ATCO NEWSLETTER

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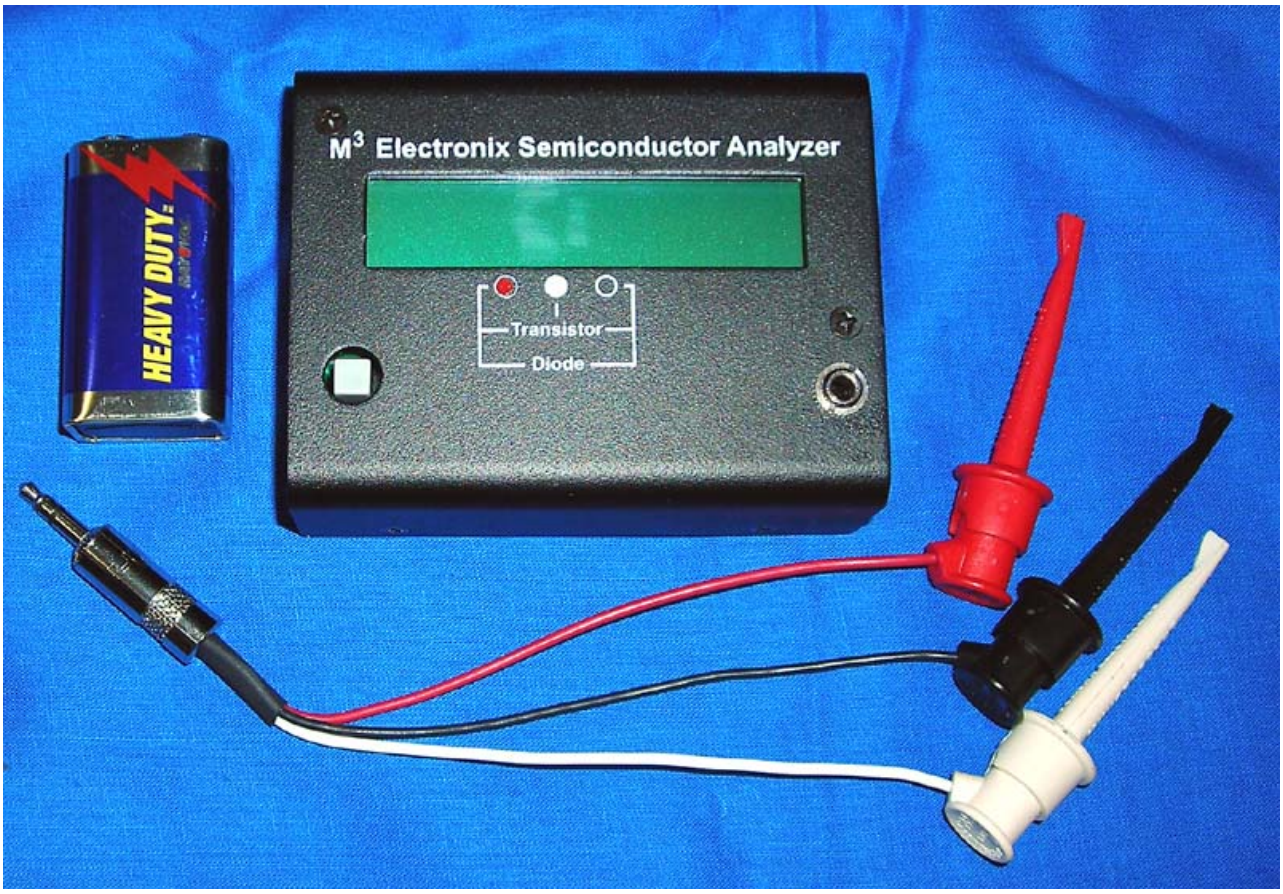
The ATCO newsletter is the official publication of a group of amateur television operators known as "AMATEUR TELEVISION IN CENTRAL OHIO Group Inc" and is published quarterly (January, April, July, and October)

ATCO SPOTLIGHT TOPIC

Check this out. It's the new Semiconductor analyzer from M [3] Electronix. Mike Doty, M0MNE is donating it for a door prize at the Fall Event. This is not a kit. It is completely assembled and is yours if you are the drawing winner at the Fall Event. I will pass out door prize tickets to those present. The first winner will get the choice of the Analyzer or a table prize. Mike will even toss in some semiconductors so you can play with your toy while I ramble on about other topics. The rest of the prizes will then be disbursed. So, let's have a good attendance at the Fall Event.



ACTIVITIES ... from my "workbench"

OK, here comes cooler weather. Yes, I DID get a lot of yard work completed but no, I DIDN'T finish it all. However, noting that the cooler seasons are coming up, I decided to complete some important tower work before it got too cold to do climbing. Since I had a pressure leak at the topside connector of one of my two 7/8" Heliax lines (Where else would it most likely be?), I decided to tackle that first. Up the tower I went, changed the connector and returned to ground only to discover I changed the wrong one. Now my 1280 line AND my 439 line both leak (Murphy again). Two weeks later I made the return trip with two pressure checked connectors. Both are now changed and holding pressure (it's about time something went right). While I was tower topside, I noticed one of the 48 element collinear phasing lines touching each other, which explains the high SWR on 439. A long broomstick with a nail in the end was all I needed to reach high above the tower top, snag the phasing line, twist it SLIGHTLY and watch them spring apart and into correct position. That was a relief for if I was not able to do that, the whole antenna mast would have had to be removed. The SWR is now back to normal as well as my climbing adventures for this year.

The repeater needs work but is operating OK at this time on 439, 1280 and 2400. The 10GHz transmitter is not operational for some reason and is next in line for repair. The 10GHz output has been off the air since early summer but no one has said anything so I don't know if anyone is watching for it or not. Let me know if you are receive operational on this band and waiting for the signal to come back up.

My next repeater project is to get the new commercial 427MHz amp up and running so we can replace the old Mirage amp there now. It has been operational for over 12 years now so any day….. The new amp should improve the 427MHz output quality as well as give a little more power. The existing one runs about 25 watts average and the new one will easily do 100 watts peak to provide about 50 watts average give or take a few. That sounds like a lot but doubling the power yields only 3dB more signal which is only ½ of a P unit. That's not much locally but if you're in a "fringe" area, it could make a difference.

And now a word about our dues. It was easy to notify you if your dues were needed when we had a mailed Newsletter. I simply circled the expiration date on the mailing label in red and said "dues needed". Now that the Newsletter is Emailed, it isn't quite so simple. Yes, I could sit down and draft an individual Email to each person needing to pay dues but that takes time and I'm naturally lazy. So, help me and log into your personal location on the ATCO web site (WWW. ATCO.TV) to check your dues status. Send N8NT a check or bring your dues to the Fall Event for payment. Note that N8NT, at this time, shows expiration date based upon when the last dues payment was made. Your membership will always be current through the end of that calendar year. Confusing, yes but bear with us. Bob has a lot of other things to do also so when we get to it, we'll make the change. Bob is still figuring out how to arrange the software in the least confusing way. NUF SAID!

You may notice that most of the material in this Newsletter, and from here forward, is digital TV related. That is no accident. First, I think it important to get up to speed on digital technology but second, that seems to be the only news out there these days. If I omit the digital stuff, the Newsletter could be only 8 or 9 pages so it's a sign of the times. I can only hope that others follow our lead soon with digital ATV. We'll see.

Try to attend the Fall Event coming up this Sunday. I promise I will return to some good free food (WA8UZP take notice) since our treasury is again getting back up there. I'm not going to get extravagant but you won't leave hungry either. The only thing lacking may be good door prizes. When I was working, the scrap bin was always good pickings. Now I have to look hard for good stuff so if you have something lying around that can be donated, please bring it to the Fall Event with you. Others will appreciate it. The exception is the main door prize donated by Mike Doty W0MNE. (See the picture on the front page). Mike has other real good test equipment kits for sale also. Check out his web site at WWW.M3ELECTRONIX.COM . I own his LCR analyzer which I prize as the best piece of test equipment on my bench. Maybe Mike will bring some kits with him if he can make it to the Fall Event.

The last thing is new members. We now have 3 more members but definitely need more that will take an active interest in our club and efforts. If any of you know of someone that is evenly slightly interested in our activity, let me know so we can patronize them to help us. Put out the word so others will know of our efforts.

That's about it for this time folks! See you on the air on Tuesday and again this Sunday at the Fall Event.

…WA8RMC

FCC ISSUES CITATION FOR UNAUTHORIZED RF DEVICES

On July 21, the Federal Communications Commission issued a Citation <http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-08-1685A1.pdf> to the owner of a Georgia company for selling unauthorized radio frequency devices (specifically wireless video transmitters) and importing radio frequency devices without filing the proper FCC forms with the US Customs office and the US Border Patrol.

The FCC found that Vladimir "Vova" Reznik, owner of RangeVideo <http://www.rangevideo.com/>, was "marketing in the United States unauthorized radio frequency devices, specifically, wireless video transmitters." The Commission sent Reznik a Letter of Inquiry (LOI) regarding this and noting the following specific items he had for sale on the RangeVideo Web site: 900 MHz 100 mW audio/video transmitters; 900 MHz 500 mW audio/video transmitters; 1.3 GHz 300 mW audio/video transmitters; 2.4 GHz 200 mW audio/video transmitters;2.4 GHz 500 mW audio/video transmitters; 2.4 GHz 1000 mW audio/video transmitters, and 2.4 GHz 1000 mW cased audio/video transmitters.

According to the FCC, the 900 MHz devices are capable of operation on 980 MHz, 1010 MHz and 1040 MHz; the 1.3 GHz device is capable of operating on 1240 MHz, 1320 MHz and 1360 MHz, and the 2.4 GHz devices are capable of operating on 2490 MHz. "Thus, these transmitter devices cannot comply with the FCC's technical standards and therefore cannot be certified or marketed," the Citation reads.

Reznik responded to the LOI, admitting that he first imported the devices in 2006 and that he continues to import the devices. The FCC noted that he admitted to selling more than 2600 of the transmitters since 2006. Reznik also admitted to not filing the proper forms with the US Customs Office or the Border Patrol. *(Personally, I find it hard to believe there are 2600 Hams out there that want these devices! I guess we all know the destinations are NOT Ham related) ED.*

The FCC also noted that Reznik stated that before he ships a transmitter device, he "switches" it to operate only in the Amateur Radio Service ('ARS') bands. While radio transmitting equipment that transmits solely on ARS frequencies is not subject to the equipment authorization requirement prior to manufacture or marketing, it appears that the seven transmitter devices marketed on your website are equipped with external toggle switches on the unit, which if engaged would allow operation of the device on the restricted frequencies."

In 1996, the FCC's Office of Engineering and Technology (OET) released a Public Notice "to clarify the Commission's Rules regarding equipment intended to operate in various radio services in the high frequency radio spectrum, including 10 meter Amateur Radio Service equipment" <http://www.fcc.gov/Bureaus/Engineering_Technology/Public_Notices/1996/p net6023.txt>.
The Notice states that transmitters intended for operation on non-amateur frequencies "must be approved prior to manufacture, importation or marketing." The Notice specifically includes Amateur Radio Service transceivers to be designed "such that they can easily be modified by the users to extend the operating frequency range into the frequency bands" of other non-Amateur Radio Services among those devices, subject to equipment authorization procedures.

The Notice also states that the FCC considers these transceivers as intended to be operated on frequencies where the use of type accepted equipment is required "because of the simplicity of modifying them to extend their operating frequency range." According to the Citation, "the transmitter devices listed on `Reznik's` website require a grant of equipment certification prior to the initiation of marketing in the United States, but, as noted above, cannot be certified because they operate on restricted frequencies."

Reznik has the following legal disclaimer posted on the RangeVideo Web site: "high power video transmitters operate in the Amateur Radio Service (ARS) frequency band, and according to FCC regulations users must obtain proper licensing for legal operation. There are no restrictions on the sale of this equipment, however RangeVideo urges users to become familiar with and observe all laws and regulations governing ARS licensing and the operation of ARS equipment. Please visit the FCC's Website for more information <http://www.rangevideo.com/index.php?main+AF8-page=page+ACY-id=5>. He then gives the FCC's Web site address that discusses how to receive an Amateur Radio license <http://wireless.fcc.gov/services/amateur/licensing>.

The FCC warned Reznik that if he violates the Communications Act or the Commission's Rules "in any manner described herein" after receipt of the Citation, "the Commission may impose monetary forfeitures not to exceed $11,000 for each such violation or each day of a continuing violation." Reznik was given 30 days to reply to the Citation, either through a personal interview at the FCC's Atlanta Field Office or via a written statement. Through the Citation, Reznik was told that his response "should specify the actions that you are taking to ensure that you do not violate the Commission's Rules governing the marketing of radio frequency equipment in the future."

CEA WILL EXPLORE 3DTV STANDARD

Courtesy of EE Times July 23, 2008
Group gears up for what could be next big thing after HD

SAN JOSE, Calif. — The Consumer Electronics Association will investigate the possibility of setting standards for 3DTV, seen by many observers as the next big thing in home entertainment. The news comes on the heels of an announcement Monday by a group of leading Hollywood technologists who will explore content standards for 3DTV.

The Society of Motion Picture and Television Engineers (SMPTE) is forming a task force that will set the stage for an effort to define a stereo 3D mastering standard for content viewed in the home. Hollywood studios are eager to find new ways to gain revenues from an increasing number of 3D titles they are developing for the cinema.

Engineers have explored ideas for 3D on television for years, and 3DTV demos have long been a staple of major exhibitions for consumer electronics giants. But the latest moves indicate big industry organizations may think the time is right to plow the road for tomorrow's mainstream products.

"We all generally see 3D as the next big thing in television, not higher resolutions or laser projection, but a really good 3d experience," said Richard Doherty, principal of consulting firm Envisioneering (Seaford, NY.).

"3D gives the most bang for the buck that people can understand," Doherty added. "Even people who don't appreciate the improvements in high def, like 3D, and the electronics industry gets a big shot in the arm with this one too across areas like processors, displays and cameras," he added.

But don't expect 3DTVs to show up at Best Buy anytime soon. As many as a dozen companies are actively working on the core technology behind the product. Many have technologies available to demo, but no clear road forward for a mainstream offering has emerged.

"There are an awful lot of players," Doherty said. "It will take a shakeout to achieve even a fraction of the potential of 3D."

At least five companies own core technology behind today's 3DTV prototype products, said Wendy Aylsworth, vice president of engineering for SMPTE. They include Philips, TDVision Systems, Sensio Technologies Inc., DDD Group Plc and Real D Cinema whose technology is now in use in many digital 3D movie theaters.

"What's' happened in digital cinema will have an impact on the home, so Real D will have an edge," said Doherty.

"If we can equip HDTVs with 3D decoders within a few years we can bring the home a good quality 3d experience," said Aylsworth who is also a chief technologist for Warner Bros. studios.

But that's easier said and done. The number of different types and vendors of TVs, set-top boxes, Blu-Ray and DVD players and TV content distributors makes delivering 3DTV a complex matrix of content, transport and display issues.

"It's going to be tough," said Aylsworth. "You will need an array of standards from SMPTE and many others to create an infrastructure."

Indeed the SMPTE effort, which could itself take 18-30 months to complete, is reaching out to an alphabet soup of other standards groups who may play a part in defining 3DTV including the CEA, DVB, BDA, ARIB, ATSC, DVD Forum, ITU-R, IEC, EuroCE and others.

L.A. LAB FORMS 3DTV GROUP (3D DIGITAL TELEVISION)

SAN JOSE, Calif. — A major university lab has quietly kicked off an industry working group to study the future for stereoscopic 3D on next-generation televisions.

The Entertainment Technology Center at the University of Southern California has formed a 3D working group chaired by a representative from Dolby Labs. It aims to define the core issues for driving 3D content into the home.

The group is at least the fourth to convene this year to study the opportunities and challenges around 3DTV. The effort comes at a time of rising interest among Hollywood movie makers in generating more 3D content for the cinema and finding new outlets for it in the home.

The Society of Motion Picture and Television Engineers (SMPTE) is forming a task force that will set the stage for an effort to define a stereo 3D mastering standard for content viewed in the home. The Consumer Electronics Association will investigate the possibility of setting standards for 3DTV systems at a meeting in October.

The work at the USC lab "is complementary and synergistic with SMPTE's new task force," said David Wertheimer, executive director of ETC which played an active role in the definition of a standard for digital movie theaters. The USC lab has backing from a number of Hollywood studios as well as a handful of technology companies.

The ETC will host the initial meeting of SMPTE's 3DTV group in August. As part of that effort the university lab is courting technology companies to install a broad range of existing 3DTV gear at the lab for tests and demonstrations

"Several of the studios have asked us to accelerate the building out of the 3-D-in-the-home aspect," of ETC's content lab, "so that they can have a place in Los Angeles where they can bring their to-be-released content to view it using existing and emerging 3D displays, formats, and technologies," said Wertheimer.

ETC was founded by George Lucas in 1993 with the goal of bringing technology and entertainment companies together to collaborate on the future of entertainment technology. Sponsors include Disney, MGM, Sony Pictures Entertainment, Twentieth Century Fox, Universal, Viacom/Paramount, and Warner Bros. as well as Cisco Systems, Deluxe Laboratories, Lucasfilm, and Thomson.

"There are no standards in this [3DTV] space today, and there needs to be close link between the technology and entertainment companies" to forge such standards, said Wertheimer.

"I think 3D in the home will be really big," added Wertheimer, former president of Paramount Digital Entertainment. "The studios are banking more and more on 3D production, and market forces make it desirable for them to have secondary outlets for that content."

A separate group, the 3D@Home consortium has gathered members from as many as 30 companies this year to pursue a roughly similar goal of exploring the challenges and opportunities behind 3DTV.

"It's a whole who's who because there is high level interest from major companies in this topic," said Chris Chinnock, president of market watcher Insight Media (Norwalk, Conn.) that convened the group which includes Disney, Philips, Samsung and Sony among its members.

The 3D@Home group is completing work on its legal structure so it can start staffing working groups to sort through issues raised by a wide variety of existing approaches to stereoscopic 3DTV. "We all see the need to do this as fast as we can but there are a lot of companies involved and a lot of information to sift though," said Chinnock.

"You are seeing a lot of overlapping activity here because everyone sees this problem," he added.

The 3D@Home group aims to draft needs and requirements statements for 3DTV, and lets groups such as SMPTE and CEA write standards. "We hope to do a lot of the leg work for people like SMPTE," Chinnock said.

Insight Media projects as many as 28 million 3DTVs of various types could be sold each year by 2012, up from less than 300,000 systems sold last year.

… Rick Merritt of EE Times Magazine http://www.eetimes.com/showArticle.jhtml?articleID=209904332

DISCUSSION ABOUT MEXICAN BORDER DTV STATIONS

Q: Like every analog TV station in the US, Canada and Mexico that broadcasts on channel 6 the audio can be heard on an FM radio at 87.7 MHz. Will this change when every station goes digital? Somehow I'm afraid that it will.

A: Yes it will. 87.7 is actually the channel 6 audio carrier. Just below the FM band is low-band TV, channels 2-6. When the Ch. 6 analog goes off, it's audio subcarrier goes with it. Since the modulation for DTV doesn't work with any level of motion, there's no way to hear DTV audio in the car either.

Q: XETV's transmitter is in Mexico but all programming is in English and directed at San Diego. I wonder if XETV will have to go digital.. Is channel 6 shutting down in February 2009?

A: Here's the answer direct from the XETV website: Because we have a Mexican license, we don't have to shut down the analog service until many years later. We still believe you will prefer our digital service better, so we recommend purchasing a converter or HDTV in order to enjoy the best TV picture."

Q: XETV's transmitter is in Mexico but all programming is in English and directed at San Diego. I wonder if XETV will have to go digital.

A: In the early-2000s, XETV's digital signal, on channel 23, signed on. XETV had the distinction of being Mexico's first digital station, as none of Mexico's other stations opened their digital facilities yet at the time. XETV was also the first digital signal transmitting in the San Diego television market. Since XETV is a Mexican-licensed station, it will be exempt from the requirement to discontinue analog broadcasting after February 17, 2009, when American full-power stations must do so. Mexico has a different timetable for its own transition to digital, which is expected to be complete by 2022.

DTV RECEPTION IN A MOVING VECHILE

Evidently someone hit Henry's hot button! He's opinionated but quite factual about how we got where we're at with the current US DTV standard .Good information. Read on…ED

Q: Is it a Doppler effect or what's happening with digital TV and a moving transmitter or receiver that makes it not work if you are moving more than 2 MPH?
A: Doppler has nothing to do with it. Doppler amounts to about 100 Hz max carrier shift, with 50 KHZ of bandwidth, (sound) that is nothing.

First, no foreign station (Canada, México, etc) is turning off analog on 2-17-09. That would include the UN in NYC if they had a TV station. (only FM so far). Many countries have no plans for DTV because analog shut off is just to make more spectrum to sell to provide government with more money to spend.

Second, DTV (98-VSB-T) was not designed for mobile or portable use. Thanks to the US Government for that. There was no mention of making the DTV system work for other than fixed location reception. Now the ATSC excuse is rather transparent since these giants of technology that made a system that is mostly unusable for mobile or portable use, also invented the MPH (mobile portable, handheld) DTV signal that IS designed for such use, so they got twice the work, twice the patents, and twice the income for their companies. I am sure if any common TV viewer were involved it would have been considered STUPID to not make a system that was compatible with both fixed and mobile use. In fact Sinclair Broadcasting fought for years for COFDM that would have provided MPH operation with no additional bandwidth unlike MPH that takes a complete second signal using about the bandwidth of a standard def TV program channel of DTV, reducing the number of DTV programs to provide a duplication of one for mobile use, or as FOX TV, provide subscription sports to your MPH device (I pod, Black Berry, etc) just as AT&T, Verizon, Sprint et al provide multiple channel mobile TV to a cell phone using the Qualcomm system.

ITS ALL ABOUT THE MONEY AND HOW TO SCREW THE CONSUMER TO MAKE IT. WAKE UP AMERICA. The telephone companies have come full circle and created TOLL TV for the second time. (That was followed by Zenith and Oak Industries subscription TV systems).

Third: You can receive DTV mobile, but not likely with some little USB receiver. Extensive testing showed the 2nd and 3rd generation receiver chips did operate mobile, and reasonably well at speeds up to 80 MPH on flat territory where there were not a lot of dynamic ghosts. They failed even in static locations from dynamic ghosts from passing vehicles, even when connected to an antenna 50 feet above the traffic. (I did over 8000 measurements).

Later generation chips for HOME TV SETS had much improved ghost correction, both fixed and dynamic. But these chip sets don't work well because the USB and "portable DTV" sets use direct RF conversion. Think TRF radio without the TUNED part. Without a front end to filter out some of the RF spectrum, every signal from DC to light gets to the chip set and it can barely find the signal for the noise.

Fourth, the various chip sets are not equal. As anyone who has tested set top boxes may have found, some are good and some are crap. BUT YOU CAN'T TELL WHICH ARE THE GOOD ONES, because they all meet the "FCC SPEC" and there is no grading system. Way back when, you could at least find out if there were 2, 3, or 4 IF stages, and if there was a SOUND IF vs INTERCARRIER detection. Now you have no idea what the RF front end is, if there is an IF, or what the IM, image and other QRM rejection values are.

Fifth, DTV stations do not have equal power. Analog was fairly equalized with the 100 KW low band, 330 KW high band and 5 Megawatt UHF levels, (power adjusted down for excess antenna height) and not all stations had full power, but a spread of 7dB between 1 and 5 Megawatts didn't make a lot of difference, just more snow on distant receiver screens. With the same spread or more on DTV signals, (50 KW to 1 Megawatt) and a single dB being the difference between perfect reception and no reception, a lot of viewers are not going to get the lower power DTV stations.

Therefore, your TV may work and your neighbors not. It's a total crap shoot if you are going to get DTV. And if you move, your old DTV set may not work in a new location because the signal level may be too high or too low. Your old TV antenna or indoor antenna may or may not work, more likely your indoor antenna not, and if you have an old corroded or lossy outdoor system, it may not deliver enough RF to the TV set to work on some or all channels.

Lastly, DTV signals generally are better than analog, but NO ONE IS REQUIRED to transmit anything better than their analog signal. So not everyone has chosen to send out a HD signal, or an ED signal, and it doesn't make it any better to up convert a standard NTSC signal. Your home DTV set has a NATIVE DISPLAY RATE (found on the info sheet listing such as 720 x 1280 or 1080 x 1950 etc. The TV set will create the number of pixels necessary to fill the screen regardless of what it receives. If you had an actual PIXEL TO PIXEL mode you would discover the picture on your 60" wide screen is actually about 4" wide. Everything else is created by the MPEG engine in the TV set. Some are good, some are crap. Response time (or lag) needs to be the shortest for best picture. And a whole lot of other technical stuff the consumer has no idea about or control over.
…Henry AA9XW

ATSC ADOPTS STANDARD FOR ADVANCED VIDEO CODING

Video compression, which reduces the bandwidth required to transport a digital video signal, was one of the key technologies that enabled the development of digital television (DTV). The state-of-the-art for video coding technology in the early 1990s was MPEG-2, and this became a fundamental part of the Advanced Television Systems Committee (ATSC) standard, as well as DTV standards in other parts of the world. The vast majority of DTV receivers worldwide, including many millions in the United States, now decode MPEG-2 video.

Due to "Moore's Law," the processing speed and memory capacity of hardware devices for video encoding and decoding has advanced greatly since MPEG-2 was developed. This has enabled increasingly sophisticated compression algorithms to be developed that take advantage of the increased hardware power now available at ever-lower price points. These new video encoding/decoding (codec) systems provide significant improvements in coding efficiency compared to MPEG-2 and can result in equivalent or better quality at lower bit rates. However, none of the new advanced codecs are backward-compatible with MPEG-2, which creates a challenge for their introduction into existing broadcast systems.

One of the new codecs that is receiving wide acceptance in deployment of new video services is Advanced Video Coding (AVC) and last week the ATSC published a standard to enable the use of AVC for ATSC DTV. One of the reasons for adding AVC to ATSC is that several countries that still have to decide on the DTV transmission standard to be adopted have asked for advanced codec capability, and this is needed for ATSC to be competitive with alternative systems under consideration. In the United States, AVC is unlikely to be used in the near future for regular DTV broadcasting because the large installed base of MPEG-2 integrated receivers and set-top boxes in this country would be unable to decode such programming. As mentioned in the ATSC press release (see below), standards for new mobile/handheld (M/H) and non-real-time (NRT) services are now being developed in ATSC that, by their nature, would require new receiver devices. These are obvious candidates to take advantage of the improved efficiency of AVC. In fact, a high-efficiency advanced codec is virtually essential for the M/H standard in order to preserve adequate DTV channel bandwidth for existing MPEG-2 services.

In their press release on AVC, for the first time in public, the ATSC refers to "ATSC 2.0." This concept for next generation services for fixed receivers is part of the ATSC long-term strategic plan for the future of DTV. ATSC 2.0 is currently in the development stage in the ATSC Planning Committee, chaired by NAB Science & Technology staff member Graham Jones, and is a separate effort from

the mobile/handheld standard now in preparation. Various new capabilities are envisioned for ATSC 2.0, which is expected to trigger a new generation of receivers potentially including AVC.

"WASHINGTON, September 2008 - The Advanced Television Systems Committee, Inc. has approved and published A/72 which details the methodology to utilize Advanced Video Coding (AVC) within an ATSC DTV transmission. AVC, which was developed by the ITU-T Video Coding Experts Group together with the ISO/IEC Moving Picture Experts Group, is also known as H.264 and MPEG-4 Part 10. The A/72 Standard defines constraints with respect to AVC, compression format restraints, low delay and still picture modes, and bit stream specifications. In addition it specifies how CEA-708 closed captions are to be carried in an AVC bit stream. The new standard is in two parts, Part 1 is titled "Video System and Characteristics of AVC in the ATSC Digital Television System," and "Part 2" AVC Video Transport Subsystem Characteristics."

"AVC compression provides increased efficiency and flexibility", said ATSC President Mark Richer. "The new standard will be especially important for those countries which have not yet implemented digital television. AVC will also be used with standards in development such as ATSC-M/H for mobile and handheld applications and ATSC-NRT for non-real-time delivery of programming."

The Advanced Television Systems Committee *is an international, non-profit organization developing voluntary standards for digital television. The ATSC member organizations represent the broadcast, broadcast equipment, motion picture, consumer electronics, and computer, cable, satellite, and semiconductor industries. ATSC creates and fosters implementation of voluntary Standards and Recommended Practices to advance terrestrial digital television broadcasting, and to facilitate interoperability with other media.*

ATSC-M/H *is being developed to support a variety of services including free (advertiser-supported) television and interactive services delivered in real-time, subscription-based TV, and non-real-time content download for playback at a later time. The standard may also be used for transmission of new data broadcasting services such as real-time navigation data for in-vehicle use.*

ATSC-NRT *addresses the new reality that consumers are increasingly in control and want information and entertainment content, when and where they want it. By leveraging the low cost of storage in receivers, broadcasters utilizing the ATSC-NRT Standard will be able download content to a new generation of products.*

ATSC-2.0 will define a complete suite of "Next Generation" services for the conventional fixed DTV receiver viewing environment."

The A/72 standard is available for download at: http://www.atsc.org/standards/a72.php.
…From NAB files.

MOBILE DIGITAL TELEVISION

Mobile DTV is going to take a bit of work to implement. I have been involved in one proposal which is using DVB-SH as the broadcast protocol and using a combination of satellite and ground based repeaters in a time-synch single frequency network (approx 1.7GHz). This is similar to a cellular telephone network with the exception of using a single frequency to broadcast multiple channels of content. (There are other types of service available such as through the phone company to your cell phone).

The protocol is a variant of DVB-S(satellite) in which the screen size is reduced to accommodate screen sizes of about 10" or less and work in a moving vehicle or pedestrian mobile. FM capture allows one to receive the strongest available signal. The multiple transmitter sites and error correction protocol are designed to reduce multipath distortion. DVB-SB is really designed as a broadcast medium so there is not much bandwidth allocated to a talkback channel except to facilitate billing information (user, pay per view) or simple voting (think - American Idol, Dancing With The Stars, etc.).

The technology will not be perfect as I still have dead zones or bad hand-offs with my cellphone (I live in the Los Angeles market) and have experienced dropouts in satellite radio due to bridges and trees. As noted above, the current commercial development is in the 1.7GHz band. There is nothing magic about the frequency except that that is where the assignment was given. It is possible to move it around to any other frequency/band with the proper modulators and power amps.
… From a web post on the Yahoo Newsgroup on 9/23/08

DC-POWERED ATSC DIGITAL TV SETS?

I'm using one of the common retail DTV converters on my Prius screen. Looks perfect at a stop. But even at 1 MPH everything is gone. If I'm real close to the antenna farm I might get a couple seconds but not enough to watch.

When I'm at a stop, the range is great. With just a small panel type antenna INSIDE the car, parked at about 30' above the usual flat terrain here, I'm seeing all the stations from my market and a few from the next.

I have heard a mobile service is in the works. It will be in the same 6 MHz bandwidth as DTV now, but made for mobile operation, at I assume, very low quality. And there's also the mobile TV to cell phone service in many markets. I haven't seen a stand-alone device for that yet.

I also haven't seen any DTV diversity receivers yet. Something tells me Doppler can be corrected in software as long as there's something to sync up to.

With the deadline just a few months away, most of us will lose mobile and/or battery reception for quite a while. Don't overlook the fact that the current ATSC DTV format does not support mobile operation. **The Doppler effect just drives it nuts.**

Henry AA9XW responds to the "DOPPLER" comment above:

DOPPLER HAS NOTHING TO DO WITH IT. And it does work MOBILE depending on which of 8 generations of chip sets you have. The issue of DYNAMIC GHOSTING causes some to fail because 1) the equalization delay line isn't long enough to handle pre or long post delays on some chips, and 2) the ability to handle rapidly changing amplitude and phase ghosts isn't fast enough. You can get the SAME FAILURE at home from walking around, passing vehicles, planes, etc.
…Henry AA9XW

Q: Then which current TV models do the best job while moving?

A: There are no portable/usb units worth a crap moving. I have a chip version 5 LG 42" and it works really well moving. But unless you have an RV, not a lot of room to put it in a Yugo. Chip sets 5 and higher have a full length equalizer delay line. Chip set 4 and 3 work well in most cases. Nothing before chip set 3 has handles to see what is actually going on. All broadcast demods are chip set 3.

DTV has two receive conditions. DEMODULATING and DECODING. You can have good demod but zero decoding, (blue screen) or bad demod and good decoding (blue screen). In analog you only need a diode to demodulate. In DTV you need a whole chip set to demod 8 carriers and a whole chip set to decode the trellis, reed-solomen, psydo randomizing, delete null bits, decode PSIP, PID, MPEG, lock onto the pilot carrier, etc. back to a D>A. Newer chip sets have all on one physical chip, that just makes it cheaper to make, doesn't make it better.
…HenryAA9XW

DTV TRANSITION COMES EARLY TO HAWAII

Hawaii's full-power television broadcasters will convert to all-digital broadcasts more than a month ahead of the rest of the nation, on Jan. 15, 2009. The rest of the country makes the so-called DTV transition Feb. 17. Hawaii's full-power TV stations, including network affiliates and independent stations, will cease analog broadcasting at noon Thursday, Jan. 15. With the exception of residents on Kauai, households that receive TV signals over the air will need to connect a converter box to sets in order to continue watching TV. Kauai receives over-the-air television signals via low-power translators that are not affected by the DTV transition.

As reported by the Honolulu Star-Bulletin on Friday, the broadcasters made the decision to go early in response to wildlife officials' concerns for the safety of the endangered Hawaiian dark-rumped petrel. The decision has received all necessary approvals. By making the switch early, the broadcast towers atop Haleakala near the birds' nesting grounds, can be dismantled without interfering with the petrels' nesting season.

The earlier transition will also enable Hawaii to be the focus of attention of the Federal Communications Commission, the National Association of Broadcasters and other agencies and organizations, should problems arise with the analog to digital conversion. "The early transition to DTV has the support and attention of Senator Daniel Inouye, Chairman of the U.S. Senate Committee on Commerce, Science, and Transportation, the Federal Communications Commission, the National Association of Broadcasters, the Hawaii Association of Broadcasters and its member stations in a focused effort to educate the public about the transition," said Chris Leonard, President of the Hawaii Association of Broadcasters, in a statement. "It will also serve as a model for the rest of nation as they make their transition in February," Leonard added. Visit www.hawaiigoesdigital.com for more information.

NORTH CAROLINA CITY FLIPS SWITCH TO ALL-DIGITAL TV

So far, the picture is clear: Wilmington, N.C. on Monday Sept 9, 2008 became the USA's first all-digital TV market. Early next year, the rest of the country will follow.

The Federal Communications Commission, overseeing the nationwide conversion, says it will take a few days, at least, to gauge success. But early signs are good, sys FCC Chairman, Kevin Martin. "Technically, the conversion we did today occurred successfully," says Martin, who flipped a symbolic "switch" in Wilmington to mark the occasion.

You'll get no argument from Sabrina Vigliotti, on of the 180,000 residents affected. She says she used to get about five channels on her 10 year old TV, "and three of them were snowy." Now, she says "the picture is so much brighter, and there are so many more channels," about 10 in all. "I'm elated."

Digital TV, or DTV, is an advanced broadcast technology that offers consumers better picture and sound quality, as well as interactive and multicasting operations.

The rest of the country will follow Wilmington at midnight on Feb. 17. Once the conversion is complete, TVs that use "rabbit ears" to receive over-the-air broadcasts that won't work unless they're equipped with digital-to-analog convert boxes. Boxes cost 40 to $80, on average.

The government is offering $40 coupons – two per household – to offset costs. (For more information, go to www.dtv2009.gov.) Cable and satellite service won't be affected.

That's not to say the analog dies entirely. Several thousand "low-power" TV stations are exempt from the switch. Even so, some of those TV stations are voluntarily making the jump to digital, the FCC says.

Eager to learn from Wilmington, the FCC has set up a consumer hotline and received a few hundred calls. Problem areas included general TV setup – TVs must be on channel 3 or 4 to work, depending on the converter box. Antenna questions were common. With a few exceptions, all digital channels are UHF, so if a consumer has an antenna that won't get UHF, that's a problem.

The FCC says its outreach efforts are focused on those who might need more assistance, including seniors.

The conversion was ordered by Congress, which wanted to reclaim the airwaves used by broadcasters – given to them for free decades ago – so that the spectrum could be auctioned off and used for other things, such as public safety and mobile data transmission. That auction, which occurred earlier this year, raised more than $20 billion.
… from Leslie Cauley USA TODAY Sept 9, 2008

ATV TVI

Report from WB6NOA:
Gordon West, WB6NOA, broke some interesting news on the ATN Net this week. Gordon informed us that the converter boxes used to convert a Digital off air TV signal so you can use your old NTSC Television are susceptible to RF from a strong 434 MHz ATV signal. It could cause your neighbors television picture to freeze.

I am sure we will hear more about this in the future. Thank you Gordo for the heads up.

I then became aware of another test with a converter box here in Simi Valley. The test couldn't produce the same results so I sent an email to Gordo to see if there was something missing from one of the tests that could make a difference.

Here is the second email from Gordo:
Hi Bryon , and likely , ATV TVI may occur differently within different converter boxes . My Box is a cheap one, from the $40 rebate for testing , and my digital pix freezes with an HT on 430 MHz , with about 10 feet of the box - likely coming in from the plastic box , not the antenna . Yet a neighbor with a cheap box says their box freezes now and then, when I am on the net, so this worries me! gordo

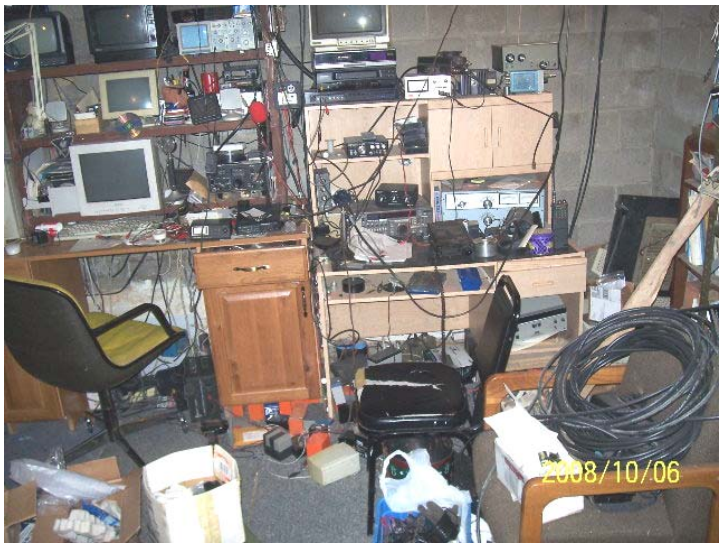
Thanks for the update Gordo. And like I said last week, I am sure we will hear more about this subject.
…From Bryon Foster, ATV Newsletter 09/27/08

MESSY HAMSHACK CONTEST

OK guys, let's see who is the messiest Ham in our club. I know all of us rank right up there but the brave souls below are the only ones to admit it. Now it's up to you to choose the winner (or looser) as it may be. What I plan to do is have a show of hands at the Fall Event coming up next Sunday. If you can't make it to the Fall Event, Email me at towslee1@ee.net and state your choice. I'll announce the "winner" at the Fall Event and credit him with a 1 year extension to his ATCO membership.

Then, later this year we'll have a "Neatest Hamshack" contest to see who has the best equipped shack in the club. I'll feature that one in the January 2009 Newsletter. Here would be a good time to show off your facility and let everyone know just how much "stuff" you have and how well you can arrange it! If one of the shacks pictured below turns out to be the winner, well, that person should get a SPECIAL reward. Suggestions will be accepted.

Hamshack number 1



Hamshack number 2

Hamshack number3

Hamshack number 4

POWER DENSITY FORMULA

Here is an example of one of the many formulas available at the web site below. I've heard power density discussed frequently to determine just how close to an operating antenna is safe for humans. So, apply the correct numbers to the formula below to see for yourself. Or, better yet, fire up your computer, go to the web site, plug in the values and let the program do the hard work. There are many other useful formulas there also so I recommend you create an icon on your desktop to keep the site handy.

RF power density formula. Complete tables in **http://www.calculatoredge.com/index.htm.**

$$S = \frac{P \times G}{4 \times PI \times R^2}$$

S = Power Density
P = Power Input to Antenna
G = Power Gain of Antenna
R = Distance to center of Radiation of Antenna

Enter your values:

Power Input to Antenna (P): _____ **mW**

Power Gain of Antenna (G): _____ **dBi**

Distance to center of Radiation of Antenna (R): _____ **cm**

Clear

Result:

Power Density (S): _____ **mW/cm^2**

GOING ATV DIGITALLY

By Stan Horzepa, WA1LOU Contributing Editor October 03, 2008
This week's Surfin' considers Web sites where Amateur Television (ATV) is going digital.

What Exactly Is 8-Vsb Anyway? answers many of your questions concerning digital television.

If you watched television during the past months, you could not miss the barrage of announcements concerning the switch from analog to digital broadcasting over the airwaves that will occur next year on February 17. If you use an analog television to receive broadcast signals over the air and not from a satellite, cable, or telephone company, then you will need a converter to receive broadcasts after Presidents' Day 2009.

David Sparano has written an excellent article, "What Exactly Is 8-Vsb Anyway?", that according to Nick Sayer, N6QQQ, has the best and most accessible description of 8VSB (8-level vestigial sideband modulation) that he has ever found.

Nick is working on setting up an 8VSB transmitter. His goal is to get as close to an ATSC (Advanced Television Systems Committee)-compatible ATV station as he can get. He recommends the article to anyone who wants to get started in digital ATV.

By the way, Nick has a Web page and a blog where you can read about his adventures in ATV.

Another by the way -- if you search the Internet for digital ATV information, you will find European Web sites dedicated to the topic, but note that Europeans use DVB (Digital Video Broadcasting) Standards that North American television receivers cannot demodulate.

Until next time, keep on surfin'!

Editor's note: Stan Horzepa, WA1LOU, wonders if program content will also improve on February 17. To communicate with Stan, send him e-mail or add comments to his blog. By the way, every installment of Surfin' is indexed here, so go look it up.

…From the ARRL news bulletins at http://www.arrl.org/news/features/2008/10/03/10374/?nc=1

More Going ATV Digitally

By Stan Horzepa, WA1LOU Contributing Editor ARRL October 10, 2008

This week's Surfin' again considers Web sites related to Amateur Television (ATV) going digital.

Amateur Television in Central Ohio (ATCO) has had the first US digital ATV (D-ATV) repeater system on the air for three years.

Back to last week's Surfin' about Amateur Television (ATV) going digital, I received some comments that are worth repeating here.

Steve Lampereur, KB9MWR, recommended these resources for further information on the topic: *Fundamentals of Digital Television Transmission*, by Gerald W. Collins, PE (ISBN 0-471-21376-4) and "Digital Amateur Television (D-ATV)," by Don Rotolo, N2IRZ, in the June 2004 issue of *CQ Magazine*.

Bob Hale, N1WBD, commented that Dish Network uses MPEG-2/DVB in their satellite service to US customers: "One could homebrew a MPEG-2/DVB receiver and/or transmitter for use in D-ATV, or for that matter possibly modify a Dish Network receiver for use on D-ATV."

Sjaak Van Dam, W4RIS (ex-PA3GVR), revealed that ATV hams in Europe have been experimenting with D-ATV for almost 10 years. The standard that they use is DVB-S, which is widely used in the US by free-to-air satellite providers.

Art Towslee, WA8RMC, wrote that Amateur Television in Central Ohio (ATCO) in Columbus, Ohio, also has an operational D-ATV repeater system on the air and were the first ones in the US to do so. On the air for more than three years with excellent results, ATCO uses DVB-S modulation because of its simplicity, availability of inexpensive receivers and the ability to receive while in motion. In fact, they have had success with mobile digital ATV. You can learn more at the ATCO Web site.

Until next time, keep on surfin'!

Editor's note: Stan Horzepa, WA1LOU, still wonders if program content will also improve when commercial television goes digital on February 17. To communicate with Stan, send him e-mail or add comments to his blog. By the way, every installment of Surfin' is indexed here, so go look it up.

PENNSYLVANIA BECOMES 27TH STATE WITH PRB-1 LAW ON BOOKS

On Wednesday, October 8, Pennsylvania Governor Edward G. Rendell (D) signed into law a bill that guarantees radio amateurs the right to erect antenna support structures up to 65 feet without the need for a Special Use Permit. The bill passed in the House with a vote of 196-1; it passed in the Senate with a vote of 49-1. The new law is scheduled to go into effect December 8.

Senate Bill 884 (now Act 88), *An Act amending Title 53 (Municipalities Generally) of the Pennsylvania Consolidated Statutes, Restricting Municipalities from Regulating Amateur Radio Service Communications*, was first introduced on June 1, 2007 by Pennsylvania Senator Stewart J. Greenleaf (R) who represents portions of Bucks and Montgomery Counties. The bill requires local municipalities to "reasonably accommodate amateur radio service communications, and [to] impose only the minimum regulations necessary to accomplish the legitimate purpose of the municipality" and says that "[n]o ordinance, regulation, plan or any other action shall restrict amateur radio antenna height to less than 65 feet above ground level, [but a] municipality may impose necessary regulations to ensure the safety of amateur radio antenna structures, but must reasonably accommodate amateur service communications."

The driving force behind the bill's passage was George Brechmann, N3HBT, of Warminster. "We didn't have a PRB-1 law and I just got tired of people telling me it couldn't be done," he told the ARRL. "So I called up my senator's local office and told them what I wanted. They referred it to his Harrisburg office and a while later, I got a call from Senator Geeenleaf's executive assistant Eric Pauley wanting more information."

Brechmann said the bill was stuck in committee "for the longest time, with lots of back-and-forth. Fortunately, they were able to reach a compromise with the help of the League and its General Counsel Chris Imlay, W3KD. This act even encompasses the urban areas of Philadelphia and Pittsburgh." Brechmann, who has a 60 foot crank-up tower in his backyard, says he has no plans to get a taller antenna support structure.

Brechmann said he found out about the bill's passing in the most appropriate of ways -- on the radio. "I'm the trustee at the club station, K3DN, at our senior center; we have about 130 members there. I went over on Tuesday evening to unlock the doors and get the rigs going, when my wife Elaine, N3TMP, called me on the radio to tell me the bill had passed the House. Five minutes later, she called me again on the radio to tell me it had passed the Senate! And now the governor signed it as soon as it reached his desk." Saying that getting this bill passed is his "little contribution to posterity," Brechmann said he is glad to be able to do something good for the amateur community "because they have been so very good to me. I'm blind, and Amateur Radio has been a very large part of my life." Brechmann stays active rag chewing on 15 meters "and 10 when it's open," as well as serving as Net Control and coordinating his township's public service events.

ARRL Eastern Pennsylvania Section Manager Eric Olena, WB3FPL, said he was "thrilled" with the bill's passage: "The Pennsylvania Legislature showed overwhelming support of Amateur Radio [by passing this bill]. This legislation was started by George and coordinated with Senator Greenleaf and Representative Kathy Watson (R). Pennsylvania hams made an outstanding effort contacting their senators and representatives. By seeking their support, they really helped with the success of this legislation. The effort by all hams throughout the country to foster Amateur Radio as an effective communications method in emergencies did much to highlight a valued reputation for Amateur Radio, and without a doubt, had an effect on these proceedings."
…from ARRL 9/8/08

Blog Comments:
1: The hobby itself may be old, but we use some pretty interesting digital modes. And we don't need to rely on anyone's infrastructure; many are set up to run when (not if) EVERYTHING else fails. Example; the only constant communication available during Katrina and more recently, last winter on the Oregon coast was amateur radio.

2: Although I no longer am a ham, I think this is only fair - plus, no one could ever overestimate the need for amateur radio operators in time of disaster. When all other communications go down, there will always be hams with 2m rigs, and hastily placed repeaters, to get news and help for the affected areas. Besides that, I would think that any dissenters would be busy trying to figure out how to vote more than once for McCain-Palin - the YouTube videos of the rednecks and other assorted idiots lined up to see them at rallies, complete with many swearing that, to the best of their knowledge, Barack Obama is a terrorist, a Muslim, or not otherwise deserving to be President, would keep the general populace quite busy. {Sorry if you're from Pa. - I really had no idea that there were so many people showing such atavistic traits that far above the equator - I thought that sort of thing had been relegated to the states of the Confederacy.

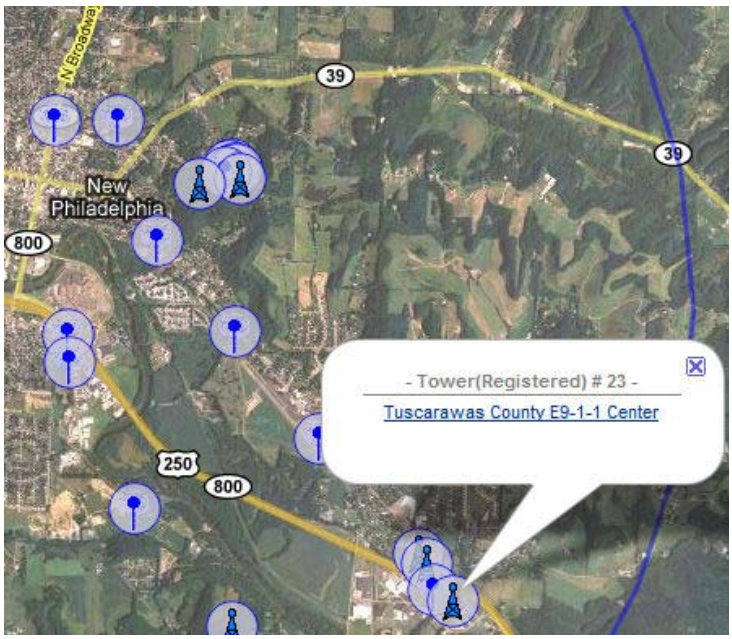
3: What the article didn't mention and I'm somewhat curious about, is whether the legislation overrides any homeowners association type laws. I believe it does. Perhaps the PRB designation indicates that it does - I haven't been following it that closely.
The HOA's are going to have a FIT. Right up until their place gets hit with a disaster and the hams are the only ones who can communicate to the outside world.

IDENTIFY THOSE TOWERS

Have you ever been driving around when you saw an antenna or tower and wondered who it belonged to? You now have the ability to find out with a quick query on the Antenna Search website. Key in a street address and the Antenna Search database will provide you with all the known towers and antenna structures within a four-mile radius. Better yet, the results are displayed on a Google Map that you can easily pan, zoom and click for detail

www.AntennaSearch.com

…From QRM Newsletter October 2008.



ATCO

2008 FALL EVENT

12:30 PM - SUNDAY

October 26, 2008

ABB PROCESS AUTOMATION

CAFETERIA

579 EXECUTIVE CAMPUS DRIVE

FOR MORE DETAILS, CONTACT

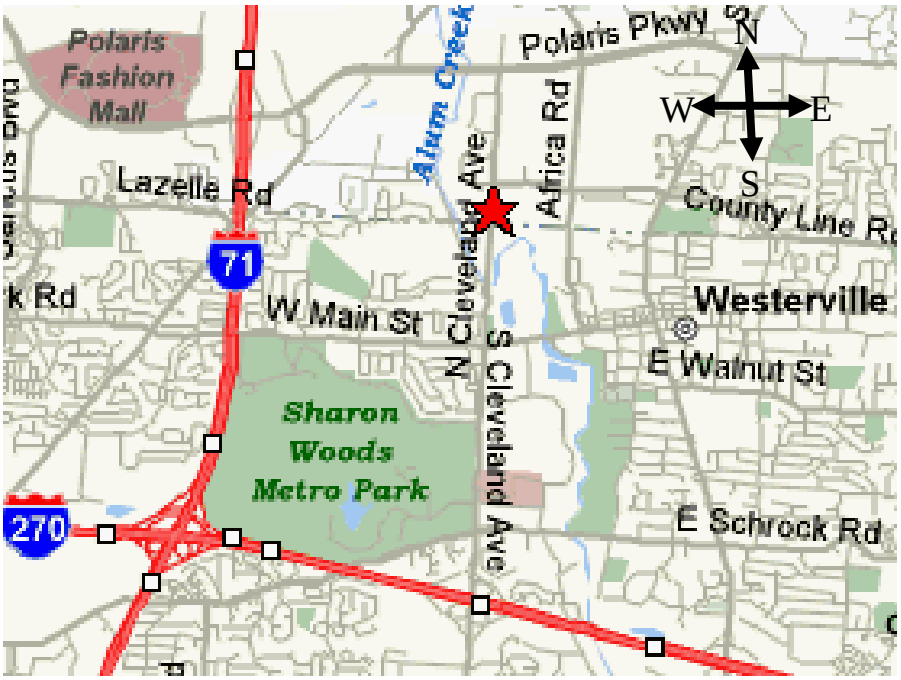
ART - WA8RMC 891-9273

LUNCH PROVIDED - DOOR PRIZES -

BRING A FRIEND AND SEE OLD BUDDIES

MINI HAMFEST - SHOW AND TELL

DIRECTIONS TO THE ATCO EVENT



From I-70 WEST Bound:
Take I-270 Northbound around and turning to the west to Cleveland Ave. Exit north onto Cleveland Ave and travel north about 2 miles to Executive Campus drive. (It's the next street past Westar Crossing Street). Turn left (west) to the ABB building at the end of the street.

From I-70 EAST Bound:
Take I-270 Northbound around and turning to the east past SR 315 and past I-71. Get off on the Cleveland Ave second exit and travel north (to Westerville). Continue north on Cleveland past Schrock Road and then past Main Street. Continue north about ½ mile past Main Street to Executive Campus Drive. (It's the next street past Westar Crossing Street) Turn left (west) to the ABB building at the end of the street

From I-71 NORTH bound toward Columbus:
Drive through Columbus on I-71 to I-270 on the north side. Take I-270 east to the first exit, Cleveland Ave. Get off the Cleveland Ave second exit and travel north (to Westerville). Continue north past Schrock Road and then past Main street. Continue north about ½ mile past Main Street to Executive Campus Drive. (It's the next street past Westar Crossing Street) Turn left (west) to the ABB building at the end of the street.

From I-71 traveling SOUTH bound toward Columbus (North of I-270):
Exit the Polaris Ave exit and travel east about 1 mile to Cleveland Ave. Turn right on Cleveland Ave to Executive Campus Drive. Turn right again on Executive Campus Drive. ABB is on the right side of the street about half way around the semi-circle.

CONSTRUCTION ARTICLE INDEX

The following list is an index of all construction related material that has appeared in the ATCO Newsletter since its inception in the early '80's. This is a handy reference for that particular construction article that you knew existed but didn't want to wade through each issue to find it. All Newsletters below are listed in order in the ATCO homepage under "Newsletters". Once you locate the Newsletter section, the displayed list can be re-sorted as needed by clicking on the "date" in the header.

Newsletter Issue	Page(s)	Article
Vol 1 II	5	439 Beam
Vol 2 I	4	439 Beam
Vol 2 II	8,9	439 Parabolic Ant
Vol 2 II	9	Video Modulator
Vol 2 III	7	1296 Ant 45 Ele loop yagi
Vol 2 III	10	RF Power Indicator (in-line) for 1296 MHZ
Vol 2 SE	2,3	Diode Multiplier for 23 CM
Vol 2 SE	4,5	1296 MHZ 10 Watt Solid State Linear Amp
Vol 4 I	3	RF/Video Line Sampler
Vol 4 II	3	P-Unit Meter
Vol 4 II	7,10,11	UHF Gated Noise Source
Vol 4 II	12	420 – 450 Broom Handle Rhombic Ant
Vol 4 III	4,8	25 Element 1.26 Loop Yagi
Vol 4 IIII	6	Video Modulator (Tube Type)
Vol 5 I	3	Video Modulator One Transistor
Vol 5 II	4,7	900 MHZ Yagi Ant
Vol 5 II	6	Video Modulator for 2C39 Final
Vol 5 III	3	440 MHZ Hidden Transmitter Finder
Vol 6 I	3	Video Line Amp
Vol 6 I	8	25 Ele 910 MHz Loop Yagi
Vol 6 II	4,6,7	Microwave Oven ATV Xmiter
Vol 6 II	5	Matching a Quad Driven Ele
Vol 6 II	8	Power Divider for 33CM
Vol 9 IIII	5,7	16 Ele Loop Yagi for 439.25 MHz
Vol 10		No Articles
Vol 11 II	4,5,6	439 48 Ele Collinear Ant
Vol 11 IIII	7	1280 MHZ Cavity Filter
Vol 12 I	6,7,8	439 & 1200 Horz Polarized Mobile Ant
Vol 12 II	5,6,7	ATV Line Sampler
Vol 12 II	10	439 & 1280 Interdigital Filter(s)
Vol 12 III	6,7,8	439 Cheap Attic Ant
Vol 13 I	9, 10	High Level Modulator for ATV
Vol 13 II	5	VGA to NTSC Converter for Computer
Vol 13 III	9, 10	AM Video Modulator
Vol 13 IIII	4	1200 MHZ Transistor Linear Amp
Vol 13 IIII	6	900 & 1200 MHz Loop Yagis
Vol 14 IIII	8	439 31 EleYagi
Vol 14 IIII	12, 13	1250 MHZ FM ATV 3 Watt Xmiter
Vol 15 I	16	427.25 Horz J-Pole Ant
Vol 15 II	14	2400 MHZ Loop Yagi
Vol 15 III	8	Wavecom Modification
Vol 15 III	12,13,14	2.4 Gig Antenna's
Vol 16 II	20	2.4 Gig Helix Ant
Vol 16 IIII	4	1280 MHZ Loop Yagi
Vol 17 I	14, 15	Video Amp (Multi Output)
Vol 18		No Articles
Vol 19 IIII	4	Pwr Supply for 28 Volt Ant Relay
Vol 20 III	9, 10	Video Sampler
Vol 21 II	4	RF Pwr Amp for 900/1200 MHZ
Vol 21 II	14	10-14 Volt Doubler for 28 Volt Ant Relays
Vol 21 III	5	S-Video To Composite Adaptor
Vol 21 IIII	3,4	Video Noise Rejection Amp

Vol 21 IIII	14,15,16,17	"S" Meter For Comtech Boards
Vol 22 I		No Articles
Vol 22 II	10	1260 MHZ Cavity Filter
Vol 22 III		No Articles
Vol 22 IIII		No Articles
Vol 23 I		No Articles
Vol 23 II	5,6	Linear 60 Watt For 70CM
Vol 23 II	8,9	Video Modulator Update
Vol 23 III		No Articles
Vol 23 IIII		No Articles
Vol 24 I	13	RF Sniffer For 2.4 GIG
Vol 24 II		No Articles
Vol 24 III	3	Quantum 1500 Rec Tuner Mod
Vol 24 IIII	9	Battery Recharge Ckt
Vol 25 I		No Articles
Vol 25 II	6,7	Comtech TX Module Improvement
Vol 25 III	11	Comtech TX Module Improvement Correction

…Bob N8OCQ

LOCAL HAMFEST SCHEDULE

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. …WA8RMC.

26 Oct 2008+ Hamfest and Auction Massillon Amateur Radio Club http://www.marcradio.org Talk-In: 147.18/78 (PL 110.9) Contact: Terry Russ, N8ATZ 3420 Briardale Circle NW Massillon, OH 44646 Phone: 330-837-3091 Email: truss@sssnet.com Massillon, OH Massillon Boys and Girls Club 730 Duncan Street SW

8 Nov 2008+ Grant Amateur Radio Club http://www.garcohio.net/ Talk-In: 146.730- Contact: Rodney Crawford, WD8CTX 2585 State Route 138 Sardinia, OH 45171 Phone: 937-446-2338 Fax: 937-446-2338 Email: wd8ctx@juno.com Georgetown, OH ABCAP Building 406 Plum Street

15-16 Nov 2008+ Indiana State Convention (Fort Wayne Hamfest & Computer Expo) Allen County Amateur Radio Technical Society http://www.fortwaynehamfest.com Talk-In: 146.88 (-) Contact: James D. Boyer, KB9IH PO Box 10342 Fort Wayne, IN 46851-0342 Phone: 260-579-2196 Email: chairman@fortwaynehamfest.com Fort Wayne, IN Allen County War Memorial Coliseum 4000 Parnell Avenue

Sect: Indiana10 Jan 2009+ 23rd Southwest Ohio Digital & Technical Symposium Dial Radio Club & The Center for Chemistry Education of Miami University http://www.swohdigi.org Talk-In: 146.61 open Contact: Jay Slough, K4ZLE 2554 Hamilton Road Lebanon, OH 45036-8849 Phone: 513-934-0235 Email: k4zle@embarqmail.com Middletown, OH Miami University, Middletown Campus 4200 East University Blvd.

18 Jan 2009+ 13th Annual Hamfest Sunday Creek Amateur Radio Federation Talk-In: 147.150+ Contact: Jeramy Duncan, KC8QDQ 5000 Angel Ridge Road Athens, OH 45701 Phone: 740-593-3451 Email: kc8qdq@hughes.net Nelsonville, OH
Tri County Career Center 15676 State Route 691

25 Jan 2009+ Tusco Amateur Radio Club http://noard.com/tuscoarc.htm Talk-In: 146.730 (PL 71.9) Contact: Kyle Quillen, KD8HDJ 4925 West Main Street Berlin, OH 44610 Phone: 330-231-6269 Email: hamfest@tuscoarc.org Strasburg, OH
Wallick Auction House 965 North Wooster Avenue

15 Feb 2009+ Mansfield Mid-Winter Hamfest & Computer Show InterCity Amateur Radio Club http://www.w8we.org Talk-In: 146.940 (PL 71.9) Contact: Dean Wrasse, KB8MG 1094 Beal Road Mansfield, OH 44905 Phone: 419-589-2415 Fax: 419-884-6177 Email: metal07man@yahoo.com Mansfield, OH Richland County Fairgrounds 750 North Home Road

NEW MEMBER(S)

Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are our group's lifeblood. It's important that we actively recruit new faces aggressively.
W8SJQ Rocky Eramo Powell, Ohio
N8WAC Tony Everhardt Walbridge, Ohio
W3RCJ Tom Ferrell Baltimore, Md.

…WA8RMC

LOCAL HAM CLUB LISTING

Club/Organization	Web Site	In Person Meetings See the Club's Web Site for Location	Nets	ARRL Affliated ?
ARC OF OHIO STATE UNIVERSITY	http://arc.org.ohio-state.edu/	2nd Mon of the month at 18:00		Y
ATCO-AMATEUR TELEVISION IN CENTRAL OHIO	http://www.atco.tv	Last Sun in October First Sun in May	Tue's at 21:00 on 147.480 with Repeat Audio on 446.350	
BUCKEYE BELLES-OHIO LADIES AMATEUR RADIO CLUB	http://geocities.com/kc4iyd		Mon's at 09:00 on 3.945 Mon's at 21:00 on 147.060 Tue's at 20:00 on 3.972 Tue's at 20:30 on 7.236	
CCRA-CAPITAL CITY REPEATER ASSN	http://www.qsl.net/ccra/	2nd Sat of the month at 19:30	Mon's at 20:30, the Swap'n'shop Net on 147.24; followed by a Discussion Net	
CENTRAL OHIO SLOW SCAN TV	http://www.qsl.net/n8tut/sstv/		1st Sun at 19:00 on 145.490	
COARES-CENTRAL OHIO ARES	http://www.coares.org/	3rd Wed of the month at 20:00	Wed's at 20:00 on 147.060 except the 3rd Wed of the month.	Y
COLUMBUS FOX HUNTERS	http://www.qsl.net/cfh/			
COOKEN-CENTRAL OHIO OPERATORS KLUB EXTRA TO NOVICE	http://www.cooken.org/	2nd Sat of the month at 12:00	Wed's at 20:30. See web site for details on freqs.	Y
CORC-CENTRAL OHIO RADIO CLUB	http://www.corc.us/	Check web site		
COSHOCTON COUNTY AMATEUR RADIO ASSOC.	http://www.w8cca.org/	1st Tue of the month at 19:00	Sun's at 21:00 on 147.045	
COSWN-CENTRAL OH SEVERE WEATHER NET	http://www.severe-weather.org/		Tue's at 19:30 on 146.76 PL of 123.0hz Spring & Summer; 3rd Tue's Fall & Winter	Y
COTN-CENTRAL OHIO TRAFFIC NET	http://www.technology-corner.com/cotn/		Daily at 19:15 on 147.240	
CQRP-COLUMBUS QRP CLUB	http://www.qsl.net/cqrp/	1st Sat of the month at 10:30		
CRES-ARC	http://www.qsl.net/w8zpf	Check web site	Sun's at 21:00 on 146.070	Y
DELARA-DELAWARE AMATEUR RADIO ASSOCIATION	http://www.k8es.org/Home.html	3rd Wed of the month at 19:30	Mon's at 20:00 on 145.17	Y
LANCASTER & FAIRFIELD CTY ARC	http://www.k8qik.org/	1st Thu of the month at 19:30	Mon's at 21:00 on 147.030 Thu's at 18:30 on 147.030 is Radio Night.	Y
LICKING COUNTY ARES	http://www.licking-ares.org/		1st & 3rd Wed of the month at 21:00 on 146.88	
MOUNT VERNON ARC	http://mvarc.net/	2nd Mon of the month at 19:00		Y
NARA-NEWARK AMATEUR RADIO ASSOCIATION	http://nara.eqth.org/	2nd Sat of the month at 19:00	Tue's at 21:00 on 146.88	Y
OHIO NAVY-MARINE CORPS MARS	http://www.ohionavymars.org/			N/A
QCWA MID-OHIO CHAPTER	http://www.qcwa.org/qcwa212/	Check web site	Thu's at 20:30 on 146.76	
RUSTY ZIPPER HF & DX CONTEST CLUB	http://www.qsl.net/na8kd/			
SOUTH WEST COLUMBUS HAM RADIO CLUB	http://swchrc.com/		Fri's at 20:00 on 145.230 or 53.550	Y
VOICE OF ALADDIN ARC	http://www.qsl.net/w8fez/			Y
ZARC-ZANESVILLE AMATEUR RADIO CLUB	http://zarc.eqth.org/	1st Tue of the month at 19:00	Wed's at 21:00 on 146.610	Y

INTERNET ATV HOME PAGES (list verified 07/01/08)

Domestic homepages

http://www.atco.tv	Ohio, Columbus, homepage (ATCO)
http://www.w8bi.org/atv/atvresources.html	Ohio, Dayton ATV group (DARA)
http://www.citynight.com/atv	California, San Francisco ATV
http://www.qsl.net/atn	California, Amateur Television Network in Central / Southern
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
www.bratsatv.org.	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=10991	Michigan, Detroit Amateur Television System (DATS)
http://www.qsl.net/kd2bd/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
http://www.oregonatv.org	Oregon, Portland OATVA Oregon Amateur TV Association
?	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat/	Pennsylvania, Phila. Area ATV
?	Texas, Houston ATV (HATS)
http://www.hotarc.org/atv.html	Texas, WACO Amateur TV Society (WATS)
?	Utah ATV
http://www.qsl.net/w7twu	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)
http://mysite.verizon.net/vzev3ql6/id9.html	Chesapeake Amateur Television Society (CATS)

Foreign homepages

http://atv.hamradio.si	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.org.uk/index.htm	British ATV club (BATC)
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
http://oh3tr.ele.tut.fi/english/atvindex.html	Finland ATV, OH3TR repeater.
http://www.darc.de/distrikte/g/T_ATV/atv.htm	German ATV

Misc other ATV related sites

http://www.atv-tv.org	The Amateur Television Directory
http://www.atn-tv.org	Amateur Television Network
http://www.hampubs.com	Amateur Television Quarterly Magazine
http://gb3lo.camstreams.com	"GB3LO" Repeater Camstream westoft, UK
http://www.ham-radio.com/sbms	"SBMS" San Bernardino Microwave Society
http://www.qsl.net/kc6ccc/	“METS" Microwave Experimenters Television System

TUESDAY NITE NET ON 147.48 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 (07/19/08)…….$1255.66*
RECEIPTS(dues)……. $ 80.00
Anonymous donation……$ 150.00
Internet domain fee……$ (29.99)
CLOSING BALANCE (10/20/08)…….$ 1455.67

* The total was erroneously reported last time as $1239.52. The correct value is shown here. Sorry.

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)
TV Transmitters: 427.25 MHz AM mod,, 1260 MHz FM mod,, 1245 MHz QPSK digital, 2433 MHz FM mod, and 10.350 GHz FM mod.
multipole filters in output line of 427.25, 1260 , 2433 and 10.35 transmitters
Output Power - 427.25 MHz :40 watts average 80 watts sync tip
1260 MHz: 50 watts continuous (Analog ATV)
1245 MHz 2 watts continuous (DVB-S digital ATV - 2 channels)
2433 MHz: 15 watts continuous
10.350 GHz 1 watt continuous
Link transmitter - 446.350 MHz 5 watts NBFM 5 kHz audio
Identification: 427, 1245, 1260, 2433, 10.35 GHz xmitters video identify every 30 min. with ATCO & WR8ATV on 4 different screens
1245 MHz & 10.35 GHz - Continuous transmission of ATCO & WR8ATV with no input signal present
Transmit antennas: 427.25 MHz - Dual slot horizontally polarized "omni" 7 dBd gain major lobe east/west, 5dBd gain north/south
1260 MHz - Diamond vertically polarized 12 dBd gain omni (Analog ATV)
1245 MHz - Diamond vertically polarized 12 dBd gain omni (Digital DVB-S ATV)
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: 147.48 MHz - F1 audio input with touch tone control
439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
449.975 MHz - F1 audio input aux touch tone control
1280 MHz - F5 video input or DVB-S digital (digital input fed direct to 1245 MHz digital output channel 2)
2398 MHz - F5 video input
10.350 GHz - F5 video input (future – not installed yet)
Receive antennas: 147.48 MHz - Vert. polar. Hustler G6-270R 6dBd dual band (also used for 446.350 MHz output)
439.25 MHz - Horiz. polar. dual slot 7 dBd gain major lobe west
1280 MHz - Diamond vertically polarized 13 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 (not installed yet)

Input control:

Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
00*	turn transmitters **on** (enter manual mode-keeps xmitters on till 00# sequence is pressed)
00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
264	Select Channel 4 Doppler radar. (Stays up for 5 minutes) Select # to shut down before timeout.
697	Select Time Warner radar. (Stays up till turned off). Select # to shut down.

Manual mode functions:

00* then 1 for Ch. 1	Select 439.25 receiver
00* then 2 for Ch. 2	Unused at this time
00* then 3 for Ch. 3	Select 1280 receiver
00* then 4 for Ch. 4	Select 2411 receiver
00* then 5 for Ch. 5	Select video ID (the 4 identification screens)

01* or 01#	Channel 1 439.25 MHz scan enable (hit 01* to scan this channel & 01# to disable it)
02* or 02#	Channel 2 (not in use at this time)
03* or 03#	Channel 3 1280 MHz scan enable
04* or 04#	Channel 4 2398 MHz & camera video scan enable
A1* or A1#	Manual mode select of 439.25 receiver audio
A2* or A2#	Unused channel at this time
A3* or A3#	Manual mode select of 1280 receiver audio
A4* or A4#	Manual mode select of 2398 receiver audio
C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
C1* or C1#	449.975 MHz link receiver enable / disable
C2* or C2#	2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)

Auto scan mode functions:

001	2398 receiver (normal mode - returns to auto scan)
002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
003	Equipment. room camera (select 001 when finished so repeater will shut down)

ATCO MEMBERS AS OF October 20, 2008

Call	Name	Address	City	St	Zip	Phone	URL
KD8ACU	Robert Vieth	3180 North Star Rd	Upper Arlington	OH	43221	614-457-9511	rfvieth@yahoo.com
K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	OH	43068	614-866-1399	wilburapilot@yahoo.com
KC3AM	Dave Stepnowski	735 W Birchtree Ln	Claymont	DE	19703		kc3am@verizon.net
N4AK	Glen Farr	10 Autumn View Ridge	Travelers Rest	SC	29690-8024		
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	OH	43026	614-876-6135	kc8asd2@netzero.com
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224	614-268-4873	kc8asf@sbcglobal.net
KC8BTX	Dudley Field	357 N. Ridge Heights Dr	Howard	OH	43028		kc8btx@37.com
W6CDR	Wynn Rollert	1141 Pursell Ave	Dayton	OH	45420	937-256-1772	w6cdr@hotmail.com
WB8CJW	Dale & Sharon Elshoff	8904 Winoak Pl	Powell	OH	43065	614-210-0551	delshoff@columbus.rr.com
N8COO	C Mark Cring	3941 Three Rivers Lane	Groveport	OH	43125	614-836-2521	n8coo@yahoo.com
N8CXI	Garry Cotter	2367 Northglen Drive	Columbus	OH	43224		gjcotter@aol.com
WB8CXO	Mike Young	289 Gaylord Drive	Munroe Falls	OH	44682		
WA2CZD	Jim Gilbert	1204 Aspen Pines Drive	Wilder	KY	41071-0404		jgilbert@fox19.com
N3DC	William Thompson	6327 Kilmer St	Cheverly	MD	20785		
N3DGE	Mike Trachtenberg	3777 Lankenau Avenue	Philadelphia,	PA	19131-2816		
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198	jabusic@yahoo.com
W8DMR	Bill Parker	2738 Florbunda Dr	Columbus	OH	43209		w8dmratv@copper.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WA3DTO	Rick White	2771Keystone Dr.	Painsville	Oh	44077-8830		wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-876-6033	MHZ52525@aol.com
KC8EVR	Lester Broadie	108 N Burgess	Columbus	OH	43204		kc8evr@beol.net
KB8FLY	Rod Shaner	16012 London Rd.	Orient	OH	43146	740-279-3614	wa8fly@copper.net
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147		w8fz@arrl.net
KB8GHW	Mike Amirault	11354 Reussner Dr SW	Pataskala	OH	43062	740-927-5005	kb8ghw@ee.net
W8GUC	Reuben Meeks	1345 Helke Rd	Vandalia	OH	45377	937-454-0968	rcmeeksjr@yahoo.com
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026	614-777-4621	famore@wowway.com
W4HTB	Henry Cantrell	905 Wrenwood Dr.	Bowling Green	KY	42103	270-781-9624	w4htb@insightbb.com
WG8I	Chris Vojsak Sr,	3536 W Henderson Rd	Columbus	OH	43220-2232		wg8i.ham@gmail.com
WB2IIR	Michael Anthony	370 Georgia Drive	Brick	NJ	08723		
N8IJ	Dick Knowles	1799 Homeward Ave	Lima	OH	45805		rgrant2001@yahoo.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	614-442-7748	kwalsh@datrix.com
N8KQN (sk)	Flo Post	1267 Richter Rd	Columbus	OH	43223	614-276-1820	n8kqn@copper.net
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	OH	45331	937-548-2492	walkingcross@bright.net
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
KA8LWR	Mel Alberty	1645 Olentangy Road	Bucyrus	OH	44820	419-468-2971	malberty@columbus.rr.com
W8MA	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081		w8ma@arrl.net
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660		ka8mid@qsl.net
W0MNE	Mike Doty	4300Winchester Southern Rd	Circleville	OH	43113	740-420-9060	mcubed2@hughes.net
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	mitchellb25@netzero.com
WU8O	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064	614-733-0722	wu8o@emec.us
N8OCQ	Bob Hodge Sr.	3750 Dort Place	Columbus	OH	43227-2022		hodgerob@yahoo.com
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410		kb8off@sbcglobal.net
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565	w6org@ arrl.net
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	OH	43228	614-274-7261	kc8ozv@columbus.rr.com
K2PMS	Paul Schmitter	57 East Main Street	Springville	NY	14141		pschmitter@roadrunner.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
WB8PJZ	Dave Morris	12025 Wapak-Buckland Rd	Wapakoneta	OH	45895		
AE6QU	Ron Phillips	10858 W. Kaibab Dr.	Sun City	AZ	85373	602-369-4242	sunsettelcom@juno.com
W3RCJ	Thomas Farrell	1912 Burnwood Road	Baltimore	MD	21239		w3rcj@operamail.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	jhull@wcmi.org
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	OH	43224	614-261-8583	w8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@ctcn.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 & Laura Perone	3477 Africa Road	Galena	OH	43021	740-548-7707	jper@insight.rr.com
W8SJQ	Rocky Eramo	795 Riverbend Ave	Powell	OH	43065	614-207-2740	rockyeramo@aol.com
W8SJV, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015	740-369-5856	w8sjv@nexgenaccess.com
KB8SSH	Mike Cotts	3424 Homecroft Dr	Columbus	OH	43224	614-371-7380	mcotts@wideopenwest.com
W3SST	John Shaffer	1635 Haft Dr.	Reynoldsburg	OH	43068	614-751-0029	w3sst@juno.com
K8TPY, K8FRB	Jeff & Dianna Patton	3886 Agler Road	Columbus	OH	43219		cqcqk8tpy@yahoo.com
NR8TV	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123	937-981-1392	s.crew@in-touch.net
KB8UGH	Steve Caruso	6463 Blacks Rd. SW	Pataskala	OH	43062-7756		dael4@columbus.rr.com
WB8UGV	Bruce Jaquish	22375 Montanna Drive	Lawrenceburg	IN	47025-7447	812-637-3805	brucewb8ugv@comcast.net
W8URI	William Heiden	5898 Township Rd #103	Mount Gilead	OH	43338	419-947-1121	wb8uri@earthlink.net
KB8UWI	Milton McFarland	115 N. Walnut St.	New Castle	PA	16101		kb8uwi@yahoo.com
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328	wa8uzp@yahoo.com

Call	Name	Address	City	St	Zip	Phone	URL
N8WAC	Tony Everhardt	6512 Emch Road	Walbridge	OH	43465	419-666-5178	natewac@aol.com
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062	740-927-3883	hiram@hiramhunter.com
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123		ohiomec@aol.com
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011		sdiggs4590@aol.com
N8XYJ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230		danohio@wowway.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064		kb8ymq@aol.com
KC8YPD	Joe Ebright	3497 Ontario St	Columbus	OH	43224		----------
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	OH	43229	614-882-0771	
AB5ZJ	Tom Phillips	6712 Hickory Pl. Ct.	No. Richland Hills	TX	76180		
K3ZKO	Ron Cohen	915 Rowland Ave	Cheltenham	PA	19012	215-828-1263	k3zko@verizon.net
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125	614-202-9042	ttaft@columbus.rr.com
	David Nulter	510 Millag Drive	Sunbury	OH	43074	614-579-6425	davnul@wideopennetworks.com

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.

NOTE: Dues records on your individual portion of the ATCO website are listed as the date money is received and shows due one year from that date. The actual expiration is on January of the following year so we can keep the dues clock consistent with the beginning of each year.

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.

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

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK THE RIGHT CORNER OF THE MAILING LABEL
OR
MEMBERS PAGE OF ATCO WEBSITE FOR THE EXPIRATION DATE.
SEND N8NT A CHECK OR USE PAYPAL IF EXPIRED.