wtb/	Starting point from which all radio license holders can be found
http://www.labguysworld.com	Lab Guy Antique TV camera listing
http:\\www.earlytelevision.org	Antique television museum in Hilliard, Ohio
http://radioscanning.wox.org/Scanner/scanner.htm	Radio scanner info for all frequencies in Columbus, Ohio area.
http://www.labguysworld.com/	Television recorder history web page. Lots of tv info.

HAMFEST CALENDAR

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

18 Jan 2004	+	Sunday Creek AR Federation **Contact:** Russ Ellis, N8MWK 8051 Kochis Road Glouster, OH 45732 Phone: 740-767-2226 Email: n8mwk@arrl.net	Nelsonville, OH **Div:** Great Lakes **Sect:** Ohio
25 Jan 2004	+	Tusco ARC **Contact:** Gary Green, K8WFN 32210 Norris Road Tippecanoe, OH 44699 Phone: 740-922-4454 Email: k8wfn@tusco.net	New Philadelphia, OH **Div:** Great Lakes **Sect:** Ohio
8 Feb 2004	+	Inter-City ARC http://www.maser.org **Contact:** Jack Weeks, K8RT 1210 East Hanley Road Mansfield, OH 44903 Phone: 419-756-5301 Email: bigdogg@richnet.net	Mansfield, OH **Div:** Great Lakes **Sect:** Ohio

21 Mar 2004	+	Toledo Mobile Radio Association http://www.tmrahamradio.org **Contact:** Brian Harrington, WD8MXR 4463 Holly Hill Drive Toledo, OH 43614 Phone: 419-385-5624 Email: wd8mxr@arrl.net	Maumee, OH **Div:** Great Lakes **Sect:** Ohio
28 Mar 2004	+	Lake County ARA http://www.lcara.org **Contact:** Robert Liddy, K8BL 7321 Enfield Drive Mentor, OH 44060 Phone: 440-951-0283 Email: k8bl@ameritech.net	Madison, OH **Div:** Great Lakes **Sect:** Ohio
18 Apr 2004	+	Cuyahoga Falls ARC http://www.cfarc.org **Contact:** Ted Sarah, W8TTS 239 Bermont Avenue Munroe Falls, OH 44262 Phone: 330-688-2013 Email: w8tts@arrl.net	Cuyahoga Falls, OH **Div:** Great Lakes **Sect:** Ohio
14-16 May 2004	x	Dayton Hamvention Dayton ARA http://www.hamvention.org/ **Contact:** Gary Des Combes, N8EMO PO Box 964 Dayton, OH 45401-0964 Phone: 937-276-6930 or 937-276-6934 Email: info@hamvention.org	Dayton, OH **Div:** Great Lakes **Sect:** Ohio
7 Aug 2004	+	HAM "OH" RAMA Voice of Aladdin ARC http://www.qsl.net/w8fez **Contact:** James Morton, KB8KPJ 6070 Northgap Drive Columbus, OH 43229-1945 Phone: 614-846-7790 Email: kb8kpj@arrl.net	Columbus, OH **Div:** Great Lakes **Sect:** Ohio

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 1 watt 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
	10.350 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 January 18, 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	jbusic@copper.net
W8DLB	Denny Beardmore	PO Box 313	Bethesda	OH	43719-0313	740-484-4822	dlb@1st.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WA3DTO	Rick White	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
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	KY	40511	606-253-1178	jrbarnes@iglou.com
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
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
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	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@wowway.com
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068	740-964-6881	firefoxtom11@netzero.com
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	cjhuhn2@aep.com
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565	tom@hamtv.com
W2OTA,WA2DTZ	Michael Chirillo	942 Bruce Drive	Wantagh	NY	11793	516-785-8045	
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	OH	43228	614-274-7261	kilowatt@biundo.org
WB8PJZ	Dave Morris	2323 Allentown Road	Lima	OH	45805	419-226-6997	dave@towercomminc.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	OH	43154	614-474-3884	rgburggraf@juno.com
K4PRS	Peter R. Sinkowski	4532 W Kennedy Bl #114	Tampa	FL	33609-2042		k4prs@yahoo.com
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	OH	43081	614-891-9273	towslee1@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	OH	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	OH	43081	614-882-6527	
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	OH	43224	614-261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@glasscity.net
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	OH	43617		zehrw@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	OH	43119	614-878-0575	kb8rvi@hotmail.com
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904	614-276-1689	w8rwr@sbcglobal.net
W8RXX,KA8IWB	John Perone	3477 Africa Road	Galena	OH	43021	740-548-7707	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	MI	48144		
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	OH	43119		
W8SJV	John Beal & family	5001 State Rt. 37 East	Deleware	OH	43015	740-369-5856	w8sjv@midohio.net
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	2596 Church Road	York	PA	17404		w3sst@juno.com
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	OH	45040		k8stv@arrl.net
K8TPY,K8FRB	Tom Patton & Diana	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		
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	614-836-3519	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 O NEW MEMBER O DATE _____
CALL _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES O NO O
HOME PHONE _____
NAME_____
INTERNET Email ADDRESS_____
ADDRESS _____
CITY _____ STATE _____ ZIP _____-_____
FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY
_____
COMMENTS_____
_____
_____
_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK O MONEY ORDER O
Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, pay dues via the Internet with your credit card. Go to www.tournoux.com/~atco and fill out the form. Payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no PayPal involvement.

TUESDAY NITE NET ON 147.45 MHz SIMPLEX

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

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (10/21/03)..... $2541.01
RECEIPTS(dues)..... $ 270.00
Pop and food for fall event..... $(205.68)
Pizza party pizza..... $ (98.00)
October Newsletter postage..... $ (29.60)
CLOSING BALANCE (01/18/04)..... $ 2477.73

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.